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5 McCrea Hill Road • Ballston Spa, New York 12020

November 30, 2018

Mr. Gary Priscott
NYSDEC Region 7
1679 Route 11
Kirkwood, New York 12885

**Re: Periodic Groundwater Monitoring Report**
**Former Ithaca Gun Factory - Offsite**
**121 – 125 Lake Street, Ithaca, Tompkins County, New York**
**NYSDEC Site No. C755019A**

Dear Mr. Priscott:

Aztech Technologies, Inc. (Aztech) has prepared the following correspondence that summarizes the 2018 groundwater sampling event performed at the above referenced site on August 28, 2018 through August 29, 2018. Groundwater monitoring conditions appear to be generally consistent with the previous monitoring events conducted in November 2013, June 2014, and September/October 2015.

If you have any questions regarding the information contained herein, please contact Aztech at (518) 885-5383.

Sincerely,

Thomas Giamichael, P.G.
Project Manager/Senior Hydrogeologist

Enclosure

Cc: File

# Periodic Groundwater Monitoring Report

**PREPARED FOR:**
New York State Department of Environmental Conservation
Region 7
1679 Route 11
Kirkwood, New York 12885
**Attn: Gary Priscott**

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

**SUBJECT SITE**:
Former Ithaca Gun Factory - Offsite
1121 – 125 Lake Street
Ithaca, Tompkins County, New York

**NYSDEC Site No. C755019A**

November 30, 2018

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## TABLE OF CONTENTS



## ATTACHMENTS

***Figures***

1. Groundwater Contour Map
2. VOC Distribution Map

***Tables***

1. Groundwater Elevations
2. Final Groundwater Quality Measurements
3. Laboratory Soil Analytical Results – Volatile Organic Compounds
4. Laboratory Soil Analytical Results – Semi-Volatile Organic Compounds
5. Laboratory Soil Analytical Results – Emerging Contaminants

**Attachment A –** Groundwater Quality Measurements – Field Logs
**Attachment B –** Laboratory Analytical Report (Groundwater Sampling)
**Attachment C –** Data Usability Summary Report (DUSR)

**REPORT DATE:** **November 30, 2018**

**REPORT NAME:** **Periodic Groundwater Monitoring Report**

**SUBJECT SITE:** **Former Ithaca Gun Factory - Offsite**
121 – 125 Lake Street, Ithaca, Tompkins County, New York
NYSDEC Site No. C755019A

**SITE PHASE:** **Groundwater Monitoring and Sampling**

## 1.0 INTRODUCTION

The Aztech Environmental Technologies (Aztech) has prepared this correspondence to document the continued groundwater monitoring efforts at the above referenced site. The August 2018 periodic groundwater sampling event was conducted to monitor the presence and nature of site-related volatile organic compounds (VOCs) in groundwater.

Additionally, the information provided herein is in response to the August 2018 request from the New York Department of Environmental Conservation (NYSDEC) that selected groundwater monitoring wells associated with the above referenced site be sampled and analyzed for 1,4-Dioxane and the suite of 21 per- and polyfluoroalkyl substances (PFAS), including Perfluorooctanoic acid (PFOA), and Perfluorooctanesulfonic acid (PFOS). These compounds are collectively referred to as “emerging contaminants”.

The emerging contaminant sampling was undertaken as part of NYSDEC’s statewide evaluation of current remediation sites to better understand the risk posed to New Yorkers by these substances. 1,4-Dioxane and PFAS have not been historically monitored at remediation sites.

## 1.1 PROJECT BACKGROUND

The Ithaca Gun Company operated from approximately 1885 through 1986 at a property located to the east and uphill from this off-site neighborhood area. The main operations included manufacturing of firearms and munitions. Supporting manufacturing activities and site uses included: spray painting; oven drying of gun stocks; firing ranged; metal plating; machine shop, and; forging. Operations at the Ithaca Gun Company appear to have led to the contamination of both on-site and near off-site areas.

From 1995 to 1998, following discovery of lead shot in the Fall Creek gorge area, soil sampling was conducted in on-site and off-site areas. In 2000, leaking transformers and associated PCB-contaminated soils were removed from the site. From 2001 to 2004, the USEPA conducted a removal assessment, limited building demolition, and soil removal activities (mostly on adjacent off-site areas; however, some portions of the former Ithaca Gun Factory property were included).

In 2001, an Environmental Site Assessment and a Site Investigation were completed on behalf of, and funded by, the property owner at the time. In 2002, the former Ithaca Gun Factory property entered the Voluntary Cleanup Program (VCP), with the site identification number of V00511. The original factory property has since been divided and is identified as two separate sites; the Ithaca Falls Overlook, Environmental Restoration Program (ERP) site which is owned by the City of Ithaca, and the Former Ithaca Gun Factory, BCP site which is owned by IFR Development, LLC.

Laboratory analytical results of groundwater samples collected in 2012, as part of investigations for the ERP site, indicated presence of VOCs, specifically tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene, and vinyl chloride, at monitoring wells hydraulically down-gradient from the BCP site with concentrations exceeding respective NYSDEC groundwater standards. The ERP investigations were limited to areas east of Lake Street. As a result, in July 2013, the NYSDEC contracted Aztech to conduct a subsurface investigation and characterization of an off-site area located topographically down-gradient from the former Ithaca Gun Factory site and in areas west of Lake Street. Investigation details and results are documented in the report titled "Site Characterization Report for Former Ithaca Gun Factory – Offsite", dated February 2014.

The site characterization work included collection of groundwater and soil vapor samples from temporary points installed using direct-push technology, installation of permanent groundwater monitoring wells, a professional survey, and groundwater sampling from the monitoring wells. The site characterization results have allowed for the general delineation of the area with presence of VOCs.

Laboratory analytical data indicated that VOCs were detected in groundwater; however, all compounds detected were below their respective NYSDEC groundwater standards. The only apparent site related VOC detected in groundwater was TCE with concentrations ranging from 0.82 to 4.8 micrograms per liter (µg/l); the groundwater standard for TCE is 5 µg/l. TCE was detected in five of the ten wells sampled. Soil vapor results indicated presence of more VOCs than those detected in groundwater; however, the primary contaminant of concern in soil vapor is TCE.

Additional groundwater sampling conducted in June 2014 and September/October 2015 indicated similar conditions to those reported for the site characterization. Detectable concentrations of TCE ranged from 1.3 to 3.8 µg/l and detections occurred in the same five wells. Results for these groundwater sampling events are summarized in individual sampling reports

## 2.0 DESCRIPTION OF FIELD WORK

- August 28 and 29, 2018: Groundwater gauging and sampling at ten (10) monitoring wells and collection of an equipment field blank (FB) sample. Samples for VOC analysis collected from all ten (10) wells; samples for emerging contaminant analysis collected from a subset of three (3) wells (i.e., AZMW-3, AZMW-4, and MW-7).

## 2.1 PROCEDURES

- Sampling commenced by locating and opening the wells that would be sampled. After allowing groundwater levels within each well to equilibrate with atmospheric conditions, depth to groundwater measurements were collected on August 28, 2018 using an electronic water level meter graduated in 0.01 foot intervals. Depth to groundwater measurements were taken from the top of monitoring well casings.

- Each sampled monitoring well was purged using low flow sampling techniques. Purging was accomplished using dedicated high density polyethylene (HDPE) tubing (attached to a peristaltic pump) in order to draw groundwater from each well and into a flow-thru cell. The flow-thru cell was equipped with a multi-parameter water quality probe that recorded the water quality field parameters (WQFPs) of temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity.

- An equipment blank sample was obtained by passing laboratory supplied distilled water through all components of the sampling system that could contact the purged groundwater. The distilled water passed directly through the sampling equipment and into the laboratory supplied bottleware for analysis. This sample was collected to rule out potential false positive analytical results for 1,4-Dioxane and PFAS.

- The groundwater samples were collected in appropriate bottleware supplied by the analytical laboratory, placed on ice in a cooler, and transported under proper chain of custody to the laboratory.

- The groundwater samples were analyzed within the applicable holding times for the NYSDEC full list of volatile organic compounds (VOCs), Semi-VOCs (including 1,4-Dioxanel) and PFAS using United States Environmental Protection Agency (USEPA) Methods 8260C, 8270D and SOP 434-PFAAS, respectively.

## 2.2 ANALYTICAL LABORATORY

Contest Analytical Laboratory – 39 Spruce Street, East Longmeadow, Massachusetts 01028
New York Certification Number ELAP NY 10899

## 2.3 RESULTS

- Monitoring wells AZMW-1, AZMW-2, AZMW-3, AZMW-4, AZMW-5, AZMW-6, AZMW-7, AZMW-8, MW-6, and MW-7 were gauged on August 28, 2018. All groundwater elevation data is presented on **Table 1**. The groundwater flow direction on this date was to the west-southwest (**Figure 1**).

- The final WQFPs and turbidity measurements obtained from each sampled location are present on **Table 2**. A complete copy of the low flow sampling logs are provided in **Attachment A**.

- The VOC and SVOC results of the groundwater sampling event are shown on **Table 3 and Table 4**. A copy of the groundwater laboratory analytical report is provided in **Attachment B**. The groundwater VOC distribution is shown as **Figure 2**. During the August 28 and August 29, 2018 groundwater sampling event two (2) VOC constituents, trichloroethene (TCE) and chloroform were identified in groundwater samples collected. TCE was detected in monitoring wells AZMW-3, AZMW-4, AZMW-6, and MW-7. Concentrations of TCE ranged between 1.6 micrograms per liter (µg/l) in AZMW-4 and 4.4 µg/l in MW-7 and were below the NYS Groundwater Quality Standard (GQS) of 5.0 µg/l in all wells sampled on August 28 and 29, 2018.

- Chloroform was detected in monitoring wells AZMW-1, AZMW-3, AZMW-5 and AZMW-6. Concentrations of Chloroform ranged between 2.3 µg/l in AZMW-3 and 3.2 µg/l in AZMW-1 and were below the NYS GQS of 7.0 µg/l in all wells sampled on August 28 and 29, 2018.

- No VOC constituents were detected in monitoring wells AZMW-2, AZMW-7, AZMW-8 and MW-6 during the groundwater monitoring event.

- No SVOC constituents, including 1,4 Dioxane were detected above the laboratory reporting limit in the sampled groundwater monitoring wells on August 28 and 29, 2018.

- PFOA was detected above laboratory reporting limits in AZMW-3 and MW-7 at 2.8 nanograms per liter (ng/l) and 8.2 ng/l, respectively. PFOS was detected above laboratory reporting limits in all three wells sampled. Concentration of PFOS ranged from 2.8 ng/l to 8.9 ng/l. Total concentration of PFOA + PFOS ranged from 2.8 ng/l to 17.1 ng/l. Concentration of PFOA + PFOS are less than the NYSDEC screening level for PFOA + PFOS in groundwater of 70 ng/l. The emerging contaminant groundwater sampling results are presented in **Table 5**.

- Several PFAS constituents (other than PFOA and PFOS) were detected above the laboratory reporting limits in AZMW-3and MW-7. The maximum concentration of individual PFAS

constituents (other than PFOA and PFOS) ranged from 3.0 ng/l to 12 ng/l. The concentration of any individual PFAS constituent is less than the screening level of 100 ng/l.

## 3.0 DATA USABILITY SUMMARY REPORT (DUSR)

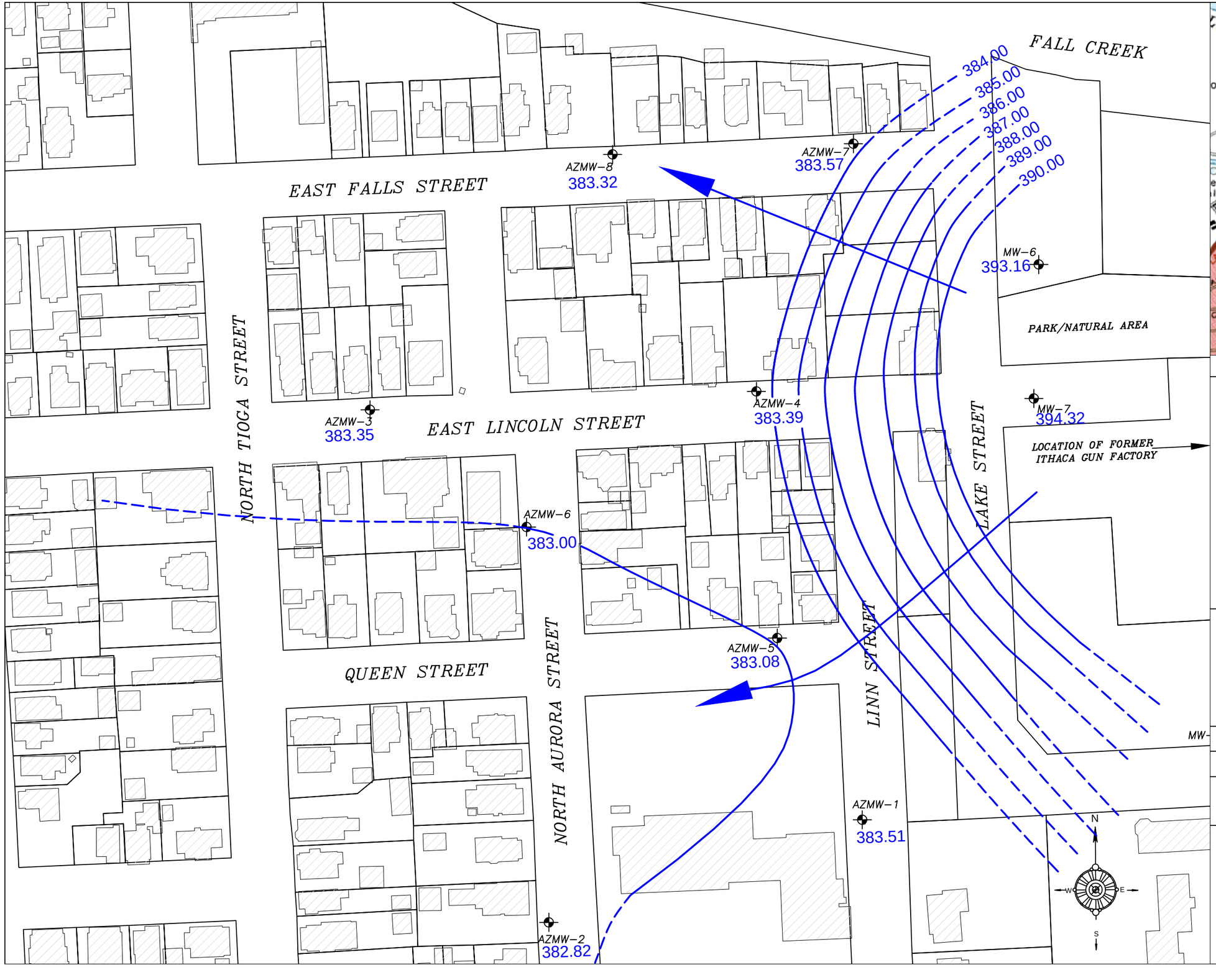
ZData Reports validation service of Syracuse, New York validated the analytical data package submitted to Aztech by TestAmerica. Analytical data packages are submitted as sample delivery groups (SDGs) based on the number of samples within each shipment received at the laboratory for analysis. The SDG associated with this groundwater sampling event was reviewed for completeness and compliance as defined by the requirements for NYSDEC Analytical Services Protocol Category B deliverables.

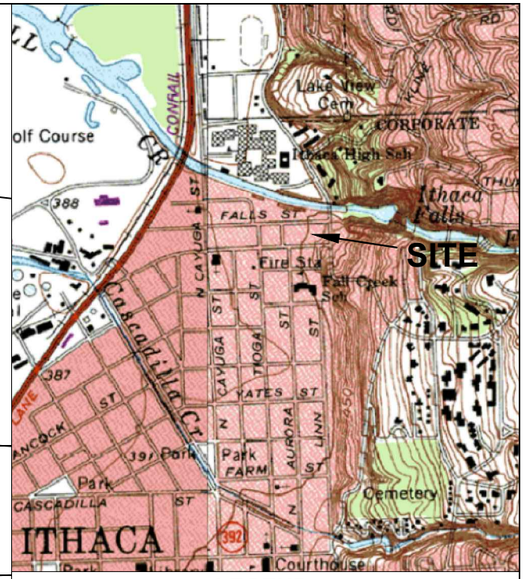
Data validation was completed for ten (10) groundwater samples and three (3) quality assurance/quality control samples. USEPA Methods 8260C, 8270D and SOP 434-PFAAS analyses data were determined to be usable for qualitative and quantitative purposes. Refer to the DUSR report for further details (**Attachment C**).

## 4.0 SUMMARY & CONCLUSION

- The groundwater flow direction beneath the site was to the west-southwest on August 28, 2018.
- TCE was detected in four (4) monitoring wells and was below the NYS GQS in all wells sampled on August 28 and 29, 2018. These concentrations of TCE are consistent or slightly lower than the previous groundwater monitoring event conducted in October 2015.
- Chloroform was detected in four (4) monitoring wells and was below the NYS GQS in all wells sampled on August 28 and 29, 2018. Chloroform is not a VOC related to the Former Ithaca Gun Factory site.
- No VOCs were detected in monitoring wells AZMW-2, AZMW-7, AZMW-8 and MW-6 on August 28 and 29, 2018. This is an improvement for AZMW-7 compared to previous sampling events; for the other wells the results are consistent with previous sampling events.
- Emerging contaminant 1,4 Dioxane was not detected in the groundwater samples collected above the in the wells.
- PFOA, PFOS and other PFAS constituents were detected in groundwater monitoring wells AZMW-3, AZMW-4 and MW-7 on August 28 and 29, 2018. However, concentrations of these constituents are all below the NYSDEC screening limits.

# FIGURES




**LEGEND**

- MW-7 — Monitoring Well
- Calculated Isopleth
- Inferred Isopleth
- 394.32 — Water Table Elevation (MSL)
- Generalized Direction of Groundwater Flow

**Former Ithaca Gun Factory - Offsite**

**NYSDEC Site #C755019A**
**Ithaca, New York**

**Figure 1**

DATE: August 28, 2018 | Scale 1" = 100'

# GROUNDWATER COUNTOUR MAP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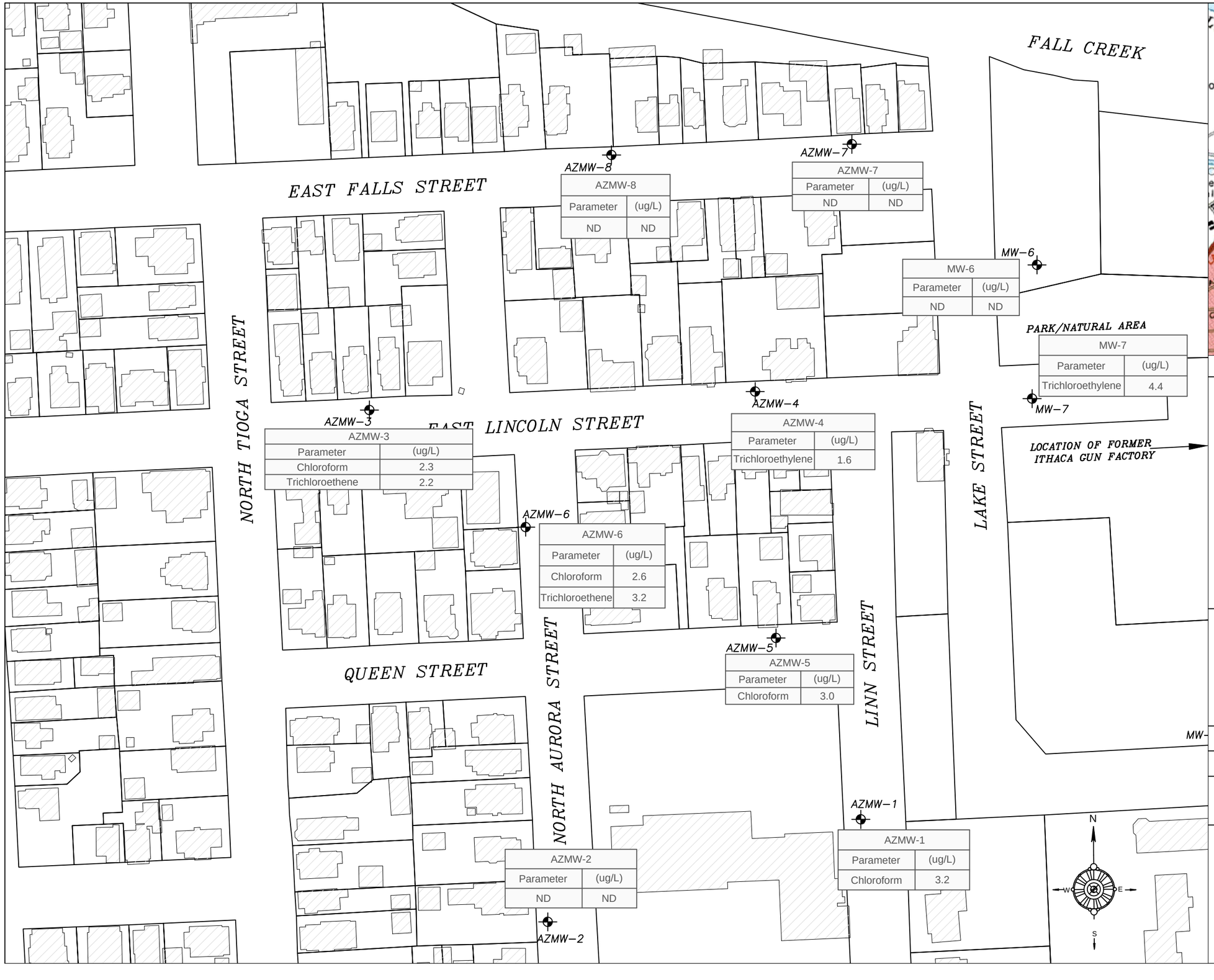


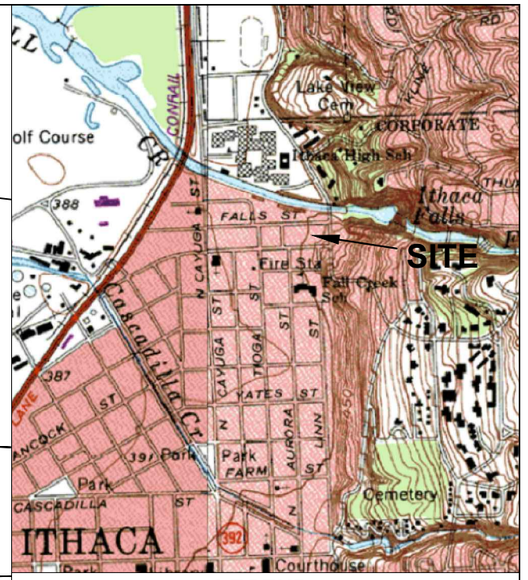


**LEGEND**

MW-7 Monitoring Well

**Former Ithaca Gun Factory - Offsite**

**NYSDEC Site #C755019A**
**Ithaca, New York**

**Figure 2**

DATE: August 28, 2018 | Scale 1" = 100'

# GROUNDWATER VOC DISTRIBUTION MAP


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# TABLES

# TABLE 1
## GROUNDWATER ELEVATIONS
August 28, 2018



| MONITORING WELL DESIGNATION | | AZMW-1 | AZMW-2 | AZMW-3 | AZMW-4 | AZMW-5 | AZMW-6 | AZMW-7 | AZMW-8 | MW-6 | MW-7 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOP OF CASING | | 408.29 | 394.38 | 395.28 | 402.32 | 406.06 | 396.63 | 403.95 | 398.08 | 423.69 | 432.38 |
| **Date** | | **GROUNDWATER ELEVATIONS** | | | | | | | | | |
| 11/4/2013 | DTW | 25.15 | 11.81 | 12.18 | 19.21 | 23.30 | 13.91 | 20.58 | 15.01 | 30.69 | 37.91 |
| | GW Elev | 383.14 | 382.57 | 383.10 | 383.11 | 382.76 | 382.72 | 383.37 | 383.07 | 393.00 | 394.47 |
| 6/19/2014 | DTW | 24.27 | 11.00 | 11.39 | 18.35 | 22.43 | 13.07 | 19.42 | 14.13 | 28.86 | 37.87 |
| | GW Elev | 384.02 | 383.38 | 383.89 | 383.97 | 383.63 | 383.56 | 384.53 | 383.95 | 394.83 | 394.51 |
| 9/30/2015 | DTW | 24.89 | 11.50 | 11.78 | 18.80 | 22.87 | 13.50 | 20.00 | 14.56 | 28.79 | 37.81 |
| | GW Elev | 383.40 | 382.88 | 383.50 | 383.52 | 383.19 | 383.13 | 383.95 | 383.52 | 394.90 | 394.57 |
| 8/28/2018 | DTW | 24.78 | 11.56 | 11.93 | 18.93 | 22.98 | 13.63 | 20.38 | 14.76 | 30.53 | 38.06 |
| | GW Elev | 383.51 | 382.82 | 383.35 | 383.39 | 383.08 | 383.00 | 383.57 | 383.32 | 393.16 | 394.32 |

*Notes:*

GW Elev = Groundwater Elevation (ft.)

DTW = Depth to water (ft.)

TOC data from T. G. Miller survey conducted 10/24/2013

**TABLE 2**

**FINAL GROUNDWATER QUALITY MEASUREMENTS**

August 28 and 29, 2018

| Well ID | Date Sampled | Groundwater Quality Parameter | | | | | |
|---|---|---|---|---|---|---|---|
| | | Turbidity (NTU) | pH | Temperature (C°) | Dissolved Oxygen (mg/L) | Conductivity (mS/cm) | ORP (mV) |
| AZMW-1 | 8/29/2018 | 13.77 | 7.42 | 13.6 | 11.14 | 3,939 | 185.4 |
| AZMW-2 | 8/28/2018 | 73.52 | 7.39 | 15.8 | 7.17 | 1,439 | -175.7 |
| AZMW-3 | 8/28/2018 | 1.74 | 6.96 | 15.2 | 8.30 | 1,504 | 131.9 |
| AZMW-4 | 8/28/2018 | 0.10 | 7.99 | 19.0 | 2.74 | 0.534 | 90.0 |
| AZMW-5 | 8/29/2018 | 14.08 | 6.95 | 14.0 | 10.05 | 2,647 | 133.8 |
| AZMW-6 | 8/28/2018 | 4.60 | 7.76 | 18.5 | 1.17 | 0.836 | 81.0 |
| AZMW-7 | 8/28/2018 | 6.30 | 7.99 | 18.3 | 1.19 | 0.557 | 85.0 |
| AZMW-8 | 8/28/2018 | 3.37 | 7.08 | 11.3 | 8.96 | 450 | 131.3 |
| MW-6 | 8/29/2018 | 3.70 | 7.67 | 18.3 | 0.28 | 0.878 | -177.0 |
| MW-7 | 8/29/2018 | 1.20 | 7.84 | 18.8 | 1.91 | 2.44 | 103.0 |

*Notes:*

All values are reported as final measurement prior to sampling

NTU - Nephelometric Turbidity Unit

mg/L - Milligrams per Liter

mS/cm - MicroSiemens per centimeter

ORP - Oxygen Reducing Potential

mV - milliVolts

**TABLE 3**
**LABORATORY GROUNDWATER ANALYTICAL RESULTS**
**Volatile Organic Compounds**
August 28 and 29, 2018



| Well ID | Date Sampled | Compound List - 8260 Full List | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,1,1-Trichloroethane | 1,1,2,2-Tetrachloroethane | 1,1,2-Trichloroethane | 1,1,2-Trichloro-1,2,2-trifluoroethane | 1,1-Dichloroethane | 1,1-Dichloroethene | 1,2,4-Trichlorobenzene | 1,2-Dibromo-3-Chloropropane | 1,2-Dibromoethane | 1,2-Dichlorobenzene | 1,2-Dichloroethane | 1,2-Dichloropropane | 1,3-Dichlorobenzene | 1,4-Dichlorobenzene | 2-Hexanone | 2-Butanone (MEK) | 4-Methyl-2-pentanone (MIBK) | Acetone | Benzene | Bromodichloromethane | Bromoform | Bromomethane | Carbon disulfide | Carbon tetrachloride | Chlorobenzene | Dibromochloromethane | Chloroethane | Chloroform | Chloromethane | cis-1,2-Dichloroethene | cis-1,3-Dichloropropene | Cyclohexane | Dichlorodifluoromethane | Ethylbenzene | Isopropylbenzene | Methyl acetate | MtBE | Methylcyclohexane | Methylene Chloride | Styrene | Tetrachloroethylene | Toluene | trans-1,2-Dichloroethene | trans-1,3-Dichloropropene | Trichloroethylene | Trichlorofluoromethane | Vinyl chloride | Xylenes, Total | BTEX |
| | SCGs (µg/L) | 5 | 5 | 5 | 5 | 5 | 5 | 10 | 5 | 5 | 4.7 | 5 | 5 | 5 | 4.7 | 50 | 50 | 50 | 50 | 1.0 | 50 | 50 | 5 | 50 | 5 | 5 | 50 | 5 | 7 | 5 | 5 | 5 | 50 | 5 | 5 | 5 | 50 | 10 | 50 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 2 | 5 | - |
| AZMW-1 | 11/6/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.8 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 6/19/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5.0 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5.0 | 0.76 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 8/29/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.2 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AZMW-2 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 6/20/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AZMW-3 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.6 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.6 | ND | ND | ND | ND |
| | 6/20/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.6 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.43 J | ND | ND | ND | ND | ND | ND | ND | 5.4 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.3 | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.2 | ND | ND | ND | ND |
| AZMW-4 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.98 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.8 | ND | ND | ND | ND |
| | 6/19/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.82 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.4 | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.82 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.3 | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.6 | ND | ND | ND | ND |
| AZMW-5 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.1 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 6/19/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.0 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/1/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.5 | 0.38 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 8/29/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.0 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AZMW-6 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.8 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.1 | ND | ND | ND | ND |
| | 6/20/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.2 | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.6 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.8 | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.6 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.2 | ND | ND | ND | ND |
| AZMW-7 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.82 J | ND | ND | ND | ND |
| | 6/19/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.45 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.4 | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.68 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.4 | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AZMW-8 | 11/5/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.3 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 6/19/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/2/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | **18** | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MW-6 | 11/4/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.30 J | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 6/20/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 10/1/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | 8/29/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MW-7 | 11/4/2013 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.8 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.4 | ND | ND | ND | ND |
| | 6/20/2014 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.5 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.8 | ND | ND | ND | ND |
| | 9/30/2015 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | Nd | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.2 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.6 | ND | ND | ND | ND |
| | 8/29/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | Nd | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.4 | ND | ND | ND | ND |

*Notes:*
All values are reported in micrograms per liter (µg/L or ppb)
Standards, Criteria, and Guidance Values (SCGs) for groundwater – Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 fo the New York State Sanitary Code (10 NYCRR Part 5).
BOLD values indicate exceedance of applicable NYSDEC guidance values
ND: Not Detected Above Applicable Laboratory Detection Limits
J - Laboratory Qualifier (Result is less than the reporting limit, but greater than the method detection limit and the concentration is an approximate value)
MtBE: methyl tertiary-Butyl Ether
BTEX: benzene, toluene, ethylbenzene, and xylenes

**TABLE 4**
**LABOROATOY GROUNDWATER ANALYTICAL RESULTS**
**Semi-Volatile Organic Compounds**
August 28 and 29, 2018

| Well ID | Date Sampled | Compound List - 8270 Full List | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Acenaphthene | Acenaphthylene | Anthracene | Benzo (a) anthracene | Benzo (a) pyrene | Benzo (b) fluoranthene | Benzo (g,h,i) perylene | Benzo (k) fluoranthene | Chrysene | Dibenzo (a,h) anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene |
| | SCGs (µg/L) | 20 | - | 50 | 0.002 | - | 0.002 | - | 0.002 | 0.002 | - | 50 | 50 | 0.002 | 10.0 | 10.0 | 50 | 50 |
| AZMW-3 | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| AZMW-4 | 8/28/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| MW-7 | 8/29/2018 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

**TABLE 5**

**LABOROATOY GROUNDWATER ANALYTICAL RESULTS**

**Emerging Contaminants**

August 28 and 29, 2018

| Compound List | | Groundwater Samples | | |
|---|---|---|---|---|
| Well ID | | AZMW-3 | AZMW-4 | MW-7 |
| Date Sampled | | 8/28/2018 | 8/28/2018 | 8/29/2018 |
| | | | | |
| 1,4-Dioxane (ug/l)* | | ND | ND | ND |
| | | | | |
| PFAs (ng/l) | Acronym | | | |
| Perfluorobutanesulfonic acid | PFBS | 11 | ND | 5.6 |
| Perfluorohexanoic acid | PFHxA | 3.9 | ND | 12 |
| Perfluoroheptanoic acid | PFHpA | ND | ND | 4.2 |
| Perfluorobutanoic acid | PFBA | ND | ND | 3.1 |
| Perfluorodecanesulfonic acid | PFDS | ND | ND | ND |
| Perfluoroheptanesulfonic acid | PFHpS | ND | ND | ND |
| Perfluorooctanesulfonamide | FOSA | ND | ND | ND |
| Perfluoropentanoic acid | PFPeA | 3.7 | ND | 13 |
| 6:2 Fluorotelomersulfonate | 6:2 FTS | ND | ND | ND |
| 8:2 Fluorotelomersulfonate | 8:2 FTS | ND | ND | ND |
| Perfluorohexanesulfonic acid | PFHxS | ND | ND | 3.0 |
| Perfluorooctanoic acid | PFOA$^{+}$ | 2.8 | ND | 8.2 |
| Perfluorooctanesulfonic acid | PFOS$^{+}$ | 3.7 | 2.8 | 8.9 |
| Perfluorononanoic acid | PFNA | ND | ND | ND |
| Perfluorodecanoic acid | PFDA | ND | ND | ND |
| NMeFOSAA | | ND | ND | ND |
| Perfluoroundecanoic acid | PFUnA | ND | ND | ND |
| NEtFOSAA | | ND | ND | ND |
| Perfluorododecanoic acid | PFDoA | ND | ND | ND |
| Perfluorotridecanoic acid | PFTrDA | ND | ND | ND |
| Perfluorotetradecanoic acid | PFTA | ND | ND | ND |
| | | 25.1 | 2.8 | 58 |

**Notes:**

1,4-Dioxane concentrations in micrograms per liter (ug/l) or, parts per billion (ppb)

PFAs concentrations in nanograms per liter (ng/l) or, parts per trillion (ppt)

*0.350 ug/l screening level for 1,4-dioxane in groundwater/surface water;
5.0 ug/l action level for 1,4-dioxane if found in drinking water supply

+ 70 ppt = Health Advisory Limit (combined for total PFOA +PFOS)

# ATTACHMENT - 1

Groundwater Quality Measurements – Field Logs

AzMW-1

| | |
|---|---|
| **Site Name** | Ethel GAO |
| **Site Location** | |
| **Well ID** | AZMW-1 |
| **Sampled By** | MD |

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | Flush |
| **Measuring Point** | TOC |
| **Measuring Point Elevation** | — |
| **Depth to Water** | |
| **Depth to Bottom of Well** | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/29/18 |
| **Weather** | Sunny, 70's |
| **Purging Equipment** | Peristaltic Pump |
| **Sampling Equipment** | YSI |
| **Decon Method** | |
| **Riser Diameter** | 2" |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (C°) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 9:40 | — | 74.86 | 7.41 | 14.4 | 10.64 | 3545 | 139.0 | 24.93 | |
| 9:50 | .25 | 94.10 | 7.41 | 13.6 | 11.08 | 3911 | 165.4 | 24.94 | |
| 10:00 | .5 | 59.68 | 7.41 | 13.4 | 11.12 | 3928 | 173.4 | 24.95 | |
| 10:10 | .75 | 26.87 | 7.41 | 13.5 | 11.13 | 3924 | 175.5 | 24.94 | |
| 10:20 | 1 gal | 14.77 | 7.42 | 13.4 | 11.14 | 3923 | 178.3 | 24.94 | |
| 10:30 | 1.25 | 10.36 | 7.42 | 13.5 | 11.16 | 3926 | 179.8 | 24.94 | |
| 10:40 | 1.5 | 7.63 | 7.42 | 13.4 | 11.18 | 3937 | 182.6 | 24.94 | |
| 10:50 | 1.75 | 20.50 | 7.42 | 13.5 | 11.15 | 3931 | 183.3 | 24.94 | |
| 10:55 | 1.9 | 25.63 | 7.41 | 13.4 | 11.17 | 3941 | 183.9 | 24.94 | |
| 11:00 | 2.2 | 21.20 | 7.42 | 13.6 | 11.15 | 3928 | 183.7 | 24.94 | |
| 11:05 | 2.5 | 15.97 | 7.42 | 13.5 | 11.17 | 3925 | 184.8 | 24.94 | |
| 11:10 | 2.8 | 13.78 | 7.42 | 13.6 | 11.16 | 3939 | 185.1 | 24.94 | |
| 11:15 | 3.1 | 13.73 | 7.42 | 13.6 | 11.15 | 3939 | 185.3 | 24.94 | |
| 11:20 | 3.4 | 13.77 | 7.42 | 13.6 | 11.14 | 3939 | 185.4 | 24.94 | |
| | | | | | | | Sampled @ | 11:25 | |
| | | | | | | | | | |
| | | | | | | | | | |

AZMW-2

| | |
|---|---|
| **Site Name** | ~~Ithaca~~ GM7 |
| **Site Location** | |
| **Well ID** | AZMW-2 |
| **Sampled By** | MD |

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | Flush |
| **Measuring Point** | TOC |
| **Measuring Point Elevation** | - |
| **Depth to Water** | |
| **Depth to Bottom of Well** | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/28/18 |
| **Weather** | Sunny, 90's |
| **Purging Equipment** | Peristaltic Pump |
| **Sampling Equipment** | YSI |
| **Decon Method** | |
| **Riser Diameter** | 1.5 |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (F) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 2:10 | — | 19.70 | 7.37 | 15.9 | 7.47 | 1444 | 163.7 | 11.58 | |
| 2:20 | .75 | 15.99 | 7.39 | 15.6 | 7.23 | 1435 | -171.6 | 11.58 | |
| 2:30 | 1.5 | 32.89 | 7.39 | 15.5 | 7.21 | 1437 | -176.5 | 11.58 | |
| 2:40 | 2.25 | 53.64 | 7.39 | 15.6 | 7.20 | 1438 | -179.4 | 11.58 | |
| 2:50 | 3.25 | 54.04 | 7.39 | 15.7 | 7.18 | 1434 | -181.1 | 11.58 | |
| 3:00 | 4.00 | 60.19 | 7.39 | 15.8 | 7.16 | 1433 | -180.8 | 11.58 | |
| 3:10 | 4.5 | 55.86 | 7.39 | 15.8 | 7.17 | 1437 | -176.4 | 11.58 | |
| 3:20 | 5 gal | 62.14 | 7.40 | 15.9 | 7.15 | 1437 | -176.3 | 11.58 | |
| 3:25 | 5.5 | 69.96 | 7.39 | 15.9 | 7.15 | 1437 | -177.6 | 11.58 | |
| 3:30 | 6 gal | 73.52 | 7.39 | 15.8 | 7.17 | 1439 | -175.7 | 11.58 | |
| | | | | | | | | | |
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AzMW-3

| | |
|---|---|
| Site Name | ITHACA GUN |
| Site Location | |
| Well ID | AzMW-3 |
| Sampled By | MD |

Well Information

| | |
|---|---|
| Flush Mount or Riser | Flush |
| Measuring Point | T.O.C |
| Measuring Point Elevation | — |
| Depth to Water | |
| Depth to Bottom of Well | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| Date | 8/28/18 |
| Weather | sunny, 80's |
| Purging Equipment | Peristaltic pump |
| Sampling Equipment | YSI |
| Decon Method | |
| Riser Diameter | 1.5 |
| Well Volume Calculation | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (F) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 11:45 | — | 7.03 | 6.97 | 15.7 | 8.45 | 1443 | 145.3 | 11.94 | |
| 11:55 | .5 | 2.96 | 6.95 | 15.2 | 8.31 | 1487 | 133.1 | 11.94 | |
| 12:05 | 1 gal | 2.03 | 6.95 | 15.2 | 8.28 | 1495 | 130.3 | 11.94 | |
| 12:15 | 2 gal | 1.86 | 6.95 | 15.3 | 8.27 | 1499 | 131.0 | 11.94 | |
| 12:25 | 3 gal | 1.82 | 6.96 | 15.3 | 8.28 | 1502 | 131.1 | 11.94 | |
| 12:30 | 3.5 | 1.84 | 6.96 | 15.1 | 8.30 | 1503 | 131.6 | 11.94 | |
| 12:35 | 3.75 | 1.74 | 6.96 | 15.2 | 8.31 | 1503 | 131.8 | 11.94 | |
| 12:40 | 4 gal | 1.73 | 6.96 | 15.3 | 8.30 | 1504 | 131.8 | 11.94 | |
| 12:45 | 4.25 | 1.72 | 6.96 | 15.3 | 8.30 | 1504 | 131.4 | 11.94 | |
| 12:50 | 4.5 | 1.74 | 6.96 | 15.2 | 8.30 | 1504 | 131.9 | 11.94 | |
| | | | | | | sampled @ 12:55 | | | |
| | | | | | | | | | |
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AZMW-4

| | |
|---|---|
| **Site Name** | Intel Gun |
| **Site Location** | |
| **Well ID** | AZMW-4 |
| **Sampled By** | TG |

* MS/MSD
* equip BLK

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | |
| **Measuring Point** | |
| **Measuring Point Elevation** | |
| **Depth to Water** | 18.93 |
| **Depth to Bottom of Well** | |

**Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:**

**± 0.1 change in pH**

**± 3% change in conductivity**

**± 10 millivolt change in ORP**

**± 10% change in DO and Turbidity**

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/20/18 |
| **Weather** | |
| **Purging Equipment** | |
| **Sampling Equipment** | |
| **Decon Method** | |
| **Riser Diameter** | |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (F) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 11:55 | 0.1 | 78.9 | 7.79 | 23.96 | 5.58 | 0.488 | 95 | 18.96 | |
| 12:05 | 1.0 | 7.99 | 7.96 | 19.02 | 2.84 | 0.529 | 92 | 18.95 | |
| 12:15 | 1.8 | 6.3 | 8.00 | 19.02 | 2.93 | 0.531 | 88 | 18.95 | |
| 12:25 | 2.5 | 4.7 | 8.01 | 19.03 | 2.96 | 0.532 | 89 | 18.95 | |
| 12:35 | 3.2 | 1.7 | 7.99 | 19.05 | 2.79 | 0.532 | 90 | 18.95 | |
| 12:45 | 4.0 | 0.2 | 8.01 | 19.04 | 2.77 | 0.533 | 89 | 18.95 | |
| 12:50 | 4.3 | 0.1 | 7.99 | 19.02 | 2.76 | 0.534 | 90 | 18.95 | |
| 12:55 | 4.8 | 0.1 | 7.99 | 19.03 | 2.74 | 0.534 | 90 | 18.95 | |
| | | | | | | | | | |
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AZMW-5

| | |
|---|---|
| Site Name | [illegible] GW |
| Site Location | |
| Well ID | AZMW-5 |
| Sampled By | MD |

Well Information

| | |
|---|---|
| Flush Mount or Riser | Flush |
| Measuring Point | TOC |
| Measuring Point Elevation | — |
| Depth to Water | |
| Depth to Bottom of Well | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| Date | 8/29/19 |
| Weather | sunny 70's |
| Purging Equipment | Peristaltic |
| Sampling Equipment | YSI |
| Decon Method | |
| Riser Diameter | 1.5" |
| Well Volume Calculation | |

C

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (C) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 7:40 | — | 162.87 | 7.29 | 14.0 | 10.05 | 2067 | 80.9 | 23.13 | |
| 7:50 | .25 | 79.18 | 6.98 | 14.1 | 10.02 | 2511 | 113.9 | 23.18 | |
| 8:00 | .75 | 37.74 | 6.95 | 14.1 | 9.90 | 2628 | 122.7 | 23.17 | |
| 8:10 | 1.25 | 18.87 | 6.95 | 14.3 | 9.88 | 2680 | 125.8 | 23.15 | |
| 8:20 | 1.75 | 14.93 | 6.95 | 14.3 | 9.92 | 2678 | 129.3 | 23.15 | |
| 8:30 | 2.25 | 9.40 | 6.95 | 14.2 | 9.96 | 2684 | 132.0 | 23.16 | |
| 8:35 | 2.5 | 8.13 | 6.95 | 14.2 | 9.97 | 2693 | 133.7 | 23.16 | |
| 8:40 | 2.75 | 7.92 | 6.95 | 14.2 | 9.99 | 2688 | 134.6 | 23.16 | |
| 8:45 | 3 gal | 7.86 | 6.95 | 14.2 | 9.96 | 2688 | 135.9 | 23.17 | |
| 8:50 | 3.25 | 9.13 | 6.95 | 14.3 | 9.98 | 2688 | 136.6 | 23.17 | |
| 8:55 | 3.5 | 14.00 | 6.95 | 14.0 | 10.04 | 2647 | 136.4 | 23.17 | |
| 9:00 | 3.75 | 14.10 | 6.95 | 14.0 | 10.03 | 2647 | 134.6 | 23.17 | |
| 9:05 | 4 gal | 14.06 | 6.95 | 14.0 | 10.05 | 2647 | 133.8 | 23.17 | |
| | | | | | | Sampled @ 9:10 | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

AZMW-6

| | |
|---|---|
| **Site Name** | Ithaca Gun |
| **Site Location** | |
| **Well ID** | AZMW-6 |
| **Sampled By** | TG |

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | |
| **Measuring Point** | |
| **Measuring Point Elevation** | |
| **Depth to Water** | |
| **Depth to Bottom of Well** | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/28/18 |
| **Weather** | |
| **Purging Equipment** | Peri pump |
| **Sampling Equipment** | HDPE |
| **Decon Method** | |
| **Riser Diameter** | |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (F) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 14:10 | 0.1 | 224 | 7.94 | 23.44 | 1.43 | 0.842 | 64 | 13.65 | |
| 14:20 | 0.4 | 160 | 7.89 | 20.12 | 1.32 | 0.856 | 59 | 13.65 | |
| 14:30 | 0.9 | 81.4 | 7.85 | 20.10 | 1.39 | 0.850 | 57 | 13.65 | |
| 14:40 | 1.6 | 25.1 | 7.78 | 19.16 | 1.21 | 0.817 | 68 | 13.65 | |
| 14:50 | 3.0 | 11.0 | 7.79 | 18.98 | 1.19 | 0.822 | 69 | 13.65 | |
| 15:00 | 4.0 | 5.3 | 7.80 | 19.03 | 1.19 | 0.821 | 75 | 13.65 | |
| 15:05 | 4.4 | 5.1 | 7.76 | 19.16 | 1.06 | 0.834 | 79 | 13.65 | |
| 15:10 | 5.0 | 4.9 | 7.75 | 18.44 | 1.20 | 0.838 | 81 | 13.65 | |
| 15:15 | 5.2 | 4.6 | 7.75 | 18.48 | 1.19 | 0.836 | 80 | 13.65 | |
| 15:20 | 5.4 | 4.6 | 7.76 | 18.47 | 1.17 | 0.836 | 81 | 13.65 | |
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AZMW-7

| | |
|---|---|
| **Site Name** | Ithaca GW |
| **Site Location** | |
| **Well ID** | |
| **Sampled By** | |

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | |
| **Measuring Point** | |
| **Measuring Point Elevation** | |
| **Depth to Water** | 20.38 |
| **Depth to Bottom of Well** | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/28/18 |
| **Weather** | Sunny 90° |
| **Purging Equipment** | Peri pump |
| **Sampling Equipment** | |
| **Decon Method** | |
| **Riser Diameter** | |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (~~F~~ C) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 10:00 | 0.1 | 630 | 7.67 | 20.00 | 3.79 | 0.543 | 82 | 20.50 | |
| 10:10 | 1.0 | 90.9 | 7.44 | 18.21 | 1.80 | 0.554 | 103 | 20.60 | |
| 10:20 | 2.2 | 45.6 | 7.61 | 17.54 | 1.51 | 0.559 | 100 | 20.60 | |
| 10:30 | 3.9 | 27.2 | 7.69 | 17.76 | 1.36 | 0.556 | 98 | 20.60 | |
| 10:40 | 4.6 | 16.3 | 7.94 | 18.24 | 1.23 | 0.556 | 85 | 20.50 | |
| 10:50 | 5.6 | 6.9 | 7.96 | 18.57 | 1.23 | 0.554 | 85 | 20.50 | |
| 11:00 | 5.9 | 8.3 | 7.96 | 18.72 | 1.18 | 0.553 | 85 | 20.50 | |
| 11:05 | 6.3 | 7.8 | 7.96 | 18.68 | 1.20 | 0.556 | 85 | 20.50 | |
| 11:10 | 6.6 | 6.3 | 7.99 | 18.34 | 1.19 | 0.557 | 85 | 20.50 | |
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AzMW-8

| | |
|---|---|
| Site Name | Ithaca Gun |
| Site Location | |
| Well ID | AzMW-8 |
| Sampled By | MD |

Well Information

| | |
|---|---|
| Flush Mount or Riser | Flush |
| Measuring Point | T.O.C |
| Measuring Point Elevation | - |
| Depth to Water | |
| Depth to Bottom of Well | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| Date | 8/28/18 |
| Weather | Sunny 80's |
| Purging Equipment | Peristaltic |
| Sampling Equipment | YSI |
| Decon Method | |
| Riser Diameter | 1.5" |
| Well Volume Calculation | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature ~~(F)~~ C° | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 9:55 | - | 166 | 7.38 | 12.0 | 8.27 | 613 | 121.7 | 14.82 | |
| 10:00 | .25 | 71 | 7.22 | 11.6 | 8.48 | 557 | 123.1 | 14.65 | |
| 10:05 | .25 | 215 | 7.11 | 11.5 | 8.60 | 506 | 128.4 | 14.64 | |
| 10:10 | .5 | 83 | 7.07 | 11.3 | 8.78 | 480.1 | 131.7 | 14.63 | |
| 10:20 | .75 | 27.79 | 7.05 | 11.3 | 8.79 | 472.6 | 135.1 | 14.84 | |
| 10:30 | 1.15 gal | 18.46 | 7.05 | 11.1 | 8.85 | 466.7 | 136.8 | 14.84 | |
| 10:40 | 1.5 | 8.86 | 7.06 | 11.3 | 8.87 | 456.2 | 136.6 | 14.84 | |
| 10:50 | 2 gal | 6.36 | 7.06 | 11.2 | 8.91 | 454.0 | 133.4 | 14.84 | |
| 10:55 | 2.5 | 5.34 | 7.07 | 11.3 | 8.89 | 452.6 | 131.9 | 14.84 | |
| 11:00 | 3 gal | 5.00 | 7.07 | 11.1 | 8.96 | 452.8 | 132.9 | 14.84 | |
| 11:05 | 3.25 | 3.92 | 7.07 | 11.4 | 8.91 | 451.5 | 131.7 | 14.64 | |
| 11:10 | 3.5 | 3.83 | 7.07 | 11.1 | 8.99 | 451.3 | 133.7 | 14.84 | |
| 11:15 | 3.75 | 3.35 | 7.07 | 11.3 | 8.95 | 450.1 | 132.9 | 14.84 | |
| 11:20 | 4 gal | 3.33 | 7.08 | 11.3 | 8.96 | 450.5 | 131.9 | 14.84 | |
| 11:25 | 4.25 | 3.37 | 7.08 | 11.3 | 8.96 | 450.0 | 131.3 | 14.84 | |
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| | | | | | | | | | |

MW-6

| | |
|---|---|
| Site Name | Fluor - Gus |
| Site Location | |
| Well ID | MW-6 |
| Sampled By | [illegible] |

* FD

Well Information

| | |
|---|---|
| Flush Mount or Riser | |
| Measuring Point | |
| Measuring Point Elevation | |
| Depth to Water | |
| Depth to Bottom of Well | |

Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:

± 0.1 change in pH

± 3% change in conductivity

± 10 millivolt change in ORP

± 10% change in DO and Turbidity

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| Date | 8/29/18 |
| Weather | |
| Purging Equipment | Waterra |
| Sampling Equipment | HDPE |
| Decon Method | |
| Riser Diameter | |
| Well Volume Calculation | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (C) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 10:05 | 0.1 | 23.1 | 7.74 | 18.94 | 2.74 | 1.88 | -111 | 31.53 | |
| 10:15 | 1.2 | 7.7 | 7.66 | 17.47 | 1.67 | 1.04 | -159 | 31.53 | |
| 10:25 | 1.9 | 5.5 | 7.66 | 17.10 | 0.99 | 0.948 | -171 | 31.53 | |
| 10:35 | 2.2 | 5.3 | 7.69 | 17.47 | 0.70 | 0.918 | -175 | 31.53 | |
| 10:45 | 2.5 | 3.7 | 7.68 | 17.78 | 0.47 | 0.897 | -178 | 31.53 | |
| 10:55 | 2.8 | 4.7 | 7.68 | 18.15 | 0.34 | 0.889 | -178 | 31.53 | |
| 11:00 | 3.4 | 3.0 | 7.68 | 18.18 | 0.29 | 0.881 | -177 | 31.53 | |
| 11:05 | 3.9 | 3.3 | 7.66 | 18.26 | 0.28 | 0.879 | -176 | 31.53 | |
| 11:10 | 4.3 | 3.7 | 7.67 | 18.29 | 0.28 | 0.878 | -177 | 31.53 | |
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MW-7

| | |
|---|---|
| **Site Name** | Hillcrest Lane |
| **Site Location** | |
| **Well ID** | |
| **Sampled By** | |

**Well Information**

| | |
|---|---|
| **Flush Mount or Riser** | |
| **Measuring Point** | |
| **Measuring Point Elevation** | |
| **Depth to Water** | |
| **Depth to Bottom of Well** | |

**Stabilization is achieved when the following changes are noted over three consecutive 3-5 minute readings:**

**± 0.1 change in pH**

**± 3% change in conductivity**

**± 10 millivolt change in ORP**

**± 10% change in DO and Turbidity**

| Dia. Well | Well Volume Multiplier |
|---|---|
| 1 | 0.0408 |
| 1.5 | 0.0918 |
| 2 | 0.1631 |
| 3 | 0.3670 |
| 4 | 0.6525 |
| 5 | 1.0195 |
| 6 | 1.4681 |
| 8 | 2.6100 |
| 10 | 4.0782 |
| 12 | 5.8726 |
| Well Volume Gallons = Multiplier x Length of Water Column | |

| | |
|---|---|
| **Date** | 8/29/18 |
| **Weather** | Sun |
| **Purging Equipment** | Water |
| **Sampling Equipment** | |
| **Decon Method** | |
| **Riser Diameter** | |
| **Well Volume Calculation** | |

| Time | Volume Removed (Gallons) | Turbidity (NTU) | pH | Temperature (F) | Dissolved O2 (mg/L) | Conductivity (mS/cm) | ORP (mV) | Depth to Water | Pumping Rate |
|---|---|---|---|---|---|---|---|---|---|
| 0750 | 0.05 | 12.8 | 7.91 | 22.45 | 5.15 | 2.22 | 106 | 39.65 | |
| 0810 | 0.6 | 10.4 | 7.83 | 20.64 | 3.04 | 2.30 | 100 | 39.66 | |
| 0815 | 0.9 | 5.3 | 7.83 | 20.07 | 3.09 | 2.14 | 102 | 39.66 | |
| 0825 | 1.2 | 3.0 | 7.83 | 19.56 | 2.89 | 2.09 | 103 | 39.66 | |
| 0844 | 1.9 | 2.7 | 7.84 | 19.18 | 2.34 | 2.18 | 98 | 39.66 | |
| 8:55 | 2.4 | 2.0 | 7.84 | 19.03 | 2.16 | 2.30 | 99 | 39.66 | |
| 9:05 | 2.8 | 1.7 | 7.84 | 18.86 | 1.99 | 2.39 | 102 | 39.66 | |
| 9:10 | | | | | | | | | |
| 9:15 | 3.3 | 1.2 | 7.84 | 18.77 | 1.91 | 2.49 | 103 | | |
| 9:20 | | | | | | | | | |

# ATTACHMENT - 2

Laboratory Analytical Report (Groundwater Sampling)

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 19, 2018

Tom Giamichael
Aztech Technologies
5 McCrea Hill Road
Ballston Spa, NY 12020

Project Location: Ithaca, New York
Client Job Number:
Project Number: [none]
Laboratory Work Order Number: 18H1538

Enclosed are results of analyses for samples received by the laboratory on August 31, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jessica L. Hoffman
Project Manager

# Table of Contents

# Table of Contents (continued)

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Aztech Technologies
5 McCrea Hill Road
Ballston Spa, NY 12020
ATTN: Tom Giamichael

REPORT DATE: 9/19/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 18H1538

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Ithaca, New York

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|---|---|---|---|---|---|
| AZMW-1 | 18H1538-01 | Ground Water | | SW-846 8260C | |
| AZMW-2 | 18H1538-02 | Ground Water | | SW-846 8260C | |
| AZMW-3 | 18H1538-03 | Ground Water | | SOP 434-PFAAS | |
| | | | | SW-846 8260C | |
| | | | | SW-846 8270D | |
| AZMW-4 | 18H1538-04 | Ground Water | | SOP 434-PFAAS | |
| | | | | SW-846 8260C | |
| | | | | SW-846 8270D | |
| AZMW-5 | 18H1538-05 | Ground Water | | SW-846 8260C | |
| AZMW-6 | 18H1538-06 | Ground Water | | SW-846 8260C | |
| AZMW-7 | 18H1538-07 | Ground Water | | SW-846 8260C | |
| AZMW-8 | 18H1538-08 | Ground Water | | SW-846 8260C | |
| MW-6 | 18H1538-09 | Ground Water | | SW-846 8260C | |
| MW-7 | 18H1538-10 | Ground Water | | SOP 434-PFAAS | |
| | | | | SW-846 8260C | |
| | | | | SW-846 8270D | |
| FD | 18H1538-11 | Ground Water | | SW-846 8260C | |
| FB | 18H1538-12 | Field Blank | | SOP 434-PFAAS | |
| Equipment Blank | 18H1538-13 | Equipment Blank Water | | SOP 434-PFAAS | |
| | | | | SW-846 8260C | |
| | | | | SW-846 8270D | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8270, only PAHs were requested and reported.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**SOP 434-PFAAS**

**Qualifications:**

**MS-09**

Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Perfluorododecanoic acid (PFDoA)**
B211771-MS1

**Perfluorotetradecanoic acid (PFTA**
B211771-MS1

**MS-11**

Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**8:2 Fluorotelomersulfonate (8:2 FT**
B211771-MS1

**Perfluorobutanesulfonic acid (PFB**
B211771-MSD1

**Perfluorohexanesulfonic acid (PFH**
B211771-MS1, B211771-MSD1

**Perfluorooctanesulfonic acid (PFO**
B211771-MS1

**MS-24**

Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery.

**Analyte & Samples(s) Qualified:**

**Perfluorooctanesulfonic acid (PFO**
B211771-MS1, B211771-MSD1

**Perfluoroundecanoic acid (PFUnA)**
B211771-MSD1

**W-15**

Test replicates show more than 30% difference between values.

**Analyte & Samples(s) Qualified:**

**Perfluorododecanoic acid (PFDoA)**
B211771-MSD1

**Perfluorooctanesulfonamide (FOS/**
B211771-MSD1

**SW-846 8260C**

**Qualifications:**

**L-02**

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

**Analyte & Samples(s) Qualified:**

**Methyl Acetate**
B211664-BS1, B211664-BSD1

**MS-09**

Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Bromomethane**
18H1538-04[AZMW-4], B211664-MS1, B211664-MSD1

**MS-12**

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

**Analyte & Samples(s) Qualified:**

**Methyl Acetate**
18H1538-04[AZMW-4], B211664-MS1, B211664-MSD1

**tert-Butyl Alcohol (TBA)**
18H1538-04[AZMW-4], B211664-MS1, B211664-MSD1

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

**MS-24**

Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery.

**Analyte & Samples(s) Qualified:**

**1,4-Dioxane**
B211664-MSD1

---

**R-06**

Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.

**Analyte & Samples(s) Qualified:**

**Bromomethane**
18H1538-04[AZMW-4], B211664-MS1, B211664-MSD1

---

**V-05**

Continuing calibration did not meet method specifications and was biased on the low side for this compound.

**Analyte & Samples(s) Qualified:**

**Bromomethane**
18H1538-01[AZMW-1], 18H1538-02[AZMW-2], 18H1538-03[AZMW-3], 18H1538-04[AZMW-4], 18H1538-05[AZMW-5], 18H1538-06[AZMW-6], 18H1538-07[AZMW-7], 18H1538-08[AZMW-8], 18H1538-09[MW-6], 18H1538-10[MW-7], 18H1538-11[FD], 18H1538-13[Equipment Blank], B211664-BLK1, B211664-BS1, B211664-BSD1, B211664-MS1, B211664-MSD1, S026986-CCV1

---

**V-36**

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

**Analyte & Samples(s) Qualified:**

**Methyl Acetate**
B211664-BS1, B211664-BSD1, S026986-CCV1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-1** | Sampled: 8/29/2018 11:25

**Sample ID: 18H1538-01**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Chloroform | 3.2 | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-1** | Sampled: 8/29/2018 11:25

**Sample ID: 18H1538-01**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 11:48 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 96.9 | 70-130 | | 9/5/18 11:48 |
| Toluene-d8 | 96.6 | 70-130 | | 9/5/18 11:48 |
| 4-Bromofluorobenzene | 99.0 | 70-130 | | 9/5/18 11:48 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-2** | Sampled: 8/28/2018 15:30

**Sample ID: 18H1538-02**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-2** | Sampled: 8/28/2018 15:30

**Sample ID: 18H1538-02**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:19 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 99.8 | 70-130 | | 9/5/18 12:19 |
| Toluene-d8 | 96.9 | 70-130 | | 9/5/18 12:19 |
| 4-Bromofluorobenzene | 103 | 70-130 | | 9/5/18 12:19 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-3** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-03**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Chloroform | 2.3 | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-3** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-03**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Trichloroethylene | 2.2 | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 12:50 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 98.1 | 70-130 | | 9/5/18 12:50 |
| Toluene-d8 | 95.9 | 70-130 | | 9/5/18 12:50 |
| 4-Bromofluorobenzene | 102 | 70-130 | | 9/5/18 12:50 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-3** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-03**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene (SIM) | ND | 0.30 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Acenaphthylene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Anthracene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Benzo(a)anthracene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Benzo(a)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Benzo(b)fluoranthene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Benzo(g,h,i)perylene (SIM) | ND | 0.50 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Benzo(k)fluoranthene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Chrysene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Dibenz(a,h)anthracene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Fluoranthene (SIM) | ND | 0.50 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Fluorene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Indeno(1,2,3-cd)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| 2-Methylnaphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Naphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Phenanthrene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |
| Pyrene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:15 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Nitrobenzene-d5 | 88.5 | 30-130 | | 9/6/18 14:15 |
| 2-Fluorobiphenyl | 87.3 | 30-130 | | 9/6/18 14:15 |
| p-Terphenyl-d14 | 83.7 | 30-130 | | 9/6/18 14:15 |

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Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-3** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-03**

Sample Matrix: Ground Water

**1,4-Dioxane by isotope dilution GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/5/18 14:40 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,4-Dioxane-d8 | 24.4 | 15-110 | | 9/5/18 14:40 |

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Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-3** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-03**

Sample Matrix: Ground Water

**Miscellaneous Organic Analyses**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | 11 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorohexanoic acid (PFHxA) | 3.9 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluoroheptanoic acid (PFHpA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorobutanoic acid (PFBA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluoropentanoic acid (PFPeA) | 3.7 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorooctanoic acid (PFOA) | 2.8 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorooctanesulfonic acid (PFOS) | 3.7 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| NMeFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| NEtFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:36 | KAF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 13C-PFHxA | 109 | 70-130 | | 9/18/18 11:36 |
| 13C-PFDA | 74.1 | 70-130 | | 9/18/18 11:36 |
| d5-NEtFOSAA | 70.9 | 70-130 | | 9/18/18 11:36 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-4** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-04**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | MS-09, R-06, V-05 | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | MS-12 | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-4** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-04**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | MS-12 | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Trichloroethylene | 1.6 | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:20 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 100 | 70-130 | | 9/5/18 13:20 | |
| Toluene-d8 | 98.5 | 70-130 | | 9/5/18 13:20 | |
| 4-Bromofluorobenzene | 96.2 | 70-130 | | 9/5/18 13:20 | |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-4** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-04**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene (SIM) | ND | 0.30 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Acenaphthylene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Anthracene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Benzo(a)anthracene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Benzo(a)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Benzo(b)fluoranthene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Benzo(g,h,i)perylene (SIM) | ND | 0.50 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Benzo(k)fluoranthene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Chrysene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Dibenz(a,h)anthracene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Fluoranthene (SIM) | ND | 0.50 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Fluorene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Indeno(1,2,3-cd)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| 2-Methylnaphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Naphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Phenanthrene (SIM) | ND | 0.050 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |
| Pyrene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 14:44 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Nitrobenzene-d5 | 77.5 | 30-130 | | 9/6/18 14:44 |
| 2-Fluorobiphenyl | 78.5 | 30-130 | | 9/6/18 14:44 |
| p-Terphenyl-d14 | 73.2 | 30-130 | | 9/6/18 14:44 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-4** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-04**

Sample Matrix: Ground Water

**1,4-Dioxane by isotope dilution GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/5/18 15:01 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,4-Dioxane-d8 | 27.6 | 15-110 | | 9/5/18 15:01 |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-4** | Sampled: 8/28/2018 12:55

**Sample ID: 18H1538-04**

Sample Matrix: Ground Water

**Miscellaneous Organic Analyses**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorohexanoic acid (PFHxA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluoroheptanoic acid (PFHpA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorobutanoic acid (PFBA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluoropentanoic acid (PFPeA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorooctanoic acid (PFOA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorooctanesulfonic acid (PFOS) | 2.8 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| NMeFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| NEtFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:48 | KAF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 13C-PFHxA | 119 | 70-130 | | 9/15/18 20:48 |
| 13C-PFDA | 104 | 70-130 | | 9/15/18 20:48 |
| d5-NEtFOSAA | 94.6 | 70-130 | | 9/15/18 20:48 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-5** | Sampled: 8/29/2018 09:10

**Sample ID: 18H1538-05**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Chloroform | 3.0 | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-5** | Sampled: 8/29/2018 09:10

**Sample ID: 18H1538-05**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 13:51 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 98.1 | 70-130 | | 9/5/18 13:51 |
| Toluene-d8 | 97.3 | 70-130 | | 9/5/18 13:51 |
| 4-Bromofluorobenzene | 101 | 70-130 | | 9/5/18 13:51 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-6** | Sampled: 8/28/2018 15:20

**Sample ID: 18H1538-06**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-6** | Sampled: 8/28/2018 15:20

**Sample ID: 18H1538-06**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Trichloroethylene | 3.2 | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:22 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 97.1 | 70-130 | | 9/5/18 14:22 |
| Toluene-d8 | 98.2 | 70-130 | | 9/5/18 14:22 |
| 4-Bromofluorobenzene | 98.2 | 70-130 | | 9/5/18 14:22 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-7** | Sampled: 8/28/2018 11:10

**Sample ID: 18H1538-07**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-7** | Sampled: 8/28/2018 11:10

**Sample ID: 18H1538-07**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 14:53 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 97.4 | 70-130 | | 9/5/18 14:53 |
| Toluene-d8 | 98.2 | 70-130 | | 9/5/18 14:53 |
| 4-Bromofluorobenzene | 98.8 | 70-130 | | 9/5/18 14:53 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-8** | Sampled: 8/28/2018 11:30

**Sample ID: 18H1538-08**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: AZMW-8** | Sampled: 8/28/2018 11:30

**Sample ID: 18H1538-08**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:24 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 98.0 | 70-130 | | 9/5/18 15:24 |
| Toluene-d8 | 97.0 | 70-130 | | 9/5/18 15:24 |
| 4-Bromofluorobenzene | 99.0 | 70-130 | | 9/5/18 15:24 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-6** | Sampled: 8/29/2018 11:10

**Sample ID: 18H1538-09**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-6** | Sampled: 8/29/2018 11:10

**Sample ID: 18H1538-09**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:57 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 97.2 | 70-130 | | 9/5/18 16:57 |
| Toluene-d8 | 97.0 | 70-130 | | 9/5/18 16:57 |
| 4-Bromofluorobenzene | 101 | 70-130 | | 9/5/18 16:57 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-7** | Sampled: 8/29/2018 09:20

**Sample ID: 18H1538-10**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-7** | Sampled: 8/29/2018 09:20

**Sample ID: 18H1538-10**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Trichloroethylene | 4.4 | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 15:55 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 99.5 | 70-130 | | 9/5/18 15:55 |
| Toluene-d8 | 96.3 | 70-130 | | 9/5/18 15:55 |
| 4-Bromofluorobenzene | 101 | 70-130 | | 9/5/18 15:55 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-7** | Sampled: 8/29/2018 09:20

**Sample ID: 18H1538-10**

Sample Matrix: Ground Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene (SIM) | ND | 0.31 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Acenaphthylene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Anthracene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Benzo(a)anthracene (SIM) | ND | 0.051 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Benzo(a)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Benzo(b)fluoranthene (SIM) | ND | 0.051 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Benzo(g,h,i)perylene (SIM) | ND | 0.51 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Benzo(k)fluoranthene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Chrysene (SIM) | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Dibenz(a,h)anthracene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Fluoranthene (SIM) | ND | 0.51 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Fluorene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Indeno(1,2,3-cd)pyrene (SIM) | ND | 0.10 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| 2-Methylnaphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Naphthalene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Phenanthrene (SIM) | ND | 0.051 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |
| Pyrene (SIM) | ND | 1.0 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:43 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Nitrobenzene-d5 | 73.0 | 30-130 | | 9/6/18 15:43 |
| 2-Fluorobiphenyl | 75.9 | 30-130 | | 9/6/18 15:43 |
| p-Terphenyl-d14 | 67.8 | 30-130 | | 9/6/18 15:43 |

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Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-7** | Sampled: 8/29/2018 09:20

**Sample ID: 18H1538-10**

Sample Matrix: Ground Water

**1,4-Dioxane by isotope dilution GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/5/18 15:22 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane-d8 | 25.2 | 15-110 | | | | | | 9/5/18 15:22 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: MW-7** | Sampled: 8/29/2018 09:20

**Sample ID: 18H1538-10**

Sample Matrix: Ground Water

**Miscellaneous Organic Analyses**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | 5.6 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorohexanoic acid (PFHxA) | 12 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluoroheptanoic acid (PFHpA) | 4.2 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorobutanoic acid (PFBA) | 3.1 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluoropentanoic acid (PFPeA) | 13 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorohexanesulfonic acid (PFHxS) | 3.0 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorooctanoic acid (PFOA) | 8.2 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorooctanesulfonic acid (PFOS) | 8.9 | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| NMeFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| NEtFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:35 | KAF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 13C-PFHxA | 94.8 | 70-130 | | 9/15/18 20:35 |
| 13C-PFDA | 93.8 | 70-130 | | 9/15/18 20:35 |
| d5-NEtFOSAA | 105 | 70-130 | | 9/15/18 20:35 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: FD** | Sampled: 8/29/2018 00:00

**Sample ID: 18H1538-11**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: FD** | Sampled: 8/29/2018 00:00

**Sample ID: 18H1538-11**

Sample Matrix: Ground Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 16:26 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 99.5 | 70-130 | | 9/5/18 16:26 |
| Toluene-d8 | 97.7 | 70-130 | | 9/5/18 16:26 |
| 4-Bromofluorobenzene | 99.4 | 70-130 | | 9/5/18 16:26 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: FB** | Sampled: 8/29/2018 09:00

**Sample ID: 18H1538-12**

Sample Matrix: Field Blank

**Miscellaneous Organic Analyses**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorohexanoic acid (PFHxA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluoroheptanoic acid (PFHpA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorobutanoic acid (PFBA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluoropentanoic acid (PFPeA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorooctanoic acid (PFOA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorooctanesulfonic acid (PFOS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| NMeFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| NEtFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/15/18 20:22 | KAF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 13C-PFHxA | 121 | 70-130 | | 9/15/18 20:22 |
| 13C-PFDA | 116 | 70-130 | | 9/15/18 20:22 |
| d5-NEtFOSAA | 106 | 70-130 | | 9/15/18 20:22 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: Equipment Blank** | Sampled: 8/28/2018 11:45

**Sample ID: 18H1538-13**

Sample Matrix: Equipment Blank Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acetone | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Acrylonitrile | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Benzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Bromobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Bromochloromethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Bromodichloromethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Bromoform | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Bromomethane | ND | 2.0 | µg/L | 1 | V-05 | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 2-Butanone (MEK) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| n-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| sec-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| tert-Butylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Carbon Disulfide | ND | 4.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Carbon Tetrachloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Chlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Chlorodibromomethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Chloroethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Chloroform | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Chloromethane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 2-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 4-Chlorotoluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Dibromomethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Diethyl Ether | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: Equipment Blank** | Sampled: 8/28/2018 11:45

**Sample ID: 18H1538-13**

Sample Matrix: Equipment Blank Water

**Volatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,4-Dioxane | ND | 50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Ethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Hexachlorobutadiene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 2-Hexanone (MBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Methyl Acetate | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Methyl Cyclohexane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Methylene Chloride | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Naphthalene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| n-Propylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Styrene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Tetrachloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Tetrahydrofuran | ND | 10 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Toluene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Trichloroethylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| Vinyl Chloride | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| m+p Xylene | ND | 2.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |
| o-Xylene | ND | 1.0 | µg/L | 1 | | SW-846 8260C | 9/4/18 | 9/5/18 10:15 | LBD |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | 96.1 | 70-130 | | 9/5/18 10:15 |
| Toluene-d8 | 98.6 | 70-130 | | 9/5/18 10:15 |
| 4-Bromofluorobenzene | 99.0 | 70-130 | | 9/5/18 10:15 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: Equipment Blank** | Sampled: 8/28/2018 11:45

**Sample ID: 18H1538-13**

Sample Matrix: Equipment Blank Water

**Semivolatile Organic Compounds by GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene (SIM) | ND | 0.55 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Acenaphthylene (SIM) | ND | 0.36 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Anthracene (SIM) | ND | 0.36 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Benzo(a)anthracene (SIM) | ND | 0.091 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Benzo(a)pyrene (SIM) | ND | 0.18 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Benzo(b)fluoranthene (SIM) | ND | 0.091 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Benzo(g,h,i)perylene (SIM) | ND | 0.91 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Benzo(k)fluoranthene (SIM) | ND | 0.36 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Chrysene (SIM) | ND | 0.36 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Dibenz(a,h)anthracene (SIM) | ND | 0.18 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Fluoranthene (SIM) | ND | 0.91 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Fluorene (SIM) | ND | 1.8 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Indeno(1,2,3-cd)pyrene (SIM) | ND | 0.18 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| 2-Methylnaphthalene (SIM) | ND | 1.8 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Naphthalene (SIM) | ND | 1.8 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Phenanthrene (SIM) | ND | 0.091 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |
| Pyrene (SIM) | ND | 1.8 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/6/18 15:14 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| Nitrobenzene-d5 | 78.9 | 30-130 | | 9/6/18 15:14 |
| 2-Fluorobiphenyl | 84.6 | 30-130 | | 9/6/18 15:14 |
| p-Terphenyl-d14 | 91.4 | 30-130 | | 9/6/18 15:14 |

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: Equipment Blank** | Sampled: 8/28/2018 11:45

**Sample ID: 18H1538-13**

Sample Matrix: Equipment Blank Water

**1,4-Dioxane by isotope dilution GC/MS**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane | ND | 0.20 | µg/L | 1 | | SW-846 8270D | 9/1/18 | 9/5/18 14:19 | IMR |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1,4-Dioxane-d8 | 27.9 | 15-110 | | | | | | 9/5/18 14:19 |

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Ithaca, New York | Sample Description: | Work Order: 18H1538

Date Received: 8/31/2018

**Field Sample #: Equipment Blank** | Sampled: 8/28/2018 11:45

**Sample ID: 18H1538-13**

Sample Matrix: Equipment Blank Water

**Miscellaneous Organic Analyses**

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Perfluorobutanesulfonic acid (PFBS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorohexanoic acid (PFHxA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluoroheptanoic acid (PFHpA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorobutanoic acid (PFBA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluoropentanoic acid (PFPeA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorooctanoic acid (PFOA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorooctanesulfonic acid (PFOS) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| NMeFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| NEtFOSAA | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | 1 | | SOP 434-PFAAS | 9/10/18 | 9/18/18 11:49 | KAF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual | |
|---|---|---|---|---|
| 13C-PFHxA | 108 | 70-130 | | 9/18/18 11:49 |
| 13C-PFDA | 106 | 70-130 | | 9/18/18 11:49 |
| d5-NEtFOSAA | 115 | 70-130 | | 9/18/18 11:49 |

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## Sample Extraction Data

**Prep Method: EPA 537-SOP 434-PFAAS**

| Lab Number [Field ID] | Batch | Initial [mL] | Final [mL] | Date |
|---|---|---|---|---|
| 18H1538-03 [AZMW-3] | B211771 | 250 | 1.00 | 09/10/18 |
| 18H1538-04 [AZMW-4] | B211771 | 250 | 1.00 | 09/10/18 |
| 18H1538-10 [MW-7] | B211771 | 250 | 1.00 | 09/10/18 |
| 18H1538-12 [FB] | B211771 | 250 | 1.00 | 09/10/18 |
| 18H1538-13 [Equipment Blank] | B211771 | 250 | 1.00 | 09/10/18 |

**Prep Method: SW-846 5030B-SW-846 8260C**

| Lab Number [Field ID] | Batch | Initial [mL] | Final [mL] | Date |
|---|---|---|---|---|
| 18H1538-01 [AZMW-1] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-02 [AZMW-2] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-03 [AZMW-3] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-04 [AZMW-4] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-05 [AZMW-5] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-06 [AZMW-6] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-07 [AZMW-7] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-08 [AZMW-8] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-09 [MW-6] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-10 [MW-7] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-11 [FD] | B211664 | 5 | 5.00 | 09/04/18 |
| 18H1538-13 [Equipment Blank] | B211664 | 5 | 5.00 | 09/04/18 |

**Prep Method: SW-846 3510C-SW-846 8270D**

| Lab Number [Field ID] | Batch | Initial [mL] | Final [mL] | Date |
|---|---|---|---|---|
| 18H1538-03 [AZMW-3] | B211609 | 1000 | 1.00 | 09/01/18 |
| 18H1538-04 [AZMW-4] | B211609 | 1000 | 1.00 | 09/01/18 |
| 18H1538-10 [MW-7] | B211609 | 1000 | 1.00 | 09/01/18 |
| 18H1538-13 [Equipment Blank] | B211609 | 980 | 1.00 | 09/01/18 |

**Prep Method: SW-846 3510C-SW-846 8270D**

| Lab Number [Field ID] | Batch | Initial [mL] | Final [mL] | Date |
|---|---|---|---|---|
| 18H1538-03 [AZMW-3] | B211877 | 1000 | 1.00 | 09/01/18 |
| 18H1538-04 [AZMW-4] | B211877 | 1000 | 1.00 | 09/01/18 |
| 18H1538-10 [MW-7] | B211877 | 980 | 1.00 | 09/01/18 |
| 18H1538-13 [Equipment Blank] | B211877 | 550 | 1.00 | 09/01/18 |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | |
| **Blank (B211664-BLK1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | |
| Acetone | ND | 50 | µg/L | | | | | | | |
| Acrylonitrile | ND | 5.0 | µg/L | | | | | | | |
| tert-Amyl Methyl Ether (TAME) | ND | 0.50 | µg/L | | | | | | | |
| Benzene | ND | 1.0 | µg/L | | | | | | | |
| Bromobenzene | ND | 1.0 | µg/L | | | | | | | |
| Bromochloromethane | ND | 1.0 | µg/L | | | | | | | |
| Bromodichloromethane | ND | 0.50 | µg/L | | | | | | | |
| Bromoform | ND | 1.0 | µg/L | | | | | | | |
| Bromomethane | ND | 2.0 | µg/L | | | | | | | V-05 |
| 2-Butanone (MEK) | ND | 20 | µg/L | | | | | | | |
| tert-Butyl Alcohol (TBA) | ND | 20 | µg/L | | | | | | | |
| n-Butylbenzene | ND | 1.0 | µg/L | | | | | | | |
| sec-Butylbenzene | ND | 1.0 | µg/L | | | | | | | |
| tert-Butylbenzene | ND | 1.0 | µg/L | | | | | | | |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.50 | µg/L | | | | | | | |
| Carbon Disulfide | ND | 4.0 | µg/L | | | | | | | |
| Carbon Tetrachloride | ND | 5.0 | µg/L | | | | | | | |
| Chlorobenzene | ND | 1.0 | µg/L | | | | | | | |
| Chlorodibromomethane | ND | 0.50 | µg/L | | | | | | | |
| Chloroethane | ND | 2.0 | µg/L | | | | | | | |
| Chloroform | ND | 2.0 | µg/L | | | | | | | |
| Chloromethane | ND | 2.0 | µg/L | | | | | | | |
| 2-Chlorotoluene | ND | 1.0 | µg/L | | | | | | | |
| 4-Chlorotoluene | ND | 1.0 | µg/L | | | | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 5.0 | µg/L | | | | | | | |
| 1,2-Dibromoethane (EDB) | ND | 0.50 | µg/L | | | | | | | |
| Dibromomethane | ND | 1.0 | µg/L | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.0 | µg/L | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.0 | µg/L | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.0 | µg/L | | | | | | | |
| trans-1,4-Dichloro-2-butene | ND | 2.0 | µg/L | | | | | | | |
| Dichlorodifluoromethane (Freon 12) | ND | 2.0 | µg/L | | | | | | | |
| 1,1-Dichloroethane | ND | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloroethane | ND | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloroethylene | ND | 1.0 | µg/L | | | | | | | |
| cis-1,2-Dichloroethylene | ND | 1.0 | µg/L | | | | | | | |
| trans-1,2-Dichloroethylene | ND | 1.0 | µg/L | | | | | | | |
| 1,2-Dichloropropane | ND | 1.0 | µg/L | | | | | | | |
| 1,3-Dichloropropane | ND | 0.50 | µg/L | | | | | | | |
| 2,2-Dichloropropane | ND | 1.0 | µg/L | | | | | | | |
| 1,1-Dichloropropene | ND | 2.0 | µg/L | | | | | | | |
| cis-1,3-Dichloropropene | ND | 0.50 | µg/L | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.50 | µg/L | | | | | | | |
| Diethyl Ether | ND | 2.0 | µg/L | | | | | | | |
| Diisopropyl Ether (DIPE) | ND | 0.50 | µg/L | | | | | | | |
| 1,4-Dioxane | ND | 50 | µg/L | | | | | | | |
| Ethylbenzene | ND | 1.0 | µg/L | | | | | | | |
| Hexachlorobutadiene | ND | 1.0 | µg/L | | | | | | | |
| 2-Hexanone (MBK) | ND | 10 | µg/L | | | | | | | |
| Isopropylbenzene (Cumene) | ND | 1.0 | µg/L | | | | | | | |
| p-Isopropyltoluene (p-Cymene) | ND | 1.0 | µg/L | | | | | | | |
| Methyl Acetate | ND | 1.0 | µg/L | | | | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | |
| **Blank (B211664-BLK1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| Methyl tert-Butyl Ether (MTBE) | ND | 1.0 | µg/L | | | | | | | | |
| Methyl Cyclohexane | ND | 1.0 | µg/L | | | | | | | | |
| Methylene Chloride | ND | 5.0 | µg/L | | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | 10 | µg/L | | | | | | | | |
| Naphthalene | ND | 2.0 | µg/L | | | | | | | | |
| n-Propylbenzene | ND | 1.0 | µg/L | | | | | | | | |
| Styrene | ND | 1.0 | µg/L | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.0 | µg/L | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.50 | µg/L | | | | | | | | |
| Tetrachloroethylene | ND | 1.0 | µg/L | | | | | | | | |
| Tetrahydrofuran | ND | 10 | µg/L | | | | | | | | |
| Toluene | ND | 1.0 | µg/L | | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 5.0 | µg/L | | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | µg/L | | | | | | | | |
| 1,3,5-Trichlorobenzene | ND | 1.0 | µg/L | | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.0 | µg/L | | | | | | | | |
| 1,1,2-Trichloroethane | ND | 1.0 | µg/L | | | | | | | | |
| Trichloroethylene | ND | 1.0 | µg/L | | | | | | | | |
| Trichlorofluoromethane (Freon 11) | ND | 2.0 | µg/L | | | | | | | | |
| 1,2,3-Trichloropropane | ND | 2.0 | µg/L | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | ND | 1.0 | µg/L | | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.0 | µg/L | | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.0 | µg/L | | | | | | | | |
| Vinyl Chloride | ND | 2.0 | µg/L | | | | | | | | |
| m+p Xylene | ND | 2.0 | µg/L | | | | | | | | |
| o-Xylene | ND | 1.0 | µg/L | | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *24.4* | | µg/L | 25.0 | | 97.6 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.3* | | µg/L | 25.0 | | 97.0 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.1* | | µg/L | 25.0 | | 100 | 70-130 | | | | |
| **LCS (B211664-BS1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| Acetone | 99.4 | 50 | µg/L | 100 | | 99.4 | 70-160 | | | | † |
| Acrylonitrile | 9.63 | 5.0 | µg/L | 10.0 | | 96.3 | 70-130 | | | | |
| tert-Amyl Methyl Ether (TAME) | 9.51 | 0.50 | µg/L | 10.0 | | 95.1 | 70-130 | | | | |
| Benzene | 9.55 | 1.0 | µg/L | 10.0 | | 95.5 | 70-130 | | | | |
| Bromobenzene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| Bromochloromethane | 10.1 | 1.0 | µg/L | 10.0 | | 101 | 70-130 | | | | |
| Bromodichloromethane | 10.1 | 0.50 | µg/L | 10.0 | | 101 | 70-130 | | | | |
| Bromoform | 10.8 | 1.0 | µg/L | 10.0 | | 108 | 70-130 | | | | |
| Bromomethane | 4.88 | 2.0 | µg/L | 10.0 | | 48.8 | 40-160 | | | V-05 | † |
| 2-Butanone (MEK) | 93.0 | 20 | µg/L | 100 | | 93.0 | 40-160 | | | | † |
| tert-Butyl Alcohol (TBA) | 102 | 20 | µg/L | 100 | | 102 | 40-160 | | | | † |
| n-Butylbenzene | 10.6 | 1.0 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| sec-Butylbenzene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| tert-Butylbenzene | 10.6 | 1.0 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| tert-Butyl Ethyl Ether (TBEE) | 9.35 | 0.50 | µg/L | 10.0 | | 93.5 | 70-130 | | | | |
| Carbon Disulfide | 10.2 | 4.0 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| Carbon Tetrachloride | 10.3 | 5.0 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| Chlorobenzene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| Chlorodibromomethane | 11.0 | 0.50 | µg/L | 10.0 | | 110 | 70-130 | | | | |
| Chloroethane | 9.46 | 2.0 | µg/L | 10.0 | | 94.6 | 70-130 | | | | |
| Chloroform | 9.94 | 2.0 | µg/L | 10.0 | | 99.4 | 70-130 | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | |
| **LCS (B211664-BS1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| Chloromethane | 7.75 | 2.0 | µg/L | 10.0 | | 77.5 | 40-160 | | | | † |
| 2-Chlorotoluene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| 4-Chlorotoluene | 10.8 | 1.0 | µg/L | 10.0 | | 108 | 70-130 | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 9.89 | 5.0 | µg/L | 10.0 | | 98.9 | 70-130 | | | | |
| 1,2-Dibromoethane (EDB) | 10.2 | 0.50 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| Dibromomethane | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| 1,2-Dichlorobenzene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| 1,3-Dichlorobenzene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| 1,4-Dichlorobenzene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| trans-1,4-Dichloro-2-butene | 10.3 | 2.0 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| Dichlorodifluoromethane (Freon 12) | 6.90 | 2.0 | µg/L | 10.0 | | 69.0 | 40-160 | | | | † |
| 1,1-Dichloroethane | 9.64 | 1.0 | µg/L | 10.0 | | 96.4 | 70-130 | | | | |
| 1,2-Dichloroethane | 10.1 | 1.0 | µg/L | 10.0 | | 101 | 70-130 | | | | |
| 1,1-Dichloroethylene | 9.44 | 1.0 | µg/L | 10.0 | | 94.4 | 70-130 | | | | |
| cis-1,2-Dichloroethylene | 9.68 | 1.0 | µg/L | 10.0 | | 96.8 | 70-130 | | | | |
| trans-1,2-Dichloroethylene | 9.66 | 1.0 | µg/L | 10.0 | | 96.6 | 70-130 | | | | |
| 1,2-Dichloropropane | 9.96 | 1.0 | µg/L | 10.0 | | 99.6 | 70-130 | | | | |
| 1,3-Dichloropropane | 10.0 | 0.50 | µg/L | 10.0 | | 100 | 70-130 | | | | |
| 2,2-Dichloropropane | 9.52 | 1.0 | µg/L | 10.0 | | 95.2 | 40-130 | | | | † |
| 1,1-Dichloropropene | 9.42 | 2.0 | µg/L | 10.0 | | 94.2 | 70-130 | | | | |
| cis-1,3-Dichloropropene | 10.4 | 0.50 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| trans-1,3-Dichloropropene | 11.3 | 0.50 | µg/L | 10.0 | | 113 | 70-130 | | | | |
| Diethyl Ether | 9.37 | 2.0 | µg/L | 10.0 | | 93.7 | 70-130 | | | | |
| Diisopropyl Ether (DIPE) | 9.22 | 0.50 | µg/L | 10.0 | | 92.2 | 70-130 | | | | |
| 1,4-Dioxane | 98.9 | 50 | µg/L | 100 | | 98.9 | 40-130 | | | | † |
| Ethylbenzene | 10.6 | 1.0 | µg/L | 10.0 | | 106 | 70-130 | | | | |
| Hexachlorobutadiene | 11.0 | 1.0 | µg/L | 10.0 | | 110 | 70-130 | | | | |
| 2-Hexanone (MBK) | 102 | 10 | µg/L | 100 | | 102 | 70-160 | | | | † |
| Isopropylbenzene (Cumene) | 10.7 | 1.0 | µg/L | 10.0 | | 107 | 70-130 | | | | |
| p-Isopropyltoluene (p-Cymene) | 9.91 | 1.0 | µg/L | 10.0 | | 99.1 | 70-130 | | | | |
| **Methyl Acetate** | 30.8 | 1.0 | µg/L | 10.0 | | **308** | 70-130 | * | | L-02, V-36 | |
| Methyl tert-Butyl Ether (MTBE) | 9.94 | 1.0 | µg/L | 10.0 | | 99.4 | 70-130 | | | | |
| Methyl Cyclohexane | 10.0 | 1.0 | µg/L | 10.0 | | 100 | 70-130 | | | | |
| Methylene Chloride | 8.94 | 5.0 | µg/L | 10.0 | | 89.4 | 70-130 | | | | |
| 4-Methyl-2-pentanone (MIBK) | 100 | 10 | µg/L | 100 | | 100 | 70-160 | | | | † |
| Naphthalene | 8.78 | 2.0 | µg/L | 10.0 | | 87.8 | 40-130 | | | | † |
| n-Propylbenzene | 10.7 | 1.0 | µg/L | 10.0 | | 107 | 70-130 | | | | |
| Styrene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | | | | |
| 1,1,1,2-Tetrachloroethane | 11.1 | 1.0 | µg/L | 10.0 | | 111 | 70-130 | | | | |
| 1,1,2,2-Tetrachloroethane | 10.3 | 0.50 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| Tetrachloroethylene | 11.5 | 1.0 | µg/L | 10.0 | | 115 | 70-130 | | | | |
| Tetrahydrofuran | 10.0 | 10 | µg/L | 10.0 | | 100 | 70-130 | | | | |
| Toluene | 10.1 | 1.0 | µg/L | 10.0 | | 101 | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 9.50 | 5.0 | µg/L | 10.0 | | 95.0 | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 9.36 | 5.0 | µg/L | 10.0 | | 93.6 | 70-130 | | | | |
| 1,3,5-Trichlorobenzene | 10.7 | 1.0 | µg/L | 10.0 | | 107 | 70-130 | | | | |
| 1,1,1-Trichloroethane | 10.3 | 1.0 | µg/L | 10.0 | | 103 | 70-130 | | | | |
| 1,1,2-Trichloroethane | 9.96 | 1.0 | µg/L | 10.0 | | 99.6 | 70-130 | | | | |
| Trichloroethylene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| Trichlorofluoromethane (Freon 11) | 9.55 | 2.0 | µg/L | 10.0 | | 95.5 | 70-130 | | | | |
| 1,2,3-Trichloropropane | 10.9 | 2.0 | µg/L | 10.0 | | 109 | 70-130 | | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | |
| **LCS (B211664-BS1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| 1,2,4-Trimethylbenzene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | | | | |
| 1,3,5-Trimethylbenzene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| Vinyl Chloride | 8.12 | 2.0 | µg/L | 10.0 | | 81.2 | 40-160 | | | | † |
| m+p Xylene | 20.8 | 2.0 | µg/L | 20.0 | | 104 | 70-130 | | | | |
| o-Xylene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *24.2* | | µg/L | 25.0 | | 96.6 | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.5* | | µg/L | 25.0 | | 97.9 | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.5* | | µg/L | 25.0 | | 102 | 70-130 | | | | |
| **LCS Dup (B211664-BSD1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| Acetone | 101 | 50 | µg/L | 100 | | 101 | 70-160 | 1.40 | 25 | | † |
| Acrylonitrile | 9.66 | 5.0 | µg/L | 10.0 | | 96.6 | 70-130 | 0.311 | 25 | | |
| tert-Amyl Methyl Ether (TAME) | 9.78 | 0.50 | µg/L | 10.0 | | 97.8 | 70-130 | 2.80 | 25 | | |
| Benzene | 9.67 | 1.0 | µg/L | 10.0 | | 96.7 | 70-130 | 1.25 | 25 | | |
| Bromobenzene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | 2.70 | 25 | | |
| Bromochloromethane | 10.6 | 1.0 | µg/L | 10.0 | | 106 | 70-130 | 4.06 | 25 | | |
| Bromodichloromethane | 10.1 | 0.50 | µg/L | 10.0 | | 101 | 70-130 | 0.494 | 25 | | |
| Bromoform | 10.8 | 1.0 | µg/L | 10.0 | | 108 | 70-130 | 0.278 | 25 | | |
| Bromomethane | 5.22 | 2.0 | µg/L | 10.0 | | 52.2 | 40-160 | 6.73 | 25 | V-05 | † |
| 2-Butanone (MEK) | 94.5 | 20 | µg/L | 100 | | 94.5 | 40-160 | 1.60 | 25 | | † |
| tert-Butyl Alcohol (TBA) | 106 | 20 | µg/L | 100 | | 106 | 40-160 | 3.43 | 25 | | † |
| n-Butylbenzene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | 2.09 | 25 | | |
| sec-Butylbenzene | 10.3 | 1.0 | µg/L | 10.0 | | 103 | 70-130 | 0.675 | 25 | | |
| tert-Butylbenzene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | 70-130 | 2.29 | 25 | | |
| tert-Butyl Ethyl Ether (TBEE) | 9.42 | 0.50 | µg/L | 10.0 | | 94.2 | 70-130 | 0.746 | 25 | | |
| Carbon Disulfide | 10.0 | 4.0 | µg/L | 10.0 | | 100 | 70-130 | 2.27 | 25 | | |
| Carbon Tetrachloride | 10.2 | 5.0 | µg/L | 10.0 | | 102 | 70-130 | 1.27 | 25 | | |
| Chlorobenzene | 10.0 | 1.0 | µg/L | 10.0 | | 100 | 70-130 | 3.14 | 25 | | |
| Chlorodibromomethane | 11.2 | 0.50 | µg/L | 10.0 | | 112 | 70-130 | 1.98 | 25 | | |
| Chloroethane | 9.01 | 2.0 | µg/L | 10.0 | | 90.1 | 70-130 | 4.87 | 25 | | |
| Chloroform | 9.87 | 2.0 | µg/L | 10.0 | | 98.7 | 70-130 | 0.707 | 25 | | |
| Chloromethane | 7.60 | 2.0 | µg/L | 10.0 | | 76.0 | 40-160 | 1.95 | 25 | | † |
| 2-Chlorotoluene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | 70-130 | 0.479 | 25 | | |
| 4-Chlorotoluene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | 5.74 | 25 | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 9.74 | 5.0 | µg/L | 10.0 | | 97.4 | 70-130 | 1.53 | 25 | | |
| 1,2-Dibromoethane (EDB) | 10.3 | 0.50 | µg/L | 10.0 | | 103 | 70-130 | 0.389 | 25 | | |
| Dibromomethane | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | 2.70 | 25 | | |
| 1,2-Dichlorobenzene | 10.3 | 1.0 | µg/L | 10.0 | | 103 | 70-130 | 1.92 | 25 | | |
| 1,3-Dichlorobenzene | 10.8 | 1.0 | µg/L | 10.0 | | 108 | 70-130 | 3.76 | 25 | | |
| 1,4-Dichlorobenzene | 9.90 | 1.0 | µg/L | 10.0 | | 99.0 | 70-130 | 3.28 | 25 | | |
| trans-1,4-Dichloro-2-butene | 10.6 | 2.0 | µg/L | 10.0 | | 106 | 70-130 | 2.58 | 25 | | |
| Dichlorodifluoromethane (Freon 12) | 6.69 | 2.0 | µg/L | 10.0 | | 66.9 | 40-160 | 3.09 | 25 | | † |
| 1,1-Dichloroethane | 9.83 | 1.0 | µg/L | 10.0 | | 98.3 | 70-130 | 1.95 | 25 | | |
| 1,2-Dichloroethane | 10.2 | 1.0 | µg/L | 10.0 | | 102 | 70-130 | 1.08 | 25 | | |
| 1,1-Dichloroethylene | 9.72 | 1.0 | µg/L | 10.0 | | 97.2 | 70-130 | 2.92 | 25 | | |
| cis-1,2-Dichloroethylene | 9.69 | 1.0 | µg/L | 10.0 | | 96.9 | 70-130 | 0.103 | 25 | | |
| trans-1,2-Dichloroethylene | 9.53 | 1.0 | µg/L | 10.0 | | 95.3 | 70-130 | 1.35 | 25 | | |
| 1,2-Dichloropropane | 9.72 | 1.0 | µg/L | 10.0 | | 97.2 | 70-130 | 2.44 | 25 | | |
| 1,3-Dichloropropane | 9.94 | 0.50 | µg/L | 10.0 | | 99.4 | 70-130 | 1.00 | 25 | | |
| 2,2-Dichloropropane | 9.41 | 1.0 | µg/L | 10.0 | | 94.1 | 40-130 | 1.16 | 25 | | † |
| 1,1-Dichloropropene | 9.72 | 2.0 | µg/L | 10.0 | | 97.2 | 70-130 | 3.13 | 25 | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | | |
| **LCS Dup (B211664-BSD1)** | | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | | |
| cis-1,3-Dichloropropene | 10.5 | 0.50 | µg/L | 10.0 | | 105 | | 70-130 | 1.24 | 25 | | |
| trans-1,3-Dichloropropene | 11.3 | 0.50 | µg/L | 10.0 | | 113 | | 70-130 | 0.00 | 25 | | |
| Diethyl Ether | 9.39 | 2.0 | µg/L | 10.0 | | 93.9 | | 70-130 | 0.213 | 25 | | |
| Diisopropyl Ether (DIPE) | 9.17 | 0.50 | µg/L | 10.0 | | 91.7 | | 70-130 | 0.544 | 25 | | |
| 1,4-Dioxane | 98.3 | 50 | µg/L | 100 | | 98.3 | | 40-130 | 0.568 | 50 | | † ‡ |
| Ethylbenzene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | | 70-130 | 3.28 | 25 | | |
| Hexachlorobutadiene | 10.9 | 1.0 | µg/L | 10.0 | | 109 | | 70-130 | 0.730 | 25 | | |
| 2-Hexanone (MBK) | 104 | 10 | µg/L | 100 | | 104 | | 70-160 | 1.91 | 25 | | † |
| Isopropylbenzene (Cumene) | 10.3 | 1.0 | µg/L | 10.0 | | 103 | | 70-130 | 3.72 | 25 | | |
| p-Isopropyltoluene (p-Cymene) | 10.0 | 1.0 | µg/L | 10.0 | | 100 | | 70-130 | 1.40 | 25 | | |
| **Methyl Acetate** | 31.9 | 1.0 | µg/L | 10.0 | | **319** | * | 70-130 | 3.57 | 25 | L-02, V-36 | |
| Methyl tert-Butyl Ether (MTBE) | 9.92 | 1.0 | µg/L | 10.0 | | 99.2 | | 70-130 | 0.201 | 25 | | |
| Methyl Cyclohexane | 9.86 | 1.0 | µg/L | 10.0 | | 98.6 | | 70-130 | 1.91 | 25 | | |
| Methylene Chloride | 9.10 | 5.0 | µg/L | 10.0 | | 91.0 | | 70-130 | 1.77 | 25 | | |
| 4-Methyl-2-pentanone (MIBK) | 101 | 10 | µg/L | 100 | | 101 | | 70-160 | 0.904 | 25 | | † |
| Naphthalene | 9.02 | 2.0 | µg/L | 10.0 | | 90.2 | | 40-130 | 2.70 | 25 | | † |
| n-Propylbenzene | 10.3 | 1.0 | µg/L | 10.0 | | 103 | | 70-130 | 4.09 | 25 | | |
| Styrene | 10.1 | 1.0 | µg/L | 10.0 | | 101 | | 70-130 | 2.63 | 25 | | |
| 1,1,1,2-Tetrachloroethane | 10.4 | 1.0 | µg/L | 10.0 | | 104 | | 70-130 | 6.71 | 25 | | |
| 1,1,2,2-Tetrachloroethane | 9.93 | 0.50 | µg/L | 10.0 | | 99.3 | | 70-130 | 3.95 | 25 | | |
| Tetrachloroethylene | 11.1 | 1.0 | µg/L | 10.0 | | 111 | | 70-130 | 2.92 | 25 | | |
| Tetrahydrofuran | 9.82 | 10 | µg/L | 10.0 | | 98.2 | | 70-130 | 1.92 | 25 | | |
| Toluene | 9.86 | 1.0 | µg/L | 10.0 | | 98.6 | | 70-130 | 2.80 | 25 | | |
| 1,2,3-Trichlorobenzene | 9.41 | 5.0 | µg/L | 10.0 | | 94.1 | | 70-130 | 0.952 | 25 | | |
| 1,2,4-Trichlorobenzene | 9.34 | 5.0 | µg/L | 10.0 | | 93.4 | | 70-130 | 0.214 | 25 | | |
| 1,3,5-Trichlorobenzene | 10.3 | 1.0 | µg/L | 10.0 | | 103 | | 70-130 | 3.99 | 25 | | |
| 1,1,1-Trichloroethane | 9.99 | 1.0 | µg/L | 10.0 | | 99.9 | | 70-130 | 3.44 | 25 | | |
| 1,1,2-Trichloroethane | 10.4 | 1.0 | µg/L | 10.0 | | 104 | | 70-130 | 4.51 | 25 | | |
| Trichloroethylene | 10.4 | 1.0 | µg/L | 10.0 | | 104 | | 70-130 | 1.46 | 25 | | |
| Trichlorofluoromethane (Freon 11) | 9.34 | 2.0 | µg/L | 10.0 | | 93.4 | | 70-130 | 2.22 | 25 | | |
| 1,2,3-Trichloropropane | 11.4 | 2.0 | µg/L | 10.0 | | 114 | | 70-130 | 4.58 | 25 | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 9.51 | 1.0 | µg/L | 10.0 | | 95.1 | | 70-130 | 7.10 | 25 | | |
| 1,2,4-Trimethylbenzene | 10.5 | 1.0 | µg/L | 10.0 | | 105 | | 70-130 | 2.31 | 25 | | |
| 1,3,5-Trimethylbenzene | 10.0 | 1.0 | µg/L | 10.0 | | 100 | | 70-130 | 4.30 | 25 | | |
| Vinyl Chloride | 8.32 | 2.0 | µg/L | 10.0 | | 83.2 | | 40-160 | 2.43 | 25 | | † |
| m+p Xylene | 20.5 | 2.0 | µg/L | 20.0 | | 102 | | 70-130 | 1.50 | 25 | | |
| o-Xylene | 10.2 | 1.0 | µg/L | 10.0 | | 102 | | 70-130 | 2.41 | 25 | | |
| Surrogate: 1,2-Dichloroethane-d4 | *24.5* | | µg/L | 25.0 | | 98.2 | | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.3* | | µg/L | 25.0 | | 97.4 | | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *24.9* | | µg/L | 25.0 | | 99.6 | | 70-130 | | | | |
| **Matrix Spike (B211664-MS1)** | **Source: 18H1538-04** | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | | |
| Acetone | 115 | 50 | µg/L | 100 | ND | 115 | | 70-130 | | | | |
| Acrylonitrile | 10.9 | 5.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | | |
| tert-Amyl Methyl Ether (TAME) | 10.4 | 0.50 | µg/L | 10.0 | ND | 104 | | 70-130 | | | | |
| Benzene | 10.5 | 1.0 | µg/L | 10.0 | ND | 105 | | 70-130 | | | | |
| Bromobenzene | 10.6 | 1.0 | µg/L | 10.0 | ND | 106 | | 70-130 | | | | |
| Bromochloromethane | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | | | | |
| Bromodichloromethane | 10.9 | 0.50 | µg/L | 10.0 | ND | 109 | | 70-130 | | | | |
| Bromoform | 11.5 | 1.0 | µg/L | 10.0 | ND | 115 | | 70-130 | | | | |
| **Bromomethane** | 3.08 | 2.0 | µg/L | 10.0 | ND | **30.8** | * | 70-130 | | | V-05, MS-09, R-06 | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | |
| **Matrix Spike (B211664-MS1)** | **Source: 18H1538-04** | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| 2-Butanone (MEK) | 112 | 20 | µg/L | 100 | ND | 112 | | 70-130 | | | |
| **tert-Butyl Alcohol (TBA)** | 136 | 20 | µg/L | 100 | ND | **136** | * | 70-130 | | | MS-12 |
| n-Butylbenzene | 11.1 | 1.0 | µg/L | 10.0 | ND | 111 | | 70-130 | | | |
| sec-Butylbenzene | 10.9 | 1.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| tert-Butylbenzene | 10.9 | 1.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| tert-Butyl Ethyl Ether (TBEE) | 9.85 | 0.50 | µg/L | 10.0 | ND | 98.5 | | 70-130 | | | |
| Carbon Disulfide | 10.4 | 4.0 | µg/L | 10.0 | ND | 104 | | 70-130 | | | |
| Carbon Tetrachloride | 11.5 | 5.0 | µg/L | 10.0 | ND | 115 | | 70-130 | | | |
| Chlorobenzene | 10.9 | 1.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| Chlorodibromomethane | 12.0 | 0.50 | µg/L | 10.0 | ND | 120 | | 70-130 | | | |
| Chloroethane | 11.0 | 2.0 | µg/L | 10.0 | ND | 110 | | 70-130 | | | |
| Chloroform | 11.1 | 2.0 | µg/L | 10.0 | 0.760 | 104 | | 70-130 | | | |
| Chloromethane | 10.0 | 2.0 | µg/L | 10.0 | ND | 100 | | 70-130 | | | |
| 2-Chlorotoluene | 11.1 | 1.0 | µg/L | 10.0 | ND | 111 | | 70-130 | | | |
| 4-Chlorotoluene | 11.3 | 1.0 | µg/L | 10.0 | ND | 113 | | 70-130 | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 10.7 | 5.0 | µg/L | 10.0 | ND | 107 | | 70-130 | | | |
| 1,2-Dibromoethane (EDB) | 11.4 | 0.50 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| Dibromomethane | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| 1,2-Dichlorobenzene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| 1,3-Dichlorobenzene | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | | | |
| 1,4-Dichlorobenzene | 10.7 | 1.0 | µg/L | 10.0 | ND | 107 | | 70-130 | | | |
| trans-1,4-Dichloro-2-butene | 10.8 | 2.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| Dichlorodifluoromethane (Freon 12) | 7.67 | 2.0 | µg/L | 10.0 | ND | 76.7 | | 70-130 | | | |
| 1,1-Dichloroethane | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| 1,2-Dichloroethane | 10.4 | 1.0 | µg/L | 10.0 | ND | 104 | | 70-130 | | | |
| 1,1-Dichloroethylene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| cis-1,2-Dichloroethylene | 10.2 | 1.0 | µg/L | 10.0 | ND | 102 | | 70-130 | | | |
| trans-1,2-Dichloroethylene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| 1,2-Dichloropropane | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| 1,3-Dichloropropane | 10.6 | 0.50 | µg/L | 10.0 | ND | 106 | | 70-130 | | | |
| 2,2-Dichloropropane | 8.45 | 1.0 | µg/L | 10.0 | ND | 84.5 | | 70-130 | | | |
| 1,1-Dichloropropene | 10.7 | 2.0 | µg/L | 10.0 | ND | 107 | | 70-130 | | | |
| cis-1,3-Dichloropropene | 10.9 | 0.50 | µg/L | 10.0 | ND | 109 | | 70-130 | | | |
| trans-1,3-Dichloropropene | 11.7 | 0.50 | µg/L | 10.0 | ND | 117 | | 70-130 | | | |
| Diethyl Ether | 9.96 | 2.0 | µg/L | 10.0 | ND | 99.6 | | 70-130 | | | |
| Diisopropyl Ether (DIPE) | 9.73 | 0.50 | µg/L | 10.0 | ND | 97.3 | | 70-130 | | | |
| 1,4-Dioxane | 103 | 50 | µg/L | 100 | ND | 103 | | 70-130 | | | |
| Ethylbenzene | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | | | |
| Hexachlorobutadiene | 10.6 | 1.0 | µg/L | 10.0 | ND | 106 | | 70-130 | | | |
| 2-Hexanone (MBK) | 122 | 10 | µg/L | 100 | ND | 122 | | 70-130 | | | |
| Isopropylbenzene (Cumene) | 11.3 | 1.0 | µg/L | 10.0 | ND | 113 | | 70-130 | | | |
| p-Isopropyltoluene (p-Cymene) | 10.6 | 1.0 | µg/L | 10.0 | ND | 106 | | 70-130 | | | |
| **Methyl Acetate** | 31.1 | 1.0 | µg/L | 10.0 | ND | **311** | * | 70-130 | | | MS-12 |
| Methyl tert-Butyl Ether (MTBE) | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | |
| Methyl Cyclohexane | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| Methylene Chloride | 9.59 | 5.0 | µg/L | 10.0 | ND | 95.9 | | 70-130 | | | |
| 4-Methyl-2-pentanone (MIBK) | 116 | 10 | µg/L | 100 | ND | 116 | | 70-130 | | | |
| Naphthalene | 9.87 | 2.0 | µg/L | 10.0 | ND | 98.7 | | 70-130 | | | |
| n-Propylbenzene | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | | | |
| Styrene | 10.7 | 1.0 | µg/L | 10.0 | ND | 107 | | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 11.0 | 0.50 | µg/L | 10.0 | ND | 110 | | 70-130 | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | | |
| **Matrix Spike (B211664-MS1)** | **Source: 18H1538-04** | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | | |
| Tetrachloroethylene | 12.3 | 1.0 | µg/L | 10.0 | ND | 123 | | 70-130 | | | | |
| Tetrahydrofuran | 12.2 | 10 | µg/L | 10.0 | ND | 122 | | 70-130 | | | | |
| Toluene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | | |
| 1,2,3-Trichlorobenzene | 9.70 | 5.0 | µg/L | 10.0 | ND | 97.0 | | 70-130 | | | | |
| 1,2,4-Trichlorobenzene | 9.70 | 5.0 | µg/L | 10.0 | ND | 97.0 | | 70-130 | | | | |
| 1,3,5-Trichlorobenzene | 10.5 | 1.0 | µg/L | 10.0 | ND | 105 | | 70-130 | | | | |
| 1,1,1-Trichloroethane | 11.6 | 1.0 | µg/L | 10.0 | ND | 116 | | 70-130 | | | | |
| 1,1,2-Trichloroethane | 10.9 | 1.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | | |
| Trichloroethylene | 12.8 | 1.0 | µg/L | 10.0 | 1.58 | 113 | | 70-130 | | | | |
| Trichlorofluoromethane (Freon 11) | 10.4 | 2.0 | µg/L | 10.0 | ND | 104 | | 70-130 | | | | |
| 1,2,3-Trichloropropane | 11.5 | 2.0 | µg/L | 10.0 | ND | 115 | | 70-130 | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 10.5 | 1.0 | µg/L | 10.0 | ND | 105 | | 70-130 | | | | |
| 1,2,4-Trimethylbenzene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | | | | |
| 1,3,5-Trimethylbenzene | 11.0 | 1.0 | µg/L | 10.0 | ND | 110 | | 70-130 | | | | |
| Vinyl Chloride | 9.16 | 2.0 | µg/L | 10.0 | ND | 91.6 | | 70-130 | | | | |
| m+p Xylene | 22.2 | 2.0 | µg/L | 20.0 | ND | 111 | | 70-130 | | | | |
| o-Xylene | 10.9 | 1.0 | µg/L | 10.0 | ND | 109 | | 70-130 | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | *25.0* | | µg/L | 25.0 | | 100 | | 70-130 | | | | |
| Surrogate: Toluene-d8 | *24.2* | | µg/L | 25.0 | | 96.9 | | 70-130 | | | | |
| Surrogate: 4-Bromofluorobenzene | *25.1* | | µg/L | 25.0 | | 100 | | 70-130 | | | | |
| **Matrix Spike Dup (B211664-MSD1)** | **Source: 18H1538-04** | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | | |
| Acetone | 120 | 50 | µg/L | 100 | ND | 120 | | 70-130 | 3.83 | | 30 | |
| Acrylonitrile | 11.4 | 5.0 | µg/L | 10.0 | ND | 114 | | 70-130 | 4.41 | | 30 | |
| tert-Amyl Methyl Ether (TAME) | 10.6 | 0.50 | µg/L | 10.0 | ND | 106 | | 70-130 | 2.47 | | 30 | |
| Benzene | 10.8 | 1.0 | µg/L | 10.0 | ND | 108 | | 70-130 | 3.01 | | 30 | |
| Bromobenzene | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | 9.58 | | 30 | |
| Bromochloromethane | 12.1 | 1.0 | µg/L | 10.0 | ND | 121 | | 70-130 | 3.95 | | 30 | |
| Bromodichloromethane | 11.6 | 0.50 | µg/L | 10.0 | ND | 116 | | 70-130 | 5.95 | | 30 | |
| Bromoform | 12.0 | 1.0 | µg/L | 10.0 | ND | 120 | | 70-130 | 4.85 | | 30 | |
| **Bromomethane** | 4.27 | 2.0 | µg/L | 10.0 | ND | **42.7** | * | 70-130 | **32.4** | * | 30 | MS-09, R-06, V-05 |
| 2-Butanone (MEK) | 115 | 20 | µg/L | 100 | ND | 115 | | 70-130 | 2.29 | | 30 | |
| **tert-Butyl Alcohol (TBA)** | 134 | 20 | µg/L | 100 | ND | **134** | * | 70-130 | 1.81 | | 30 | MS-12 |
| n-Butylbenzene | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | 5.27 | | 30 | |
| sec-Butylbenzene | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | 3.68 | | 30 | |
| tert-Butylbenzene | 11.6 | 1.0 | µg/L | 10.0 | ND | 116 | | 70-130 | 6.41 | | 30 | |
| tert-Butyl Ethyl Ether (TBEE) | 10.0 | 0.50 | µg/L | 10.0 | ND | 100 | | 70-130 | 1.51 | | 30 | |
| Carbon Disulfide | 11.2 | 4.0 | µg/L | 10.0 | ND | 112 | | 70-130 | 7.04 | | 30 | |
| Carbon Tetrachloride | 12.0 | 5.0 | µg/L | 10.0 | ND | 120 | | 70-130 | 4.85 | | 30 | |
| Chlorobenzene | 11.6 | 1.0 | µg/L | 10.0 | ND | 116 | | 70-130 | 5.69 | | 30 | |
| Chlorodibromomethane | 12.2 | 0.50 | µg/L | 10.0 | ND | 122 | | 70-130 | 1.57 | | 30 | |
| Chloroethane | 11.4 | 2.0 | µg/L | 10.0 | ND | 114 | | 70-130 | 2.68 | | 30 | |
| Chloroform | 11.8 | 2.0 | µg/L | 10.0 | 0.760 | 110 | | 70-130 | 5.84 | | 30 | |
| Chloromethane | 9.99 | 2.0 | µg/L | 10.0 | ND | 99.9 | | 70-130 | 0.200 | | 30 | |
| 2-Chlorotoluene | 11.9 | 1.0 | µg/L | 10.0 | ND | 119 | | 70-130 | 6.70 | | 30 | |
| 4-Chlorotoluene | 12.0 | 1.0 | µg/L | 10.0 | ND | 120 | | 70-130 | 6.10 | | 30 | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 11.8 | 5.0 | µg/L | 10.0 | ND | 118 | | 70-130 | 10.3 | | 30 | |
| 1,2-Dibromoethane (EDB) | 11.4 | 0.50 | µg/L | 10.0 | ND | 114 | | 70-130 | 0.440 | | 30 | |
| Dibromomethane | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | 2.60 | | 30 | |
| 1,2-Dichlorobenzene | 11.3 | 1.0 | µg/L | 10.0 | ND | 113 | | 70-130 | 4.53 | | 30 | |
| 1,3-Dichlorobenzene | 11.5 | 1.0 | µg/L | 10.0 | ND | 115 | | 70-130 | 3.44 | | 30 | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | | |
| **Matrix Spike Dup (B211664-MSD1)** | **Source: 18H1538-04** | | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | | |
| 1,4-Dichlorobenzene | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | 5.11 | 30 | |
| trans-1,4-Dichloro-2-butene | 11.3 | 2.0 | µg/L | 10.0 | ND | 113 | | 70-130 | 4.90 | 30 | |
| Dichlorodifluoromethane (Freon 12) | 7.98 | 2.0 | µg/L | 10.0 | ND | 79.8 | | 70-130 | 3.96 | 30 | |
| 1,1-Dichloroethane | 11.1 | 1.0 | µg/L | 10.0 | ND | 111 | | 70-130 | 2.75 | 30 | |
| 1,2-Dichloroethane | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | 7.29 | 30 | |
| 1,1-Dichloroethylene | 11.0 | 1.0 | µg/L | 10.0 | ND | 110 | | 70-130 | 1.93 | 30 | |
| cis-1,2-Dichloroethylene | 10.5 | 1.0 | µg/L | 10.0 | ND | 105 | | 70-130 | 2.60 | 30 | |
| trans-1,2-Dichloroethylene | 11.3 | 1.0 | µg/L | 10.0 | ND | 113 | | 70-130 | 4.08 | 30 | |
| 1,2-Dichloropropane | 11.3 | 1.0 | µg/L | 10.0 | ND | 113 | | 70-130 | 4.52 | 30 | |
| 1,3-Dichloropropane | 11.1 | 0.50 | µg/L | 10.0 | ND | 111 | | 70-130 | 4.42 | 30 | |
| 2,2-Dichloropropane | 8.99 | 1.0 | µg/L | 10.0 | ND | 89.9 | | 70-130 | 6.19 | 30 | |
| 1,1-Dichloropropene | 11.3 | 2.0 | µg/L | 10.0 | ND | 113 | | 70-130 | 5.00 | 30 | |
| cis-1,3-Dichloropropene | 11.0 | 0.50 | µg/L | 10.0 | ND | 110 | | 70-130 | 1.00 | 30 | |
| trans-1,3-Dichloropropene | 12.3 | 0.50 | µg/L | 10.0 | ND | 123 | | 70-130 | 5.42 | 30 | |
| Diethyl Ether | 10.6 | 2.0 | µg/L | 10.0 | ND | 106 | | 70-130 | 5.75 | 30 | |
| Diisopropyl Ether (DIPE) | 9.99 | 0.50 | µg/L | 10.0 | ND | 99.9 | | 70-130 | 2.64 | 30 | |
| **1,4-Dioxane** | 136 | 50 | µg/L | 100 | ND | **136** | * | 70-130 | 27.7 | 30 | MS-24 |
| Ethylbenzene | 11.5 | 1.0 | µg/L | 10.0 | ND | 115 | | 70-130 | 2.83 | 30 | |
| Hexachlorobutadiene | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | 9.52 | 30 | |
| 2-Hexanone (MBK) | 123 | 10 | µg/L | 100 | ND | 123 | | 70-130 | 0.684 | 30 | |
| Isopropylbenzene (Cumene) | 12.0 | 1.0 | µg/L | 10.0 | ND | 120 | | 70-130 | 6.02 | 30 | |
| p-Isopropyltoluene (p-Cymene) | 11.0 | 1.0 | µg/L | 10.0 | ND | 110 | | 70-130 | 2.96 | 30 | |
| **Methyl Acetate** | 31.9 | 1.0 | µg/L | 10.0 | ND | **319** | * | 70-130 | 2.57 | 30 | MS-12 |
| Methyl tert-Butyl Ether (MTBE) | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | 3.74 | 30 | |
| Methyl Cyclohexane | 11.7 | 1.0 | µg/L | 10.0 | ND | 117 | | 70-130 | 2.25 | 30 | |
| Methylene Chloride | 10.2 | 5.0 | µg/L | 10.0 | ND | 102 | | 70-130 | 5.77 | 30 | |
| 4-Methyl-2-pentanone (MIBK) | 119 | 10 | µg/L | 100 | ND | 119 | | 70-130 | 2.34 | 30 | |
| Naphthalene | 10.6 | 2.0 | µg/L | 10.0 | ND | 106 | | 70-130 | 7.04 | 30 | |
| n-Propylbenzene | 11.9 | 1.0 | µg/L | 10.0 | ND | 119 | | 70-130 | 6.08 | 30 | |
| Styrene | 11.5 | 1.0 | µg/L | 10.0 | ND | 115 | | 70-130 | 7.57 | 30 | |
| 1,1,1,2-Tetrachloroethane | 12.1 | 1.0 | µg/L | 10.0 | ND | 121 | | 70-130 | 6.46 | 30 | |
| 1,1,2,2-Tetrachloroethane | 11.6 | 0.50 | µg/L | 10.0 | ND | 116 | | 70-130 | 4.94 | 30 | |
| Tetrachloroethylene | 12.9 | 1.0 | µg/L | 10.0 | ND | 129 | | 70-130 | 4.60 | 30 | |
| Tetrahydrofuran | 11.8 | 10 | µg/L | 10.0 | ND | 118 | | 70-130 | 2.66 | 30 | |
| Toluene | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | 5.50 | 30 | |
| 1,2,3-Trichlorobenzene | 11.0 | 5.0 | µg/L | 10.0 | ND | 110 | | 70-130 | 12.4 | 30 | |
| 1,2,4-Trichlorobenzene | 10.6 | 5.0 | µg/L | 10.0 | ND | 106 | | 70-130 | 8.77 | 30 | |
| 1,3,5-Trichlorobenzene | 11.4 | 1.0 | µg/L | 10.0 | ND | 114 | | 70-130 | 8.31 | 30 | |
| 1,1,1-Trichloroethane | 12.2 | 1.0 | µg/L | 10.0 | ND | 122 | | 70-130 | 5.14 | 30 | |
| 1,1,2-Trichloroethane | 11.8 | 1.0 | µg/L | 10.0 | ND | 118 | | 70-130 | 7.91 | 30 | |
| Trichloroethylene | 14.0 | 1.0 | µg/L | 10.0 | 1.58 | 124 | | 70-130 | 8.29 | 30 | |
| Trichlorofluoromethane (Freon 11) | 11.0 | 2.0 | µg/L | 10.0 | ND | 110 | | 70-130 | 4.86 | 30 | |
| 1,2,3-Trichloropropane | 11.8 | 2.0 | µg/L | 10.0 | ND | 118 | | 70-130 | 2.83 | 30 | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | 11.0 | 1.0 | µg/L | 10.0 | ND | 110 | | 70-130 | 4.29 | 30 | |
| 1,2,4-Trimethylbenzene | 11.2 | 1.0 | µg/L | 10.0 | ND | 112 | | 70-130 | 4.36 | 30 | |
| 1,3,5-Trimethylbenzene | 11.6 | 1.0 | µg/L | 10.0 | ND | 116 | | 70-130 | 5.75 | 30 | |
| Vinyl Chloride | 9.54 | 2.0 | µg/L | 10.0 | ND | 95.4 | | 70-130 | 4.06 | 30 | |
| m+p Xylene | 23.3 | 2.0 | µg/L | 20.0 | ND | 117 | | 70-130 | 4.70 | 20 | |
| o-Xylene | 11.5 | 1.0 | µg/L | 10.0 | ND | 115 | | 70-130 | 5.27 | 30 | |
| Surrogate: 1,2-Dichloroethane-d4 | *23.9* | | µg/L | 25.0 | | 95.7 | | 70-130 | | | |
| Surrogate: Toluene-d8 | *24.3* | | µg/L | 25.0 | | 97.2 | | 70-130 | | | |

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**QUALITY CONTROL**

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211664 - SW-846 5030B** | | | | | | | | | | |
| **Matrix Spike Dup (B211664-MSD1)** | | **Source: 18H1538-04** | | Prepared: 09/04/18 Analyzed: 09/05/18 | | | | | | |
| Surrogate: 4-Bromofluorobenzene | *24.9* | | µg/L | 25.0 | | 99.7 | 70-130 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211877 - SW-846 3510C** | | | | | | | | | | |
| **Blank (B211877-BLK1)** | | | | Prepared: 09/01/18 Analyzed: 09/06/18 | | | | | | |
| Acenaphthene (SIM) | ND | 0.30 | µg/L | | | | | | | |
| Acenaphthylene (SIM) | ND | 0.20 | µg/L | | | | | | | |
| Anthracene (SIM) | ND | 0.20 | µg/L | | | | | | | |
| Benzo(a)anthracene (SIM) | ND | 0.050 | µg/L | | | | | | | |
| Benzo(a)pyrene (SIM) | ND | 0.10 | µg/L | | | | | | | |
| Benzo(b)fluoranthene (SIM) | ND | 0.050 | µg/L | | | | | | | |
| Benzo(g,h,i)perylene (SIM) | ND | 0.50 | µg/L | | | | | | | |
| Benzo(k)fluoranthene (SIM) | ND | 0.20 | µg/L | | | | | | | |
| Chrysene (SIM) | ND | 0.20 | µg/L | | | | | | | |
| Dibenz(a,h)anthracene (SIM) | ND | 0.10 | µg/L | | | | | | | |
| Fluoranthene (SIM) | ND | 0.50 | µg/L | | | | | | | |
| Fluorene (SIM) | ND | 1.0 | µg/L | | | | | | | |
| Indeno(1,2,3-cd)pyrene (SIM) | ND | 0.10 | µg/L | | | | | | | |
| 2-Methylnaphthalene (SIM) | ND | 1.0 | µg/L | | | | | | | |
| Naphthalene (SIM) | ND | 1.0 | µg/L | | | | | | | |
| Phenanthrene (SIM) | ND | 0.050 | µg/L | | | | | | | |
| Pyrene (SIM) | ND | 1.0 | µg/L | | | | | | | |
| Surrogate: Nitrobenzene-d5 | *88.5* | | µg/L | 100 | | 88.5 | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *91.5* | | µg/L | 100 | | 91.5 | 30-130 | | | |
| Surrogate: p-Terphenyl-d14 | *97.9* | | µg/L | 100 | | 97.9 | 30-130 | | | |
| **LCS (B211877-BS1)** | | | | Prepared: 09/01/18 Analyzed: 09/06/18 | | | | | | |
| Acenaphthene (SIM) | 36.5 | 7.5 | µg/L | 50.0 | | 73.0 | 40-140 | | | |
| Acenaphthylene (SIM) | 37.2 | 5.0 | µg/L | 50.0 | | 74.3 | 40-140 | | | |
| Anthracene (SIM) | 38.6 | 5.0 | µg/L | 50.0 | | 77.1 | 40-140 | | | |
| Benzo(a)anthracene (SIM) | 37.8 | 1.2 | µg/L | 50.0 | | 75.5 | 40-140 | | | |
| Benzo(a)pyrene (SIM) | 40.1 | 2.5 | µg/L | 50.0 | | 80.2 | 40-140 | | | |
| Benzo(b)fluoranthene (SIM) | 42.0 | 1.2 | µg/L | 50.0 | | 84.0 | 40-140 | | | |
| Benzo(g,h,i)perylene (SIM) | 37.8 | 12 | µg/L | 50.0 | | 75.6 | 40-140 | | | |
| Benzo(k)fluoranthene (SIM) | 40.7 | 5.0 | µg/L | 50.0 | | 81.4 | 40-140 | | | |
| Chrysene (SIM) | 37.6 | 5.0 | µg/L | 50.0 | | 75.3 | 40-140 | | | |
| Dibenz(a,h)anthracene (SIM) | 38.7 | 2.5 | µg/L | 50.0 | | 77.4 | 40-140 | | | |
| Fluoranthene (SIM) | 37.4 | 12 | µg/L | 50.0 | | 74.8 | 40-140 | | | |
| Fluorene (SIM) | 38.1 | 25 | µg/L | 50.0 | | 76.2 | 40-140 | | | |
| Indeno(1,2,3-cd)pyrene (SIM) | 38.9 | 2.5 | µg/L | 50.0 | | 77.8 | 40-140 | | | |
| 2-Methylnaphthalene (SIM) | 37.2 | 25 | µg/L | 50.0 | | 74.5 | 40-140 | | | |
| Naphthalene (SIM) | 34.9 | 25 | µg/L | 50.0 | | 69.8 | 40-140 | | | |
| Phenanthrene (SIM) | 37.4 | 1.2 | µg/L | 50.0 | | 74.9 | 40-140 | | | |
| Pyrene (SIM) | 36.9 | 25 | µg/L | 50.0 | | 73.8 | 40-140 | | | |
| Surrogate: Nitrobenzene-d5 | *65.8* | | µg/L | 100 | | 65.8 | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *62.8* | | µg/L | 100 | | 62.8 | 30-130 | | | |
| Surrogate: p-Terphenyl-d14 | *55.7* | | µg/L | 100 | | 55.7 | 30-130 | | | |

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**QUALITY CONTROL**

**Semivolatile Organic Compounds by GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211877 - SW-846 3510C** | | | | | | | | | | |
| **LCS Dup (B211877-BSD1)** | | | | Prepared: 09/01/18 Analyzed: 09/06/18 | | | | | | |
| Acenaphthene (SIM) | 35.2 | 7.5 | µg/L | 50.0 | | 70.4 | 40-140 | 3.77 | 20 | |
| Acenaphthylene (SIM) | 35.6 | 5.0 | µg/L | 50.0 | | 71.1 | 40-140 | 4.40 | 20 | |
| Anthracene (SIM) | 37.8 | 5.0 | µg/L | 50.0 | | 75.6 | 40-140 | 1.96 | 20 | |
| Benzo(a)anthracene (SIM) | 37.3 | 1.2 | µg/L | 50.0 | | 74.6 | 40-140 | 1.27 | 20 | |
| Benzo(a)pyrene (SIM) | 39.5 | 2.5 | µg/L | 50.0 | | 79.0 | 40-140 | 1.57 | 20 | |
| Benzo(b)fluoranthene (SIM) | 42.0 | 1.2 | µg/L | 50.0 | | 83.9 | 40-140 | 0.179 | 20 | |
| Benzo(g,h,i)perylene (SIM) | 37.9 | 12 | µg/L | 50.0 | | 75.8 | 40-140 | 0.198 | 20 | |
| Benzo(k)fluoranthene (SIM) | 41.0 | 5.0 | µg/L | 50.0 | | 81.9 | 40-140 | 0.612 | 20 | |
| Chrysene (SIM) | 37.4 | 5.0 | µg/L | 50.0 | | 74.8 | 40-140 | 0.733 | 20 | |
| Dibenz(a,h)anthracene (SIM) | 38.6 | 2.5 | µg/L | 50.0 | | 77.3 | 40-140 | 0.0647 | 20 | |
| Fluoranthene (SIM) | 36.9 | 12 | µg/L | 50.0 | | 73.8 | 40-140 | 1.28 | 20 | |
| Fluorene (SIM) | 36.8 | 25 | µg/L | 50.0 | | 73.5 | 40-140 | 3.54 | 20 | |
| Indeno(1,2,3-cd)pyrene (SIM) | 39.0 | 2.5 | µg/L | 50.0 | | 77.9 | 40-140 | 0.193 | 20 | ‡ |
| 2-Methylnaphthalene (SIM) | 35.1 | 25 | µg/L | 50.0 | | 70.2 | 40-140 | 5.87 | 20 | |
| Naphthalene (SIM) | 32.8 | 25 | µg/L | 50.0 | | 65.6 | 40-140 | 6.35 | 20 | |
| Phenanthrene (SIM) | 37.0 | 1.2 | µg/L | 50.0 | | 73.9 | 40-140 | 1.34 | 20 | |
| Pyrene (SIM) | 36.7 | 25 | µg/L | 50.0 | | 73.4 | 40-140 | 0.679 | 20 | |
| Surrogate: Nitrobenzene-d5 | *60.2* | | µg/L | 100 | | 60.2 | 30-130 | | | |
| Surrogate: 2-Fluorobiphenyl | *59.2* | | µg/L | 100 | | 59.2 | 30-130 | | | |
| Surrogate: p-Terphenyl-d14 | *55.1* | | µg/L | 100 | | 55.1 | 30-130 | | | |

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**QUALITY CONTROL**

**1,4-Dioxane by isotope dilution GC/MS - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211609 - SW-846 3510C** | | | | | | | | | | |
| **Blank (B211609-BLK1)** | | | | Prepared: 09/01/18 Analyzed: 09/05/18 | | | | | | |
| 1,4-Dioxane | ND | 0.20 | µg/L | | | | | | | |
| Surrogate: 1,4-Dioxane-d8 | *3.39* | | µg/L | 10.0 | | 33.9 | 15-110 | | | |
| **LCS (B211609-BS1)** | | | | Prepared: 09/01/18 Analyzed: 09/05/18 | | | | | | |
| 1,4-Dioxane | 10.3 | 0.20 | µg/L | 10.0 | | 103 | 40-140 | | | |
| Surrogate: 1,4-Dioxane-d8 | *3.38* | | µg/L | 10.0 | | 33.8 | 15-110 | | | |
| **LCS Dup (B211609-BSD1)** | | | | Prepared: 09/01/18 Analyzed: 09/05/18 | | | | | | |
| 1,4-Dioxane | 11.3 | 0.20 | µg/L | 10.0 | | 113 | 40-140 | 9.35 | 30 | |
| Surrogate: 1,4-Dioxane-d8 | *3.33* | | µg/L | 10.0 | | 33.3 | 15-110 | | | |
| **Matrix Spike (B211609-MS1)** | **Source: 18H1538-04** | | | Prepared: 09/01/18 Analyzed: 09/05/18 | | | | | | |
| 1,4-Dioxane | 11.6 | 0.20 | µg/L | 10.0 | ND | 116 | 40-140 | | | |
| Surrogate: 1,4-Dioxane-d8 | *2.40* | | µg/L | 10.0 | | 24.0 | 15-110 | | | |
| **Matrix Spike Dup (B211609-MSD1)** | **Source: 18H1538-04** | | | Prepared: 09/01/18 Analyzed: 09/05/18 | | | | | | |
| 1,4-Dioxane | 11.5 | 0.20 | µg/L | 10.0 | ND | 115 | 40-140 | 0.381 | 20 | |
| Surrogate: 1,4-Dioxane-d8 | *2.62* | | µg/L | 10.0 | | 26.2 | 15-110 | | | |

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**QUALITY CONTROL**

**Miscellaneous Organic Analyses - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211771 - EPA 537** | | | | | | | | | | |
| **Blank (B211771-BLK1)** | | | | Prepared: 09/10/18 Analyzed: 09/15/18 | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorohexanoic acid (PFHxA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluoroheptanoic acid (PFHpA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorobutanoic acid (PFBA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorodecanesulfonic acid (PFDS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorooctanesulfonamide (FOSA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluoropentanoic acid (PFPeA) | ND | 2.0 | ng/L | | | | | | | |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | ND | 2.0 | ng/L | | | | | | | |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorohexanesulfonic acid (PFHxS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorooctanoic acid (PFOA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorononanoic acid (PFNA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorodecanoic acid (PFDA) | ND | 2.0 | ng/L | | | | | | | |
| NMeFOSAA | ND | 2.0 | ng/L | | | | | | | |
| Perfluoroundecanoic acid (PFUnA) | ND | 2.0 | ng/L | | | | | | | |
| NEtFOSAA | ND | 2.0 | ng/L | | | | | | | |
| Perfluorododecanoic acid (PFDoA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorotridecanoic acid (PFTrDA) | ND | 2.0 | ng/L | | | | | | | |
| Perfluorotetradecanoic acid (PFTA) | ND | 2.0 | ng/L | | | | | | | |
| Surrogate: 13C-PFHxA | *41.1* | | ng/L | 40.0 | | 103 | 70-130 | | | |
| Surrogate: 13C-PFDA | *42.9* | | ng/L | 40.0 | | 107 | 70-130 | | | |
| Surrogate: d5-NEtFOSAA | *184* | | ng/L | 160 | | 115 | 70-130 | | | |
| **LCS (B211771-BS1)** | | | | Prepared: 09/10/18 Analyzed: 09/15/18 | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | 9.72 | 2.0 | ng/L | 8.85 | | 110 | 70-130 | | | |
| Perfluorohexanoic acid (PFHxA) | 11.2 | 2.0 | ng/L | 10.0 | | 112 | 70-130 | | | |
| Perfluoroheptanoic acid (PFHpA) | 10.6 | 2.0 | ng/L | 10.0 | | 106 | 70-130 | | | |
| Perfluorobutanoic acid (PFBA) | 3.08 | 2.0 | ng/L | 10.0 | | 30.8 | 30-110 | | | |
| Perfluorodecanesulfonic acid (PFDS) | 10.7 | 2.0 | ng/L | 9.65 | | 111 | 70-130 | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 9.20 | 2.0 | ng/L | 9.50 | | 96.8 | 70-130 | | | |
| Perfluorooctanesulfonamide (FOSA) | 4.36 | 2.0 | ng/L | 10.0 | | 43.6 | 30-110 | | | |
| Perfluoropentanoic acid (PFPeA) | 12.7 | 2.0 | ng/L | 10.0 | | 127 | 70-130 | | | |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | 11.1 | 2.0 | ng/L | 9.50 | | 117 | 70-130 | | | |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | 11.6 | 2.0 | ng/L | 9.60 | | 121 | 70-130 | | | |
| Perfluorohexanesulfonic acid (PFHxS) | 9.58 | 2.0 | ng/L | 9.10 | | 105 | 70-130 | | | |
| Perfluorooctanoic acid (PFOA) | 11.2 | 2.0 | ng/L | 10.0 | | 112 | 70-130 | | | |
| Perfluorooctanesulfonic acid (PFOS) | 11.9 | 2.0 | ng/L | 9.25 | | 129 | 70-130 | | | |
| Perfluorononanoic acid (PFNA) | 10.6 | 2.0 | ng/L | 10.0 | | 106 | 70-130 | | | |
| Perfluorodecanoic acid (PFDA) | 9.61 | 2.0 | ng/L | 10.0 | | 96.1 | 70-130 | | | |
| NMeFOSAA | 10.0 | 2.0 | ng/L | 10.0 | | 100 | 70-130 | | | |
| Perfluoroundecanoic acid (PFUnA) | 9.77 | 2.0 | ng/L | 10.0 | | 97.7 | 70-130 | | | |
| NEtFOSAA | 9.34 | 2.0 | ng/L | 10.0 | | 93.4 | 70-130 | | | |
| Perfluorododecanoic acid (PFDoA) | 10.6 | 2.0 | ng/L | 10.0 | | 106 | 70-130 | | | |
| Perfluorotridecanoic acid (PFTrDA) | 9.82 | 2.0 | ng/L | 10.0 | | 98.2 | 70-130 | | | |
| Perfluorotetradecanoic acid (PFTA) | 9.95 | 2.0 | ng/L | 10.0 | | 99.5 | 70-130 | | | |
| Surrogate: 13C-PFHxA | *46.3* | | ng/L | 40.0 | | 116 | 70-130 | | | |
| Surrogate: 13C-PFDA | *44.0* | | ng/L | 40.0 | | 110 | 70-130 | | | |
| Surrogate: d5-NEtFOSAA | *196* | | ng/L | 160 | | 122 | 70-130 | | | |

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**QUALITY CONTROL**

**Miscellaneous Organic Analyses - Quality Control**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | | %REC Limits | RPD | | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch B211771 - EPA 537** | | | | | | | | | | | | |
| **Matrix Spike (B211771-MS1)** | **Source: 18H1538-04** | | | Prepared: 09/10/18 Analyzed: 09/15/18 | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | 10.9 | 2.0 | ng/L | 8.85 | ND | 123 | | 70-130 | | | | |
| Perfluorohexanoic acid (PFHxA) | 11.7 | 2.0 | ng/L | 10.0 | ND | 117 | | 70-130 | | | | |
| Perfluoroheptanoic acid (PFHpA) | 10.8 | 2.0 | ng/L | 10.0 | ND | 108 | | 70-130 | | | | |
| Perfluorobutanoic acid (PFBA) | 3.36 | 2.0 | ng/L | 10.0 | ND | 33.6 | | 30-110 | | | | |
| Perfluorodecanesulfonic acid (PFDS) | 8.24 | 2.0 | ng/L | 9.65 | ND | 85.4 | | 70-130 | | | | |
| Perfluoroheptanesulfonic acid (PFHpS) | 8.15 | 2.0 | ng/L | 9.50 | ND | 85.8 | | 70-130 | | | | |
| Perfluorooctanesulfonamide (FOSA) | 3.79 | 2.0 | ng/L | 10.0 | ND | 37.9 | | 30-110 | | | | |
| Perfluoropentanoic acid (PFPeA) | 12.1 | 2.0 | ng/L | 10.0 | ND | 121 | | 70-130 | | | | |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | 11.6 | 2.0 | ng/L | 9.50 | ND | 122 | | 70-130 | | | | |
| **8:2 Fluorotelomersulfonate (8:2 FTS)** | 12.8 | 2.0 | ng/L | 9.60 | ND | **133** | * | 70-130 | | | | MS-11 |
| **Perfluorohexanesulfonic acid (PFHxS)** | 16.2 | 2.0 | ng/L | 9.10 | ND | **178** | * | 70-130 | | | | MS-11 |
| Perfluorooctanoic acid (PFOA) | 11.4 | 2.0 | ng/L | 10.0 | ND | 114 | | 70-130 | | | | |
| **Perfluorooctanesulfonic acid (PFOS)** | 41.3 | 2.0 | ng/L | 9.25 | 2.83 | **416** | * | 70-130 | | | | MS-11, MS-24 |
| Perfluorononanoic acid (PFNA) | 8.83 | 2.0 | ng/L | 10.0 | ND | 88.3 | | 70-130 | | | | |
| Perfluorodecanoic acid (PFDA) | 8.54 | 2.0 | ng/L | 10.0 | ND | 85.4 | | 70-130 | | | | |
| NMeFOSAA | 7.25 | 2.0 | ng/L | 10.0 | ND | 72.5 | | 70-130 | | | | |
| Perfluoroundecanoic acid (PFUnA) | 7.11 | 2.0 | ng/L | 10.0 | ND | 71.1 | | 70-130 | | | | |
| NEtFOSAA | 7.22 | 2.0 | ng/L | 10.0 | ND | 72.2 | | 70-130 | | | | |
| **Perfluorododecanoic acid (PFDoA)** | 6.93 | 2.0 | ng/L | 10.0 | ND | **69.3** | * | 70-130 | | | | MS-09 |
| Perfluorotridecanoic acid (PFTrDA) | 7.04 | 2.0 | ng/L | 10.0 | ND | 70.4 | | 70-130 | | | | |
| **Perfluorotetradecanoic acid (PFTA)** | 5.87 | 2.0 | ng/L | 10.0 | ND | **58.7** | * | 70-130 | | | | MS-09 |
| Surrogate: 13C-PFHxA | *47.5* | | ng/L | 40.0 | | 119 | | 70-130 | | | | |
| Surrogate: 13C-PFDA | *35.3* | | ng/L | 40.0 | | 88.3 | | 70-130 | | | | |
| Surrogate: d5-NEtFOSAA | *141* | | ng/L | 160 | | 88.4 | | 70-130 | | | | |
| **Matrix Spike Dup (B211771-MSD1)** | **Source: 18H1538-04** | | | Prepared: 09/10/18 Analyzed: 09/15/18 | | | | | | | | |
| **Perfluorobutanesulfonic acid (PFBS)** | 12.4 | 2.0 | ng/L | 8.85 | ND | **141** | * | 70-130 | 13.2 | | 30 | MS-11 |
| Perfluorohexanoic acid (PFHxA) | 12.8 | 2.0 | ng/L | 10.0 | ND | 128 | | 70-130 | 9.26 | | 30 | |
| Perfluoroheptanoic acid (PFHpA) | 11.2 | 2.0 | ng/L | 10.0 | ND | 112 | | 70-130 | 3.16 | | 30 | |
| Perfluorobutanoic acid (PFBA) | 3.03 | 2.0 | ng/L | 10.0 | ND | 30.3 | | 30-110 | 10.3 | | 30 | |
| Perfluorodecanesulfonic acid (PFDS) | 9.08 | 2.0 | ng/L | 9.65 | ND | 94.1 | | 70-130 | 9.68 | | 30 | |
| Perfluoroheptanesulfonic acid (PFHpS) | 10.1 | 2.0 | ng/L | 9.50 | ND | 106 | | 70-130 | 20.9 | | 30 | |
| Perfluorooctanesulfonamide (FOSA) | 6.37 | 2.0 | ng/L | 10.0 | ND | 63.7 | | 30-110 | **50.9** | * | 30 | W-15 |
| Perfluoropentanoic acid (PFPeA) | 12.4 | 2.0 | ng/L | 10.0 | ND | 124 | | 70-130 | 2.17 | | 30 | |
| 6:2 Fluorotelomersulfonate (6:2 FTS) | 10.2 | 2.0 | ng/L | 9.50 | ND | 107 | | 70-130 | 13.1 | | 30 | |
| 8:2 Fluorotelomersulfonate (8:2 FTS) | 10.6 | 2.0 | ng/L | 9.60 | ND | 110 | | 70-130 | 18.6 | | 30 | |
| Perfluorohexanesulfonic acid (PFHxS) | 10.7 | 2.0 | ng/L | 9.10 | ND | 118 | | 70-130 | **41.2** | * | 30 | MS-11 |
| Perfluorooctanoic acid (PFOA) | 12.4 | 2.0 | ng/L | 10.0 | ND | 124 | | 70-130 | 8.97 | | 30 | |
| Perfluorooctanesulfonic acid (PFOS) | 12.1 | 2.0 | ng/L | 9.25 | 2.83 | 99.7 | | 70-130 | **110** | * | 30 | MS-24 |
| Perfluorononanoic acid (PFNA) | 10.1 | 2.0 | ng/L | 10.0 | ND | 101 | | 70-130 | 13.3 | | 30 | |
| Perfluorodecanoic acid (PFDA) | 10.2 | 2.0 | ng/L | 10.0 | ND | 102 | | 70-130 | 17.7 | | 30 | |
| NMeFOSAA | 8.38 | 2.0 | ng/L | 10.0 | ND | 83.8 | | 70-130 | 14.5 | | 30 | |
| Perfluoroundecanoic acid (PFUnA) | 9.82 | 2.0 | ng/L | 10.0 | ND | 98.2 | | 70-130 | **31.9** | * | 30 | MS-24 |
| NEtFOSAA | 8.54 | 2.0 | ng/L | 10.0 | ND | 85.4 | | 70-130 | 16.7 | | 30 | |
| Perfluorododecanoic acid (PFDoA) | 9.42 | 2.0 | ng/L | 10.0 | ND | 94.2 | | 70-130 | **30.5** | * | 30 | W-15 |
| Perfluorotridecanoic acid (PFTrDA) | 9.49 | 2.0 | ng/L | 10.0 | ND | 94.9 | | 70-130 | 29.7 | | 30 | |
| Perfluorotetradecanoic acid (PFTA) | 7.43 | 2.0 | ng/L | 10.0 | ND | 74.3 | | 70-130 | 23.5 | | 30 | |
| Surrogate: 13C-PFHxA | *50.4* | | ng/L | 40.0 | | 126 | | 70-130 | | | | |
| Surrogate: 13C-PFDA | *42.0* | | ng/L | 40.0 | | 105 | | 70-130 | | | | |
| Surrogate: d5-NEtFOSAA | *159* | | ng/L | 160 | | 99.6 | | 70-130 | | | | |

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**FLAG/QUALIFIER SUMMARY**

| | |
|---|---|
| * | QC result is outside of established limits. |
| † | Wide recovery limits established for difficult compound. |
| ‡ | Wide RPD limits established for difficult compound. |
| # | Data exceeded client recommended or regulatory level |
| ND | Not Detected |
| RL | Reporting Limit is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| MCL | Maximum Contaminant Level |
| | Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded. |
| | No results have been blank subtracted unless specified in the case narrative section. |
| L-02 | Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side. |
| MS-09 | Matrix spike recovery and/or matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a low bias for reported result or non-homogeneous sample aliquots cannot be eliminated. |
| MS-11 | Matrix spike recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated. |
| MS-12 | Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated. |
| MS-24 | Either matrix spike or matrix spike duplicate is outside of control limits, but the other is within limits. Analysis is in control based on laboratory fortified blank recovery. |
| R-06 | Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample. |
| V-05 | Continuing calibration did not meet method specifications and was biased on the low side for this compound. |
| V-36 | Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound. |
| W-15 | Test replicates show more than 30% difference between values. |

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**CERTIFICATIONS**

**Certified Analyses included in this Report**

| Analyte | Certifications |
|---|---|
| ***SW-846 8260C in Water*** | |
| Acetone | CT,ME,NH,VA,NY |
| Acrylonitrile | CT,ME,NH,VA,NY |
| tert-Amyl Methyl Ether (TAME) | ME,NH,VA,NY |
| Benzene | CT,ME,NH,VA,NY |
| Bromobenzene | NY |
| Bromochloromethane | ME,NH,VA,NY |
| Bromodichloromethane | CT,ME,NH,VA,NY |
| Bromoform | CT,ME,NH,VA,NY |
| Bromomethane | CT,ME,NH,VA,NY |
| 2-Butanone (MEK) | CT,ME,NH,VA,NY |
| tert-Butyl Alcohol (TBA) | ME,NH,VA,NY |
| n-Butylbenzene | ME,VA,NY |
| sec-Butylbenzene | ME,VA,NY |
| tert-Butylbenzene | ME,VA,NY |
| tert-Butyl Ethyl Ether (TBEE) | ME,NH,VA,NY |
| Carbon Disulfide | CT,ME,NH,VA,NY |
| Carbon Tetrachloride | CT,ME,NH,VA,NY |
| Chlorobenzene | CT,ME,NH,VA,NY |
| Chlorodibromomethane | CT,ME,NH,VA,NY |
| Chloroethane | CT,ME,NH,VA,NY |
| Chloroform | CT,ME,NH,VA,NY |
| Chloromethane | CT,ME,NH,VA,NY |
| 2-Chlorotoluene | ME,NH,VA,NY |
| 4-Chlorotoluene | ME,NH,VA,NY |
| 1,2-Dibromo-3-chloropropane (DBCP) | NY |
| 1,2-Dibromoethane (EDB) | NY |
| Dibromomethane | ME,NH,VA,NY |
| 1,2-Dichlorobenzene | CT,ME,NH,VA,NY |
| 1,3-Dichlorobenzene | CT,ME,NH,VA,NY |
| 1,4-Dichlorobenzene | CT,ME,NH,VA,NY |
| trans-1,4-Dichloro-2-butene | ME,NH,VA,NY |
| Dichlorodifluoromethane (Freon 12) | ME,NH,VA,NY |
| 1,1-Dichloroethane | CT,ME,NH,VA,NY |
| 1,2-Dichloroethane | CT,ME,NH,VA,NY |
| 1,1-Dichloroethylene | CT,ME,NH,VA,NY |
| cis-1,2-Dichloroethylene | ME,NY |
| trans-1,2-Dichloroethylene | CT,ME,NH,VA,NY |
| 1,2-Dichloropropane | CT,ME,NH,VA,NY |
| 1,3-Dichloropropane | ME,VA,NY |
| 2,2-Dichloropropane | ME,NH,VA,NY |
| 1,1-Dichloropropene | ME,NH,VA,NY |
| cis-1,3-Dichloropropene | CT,ME,NH,VA,NY |
| trans-1,3-Dichloropropene | CT,ME,NH,VA,NY |
| Diethyl Ether | NY |
| Diisopropyl Ether (DIPE) | ME,NH,VA,NY |
| 1,4-Dioxane | NY |
| Ethylbenzene | CT,ME,NH,VA,NY |

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**CERTIFICATIONS**

**Certified Analyses included in this Report**

| Analyte | Certifications |
|---|---|
| ***SW-846 8260C in Water*** | |
| Hexachlorobutadiene | CT,ME,NH,VA,NY |
| 2-Hexanone (MBK) | CT,ME,NH,VA,NY |
| Isopropylbenzene (Cumene) | ME,VA,NY |
| p-Isopropyltoluene (p-Cymene) | CT,ME,NH,VA,NY |
| Methyl Acetate | NY |
| Methyl tert-Butyl Ether (MTBE) | CT,ME,NH,VA,NY |
| Methyl Cyclohexane | NY |
| Methylene Chloride | CT,ME,NH,VA,NY |
| 4-Methyl-2-pentanone (MIBK) | CT,ME,NH,VA,NY |
| Naphthalene | ME,NH,VA,NY |
| n-Propylbenzene | CT,ME,NH,VA,NY |
| Styrene | CT,ME,NH,VA,NY |
| 1,1,1,2-Tetrachloroethane | CT,ME,NH,VA,NY |
| 1,1,2,2-Tetrachloroethane | CT,ME,NH,VA,NY |
| Tetrachloroethylene | CT,ME,NH,VA,NY |
| Toluene | CT,ME,NH,VA,NY |
| 1,2,3-Trichlorobenzene | ME,NH,VA,NY |
| 1,2,4-Trichlorobenzene | CT,ME,NH,VA,NY |
| 1,3,5-Trichlorobenzene | ME |
| 1,1,1-Trichloroethane | CT,ME,NH,VA,NY |
| 1,1,2-Trichloroethane | CT,ME,NH,VA,NY |
| Trichloroethylene | CT,ME,NH,VA,NY |
| Trichlorofluoromethane (Freon 11) | CT,ME,NH,VA,NY |
| 1,2,3-Trichloropropane | ME,NH,VA,NY |
| 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) | VA,NY |
| 1,2,4-Trimethylbenzene | ME,VA,NY |
| 1,3,5-Trimethylbenzene | ME,VA,NY |
| Vinyl Chloride | CT,ME,NH,VA,NY |
| m+p Xylene | CT,ME,NH,VA,NY |
| o-Xylene | CT,ME,NH,VA,NY |
| ***SW-846 8270D in Water*** | |
| 1,4-Dioxane | NY |

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

| Code | Description | Number | Expires |
|---|---|---|---|
| AIHA | AIHA-LAP, LLC - ISO17025:2005 | 100033 | 03/1/2020 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2019 |
| CT | Connecticut Department of Publilc Health | PH-0567 | 09/30/2019 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2019 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2019 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2018 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2018 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2019 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2019 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2019 |
| ME | State of Maine | 2011028 | 06/9/2019 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2018 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2019 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2019 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2019 |

JCH

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Doc # 380 Rev 1_03242017

# CHAIN OF CUSTODY RECORD (New York)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

| | |
|---|---|
| Company Name: | Aztech Technologies, Inc |
| Address: | 5 McCrea Hill Road, Ballsoton Spa, New York |
| Phone: | 518-885-5383 |
| Project Name: | NYSDEC - Former Ithaca Gun Factory Offsite |
| Project Location: | Ithaca, New York |
| Project Number: | |
| Project Manager: | Thomas Giamichael |
| Con-Test Quote Name/Number: | |
| Invoice Recipient: | |
| Sampled By: | Thomas Gialmichael/ Michael Deyette |

**Requested Turnaround Time**
7-Day ☐ 10-Day ☐
Due Date: Standard TAT

**Rush-Approval Required**
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

**Data Delivery**
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: tgiamichael@aztechenv.com
Fax To #:

ANALYSIS REQUESTED

| Con-Test Work Order# | Client Sample ID / Description | Date | Time | Composite | Grab | [1]Matrix Code | Conc Code | EPA 8260 Full List | PFAS - NYSDEC 21 Coumpound List | 1,4 Dioxane 8270 SIM | # of Containers | [2] Preservation Code | [3] Container Code |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 3 | 2 | 2 | | | |
| | | | | | | | | H | I | I | | | |
| | | | | | | | | V | P | A | | | |
| 1 | AZMW-1 | 29-Aug | 11:25 | | x | GW | L | X | | | | | |
| 2 | AZMW-2 | 28-Aug | 15:30 | | x | GW | L | X | | | | | |
| 3 | AZMW-3 | 28-Aug | 12:55 | | x | GW | L | X | X | X | | | |
| 4 | AZMW-4 | 28-Aug | 12:55 | | x | GW | L | X | X | X | | | |
| - | MS/MSD - AZMW-4 | 28-Aug | 12:55 | | x | GW | L | X | X | X | | | |
| 5 | AZMW-5 | 29-Aug | 9:10 | | x | GW | L | X | | | | | |
| 6 | AZMW-6 | 28-Aug | 15:20 | | x | GW | L | X | | | | | |
| 7 | AZMW-7 | 28-Aug | 11:10 | | x | GW | L | X | | | | | |
| 8 | AZMW-8 | 28-Aug | 11:30 | | x | GW | L | X | | | | | |
| 9 | MW-6 | 29-Aug | 11:10 | | x | GW | L | X | | | | | |
| 10 | MW-7 | 29-Aug | 9:20 | | x | GW | L | X | X | X | | | |
| 11 | FD | 29-Aug | | | x | GW | L | X | | | | | |
| 12 | FB | 29-Aug | 9:00 | | x | GW | C | | X | | | | |
| 13 | Equipment Blank | 28-Aug | 11:45 | | x | GW | C | X | X | X | | | |

Comments: Requires CAT B Deliverable Package

Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
**H - High; M - Medium; L - Low; C - Clean; U - Unknown**

**Dissolved Metals Samples**
☐ Field Filtered
☐ Lab to Filter

**Orthophosphate Samples**
☐ Field Filtered
☐ Lab to Filter

**[1] Matrix Codes:**
**GW = Ground Water**
**WW = Waste Water**
**DW = Drinking Water**
**A = Air**
**S = Soil**
**SL = Sludge**
**SOL = Solid**
**O = Other (please define)**

**[2] Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

**[3] Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

| | |
|---|---|
| Relinquished by: (signature) | Date/Time: 8/29/18 17:00 |
| Received by: (signature) | Date/Time: 8-30-18 1400 |
| Relinquished by: (signature) | Date/Time: 8-31-18 1205 PM |
| Received by: (signature) | Date/Time: 8/31/18 1211 |
| Relinquished by: (signature) | Date/Time: 8/31/18 1325 |
| Received by: (signature) 3.4 | Date/Time: 8/31/18 15:25 |

**Program & Regulatory Information**
☐ AWQ STDS ☐ NY TOGS
☐ NYC Sewer Discharge ☐ NY CP-51
☐ Part 360 GW (Landfill)
☐ NY Restricted Use
☐ NY Unrestricted Use
☐ NY Part 375
Other:

**Deliverables**
☑ Enhanced Data Package
☑ NYSDEC EQuIS EDD
☐ EQuIS (Standard) EDD
☐ NY Regulatory EDD
☐ NY Regs Hits-Only EDD
Other:
NELAC and AIHA-LAP, LLC Accredited

**Project Entity**
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

**Other**
☐ Chromatogram
☐ *AIHA-LAP,LLC*

**PCB ONLY**
☐ Soxhlet
☐ Non Soxhlet

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

**Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False**

**Client** Aztech

**Received By** NP Date 8/31/18 Time 15:25

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

By Gun # 557 Actual Temp - 3.4

Were samples within Temperature? 2-6°C T By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? N/A Were Samples Tampered with? N/A

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? T

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? T On COC? T

Do all samples have the proper pH? N/A Acid _____ Base _____

| Vials | # | Containers: | # | | # | | # |
|---|---|---|---|---|---|---|---|
| Unp- | | 1 Liter Amb. | 10 | 1 Liter Plastic | | 16 oz Amb. | |
| HCL- | 39 | 500 mL Amb. | | 500 mL Plastic | | 8oz Amb/Clear | |
| Meoh- | | 250 mL Amb. | | 250 mL Plastic | 11 | 4oz Amb/Clear | |
| Bisulfate- | | Col./Bacteria | | Flashpoint | | 2oz Amb/Clear | |
| DI- | | Other Plastic | | Other Glass | | Encore | |
| Thiosulfate- | | SOC Kit | | Plastic Bag | | Frozen: | |
| Sulfuric- | | Perchlorate | | Ziplock | | | |

**Unused Media**

| Vials | # | Containers: | # | | # | | # |
|---|---|---|---|---|---|---|---|
| Unp- | | 1 Liter Amb. | | 1 Liter Plastic | | 16 oz Amb. | |
| HCL- | | 500 mL Amb. | | 500 mL Plastic | | 8oz Amb/Clear | |
| Meoh- | | 250 mL Amb. | | 250 mL Plastic | | 4oz Amb/Clear | |
| Bisulfate- | | Col./Bacteria | | Flashpoint | | 2oz Amb/Clear | |
| DI- | | Other Plastic | | Other Glass | | Encore | |
| Thiosulfate- | | SOC Kit | | Plastic Bag | | Frozen: | |
| Sulfuric- | | Perchlorate | | Ziplock | | | |

**Comments:**

# ATTACHMENT - 3

Data Usability Summary Report (DUSR)

# Data Usability Summary Report

# Former Ithaca Gun Factory Site #C755019A
# Ithaca, New York

# Groundwater Samples
# Collected August 2018

**Reviewed:**
**November 2018**

ZDataReports
Data Management and Validation Services
118 Rose Lane Terrace, Syracuse, NY 13219, (716) 907-2341

# Data Usability Summary Report

## Groundwater Samples
## Collected August 2018

## Former Ithaca Gun Factory Site #C755019A
## Ithaca, New York

**Prepared By:**


**ZDataReports**
**Data Management and Validation Service**
**118 Rose Lane Terrace**
**Syracuse, New York 1219**
**(716) 907-2341**

## EXECUTIVE SUMMARY

This report addresses data quality for thirteen water collected at the Former Ithaca Gun Factory Site #C755019A located in Ithaca, New York. The samples were analyzed for Volatile organics (VOCs), and Semivolatile organics (PAH, PFAS and 1,4-Dioxane) following New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) methodologies. Sample collection was performed by Aztech Technologies, Inc. of Ballston Spa, New York. Analytical services were provided by Con-Test Analytical Laboratory located in East Longmeadow, Massachusetts.

The Volatile organics analysis data was determined to be usable for qualitative and quantitative purposes with the exception of Methyl Acetate which was rejected in all samples due to matrix spike and laboratory control sample deviations. Sample results for several analytes were also qualified based on deviations from continuing calibration criteria, laboratory control sample and matrix spike recovery criteria.

The Semivolatile organics analysis data (PAH and 14-Dioxane) was determined to be usable for qualitative and quantitative purposes with no exceptions.

The Polyfluoroalkyl Substances analyses data were determined to be usable for qualitative and quantitative purposes with no exceptions. Sample results for several analytes were qualified based on deviations from matrix spike recovery criteria.

The overall percent usability or completeness of the data was 98.9 percent.

**TABLE of CONTENTS**



**Appendices**

# SECTION 1 - INTRODUCTION

## 1.1 Introduction

This report addresses data quality for thirteen water collected at the Former Ithaca Gun Factory Site #C755019A located in Ithaca, New York. The samples were analyzed for volatile organics (VOCs), and semivolatile organics (PAH, PFAS and 1,4-Dioxane) following New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) methodologies. Sample collection was performed by Aztech Technologies, Inc. of Ballston Spa, New York. Analytical services were provided by Con-Test Analytical Laboratory located in East Longmeadow, Massachusetts.

**Table 1: Introduction - Sample Summary Table**

| SDG# | Date Collected | Sample Matrix | Sample Identification | |
|---|---|---|---|---|
| | | | Client ID | Laboratory ID |
| 18H1538 | 08/28/2018 | Groundwater | AZMW-2 | 18H1538-02 |
| | | | AZMW-3 | 18H1538-03 |
| | | | AZMW-4 | 18H1538-04 |
| | | | AZMW-6 | 18H1538-06 |
| | | | AZMW-7 | 18H1538-07 |
| | | | AZMW-8 | 18H1538-08 |
| | | | Equipment Blank | 18H1538-13 |
| | 08/29/2018 | Groundwater | AZMW-1 | 18H1538-01 |
| | | | AZMW-5 | 18H1538-05 |
| | | | MW-6 | 18H1538-09 |
| | | | MW-7 | 18H1538-10 |
| | | | FD | 18H1538-11 |
| | | | FB | 18H1538-12 |

## 1.2 Analytical Methods

The samples were analyzed for volatile organics (EPA 8260C) and semivolatile organics (EPA 8270D) following New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) methodologies (2005 update. Laboratory analyses were provided by Con-Test Analytical Laboratory located in East Longmeadow, Massachusetts.

## 1.3 Validation Protocols

Data validation is a process that involves the evaluation of analytical data against prescribed quality control criteria to determine the usefulness of the data. The analytical data addressed in this report were evaluated utilizing the quality control criteria presented in the following documents:

- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-08-01, June 2008.
- *CLP Organics Data Review and Preliminary Review*, SOP No. HW-6 Revision #14, USEPA Region II, September 2006.

- *Validating Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry SW-846 Method 8260B*, SOP No. HW-24 Revision #2, USEPA Hazardous Waste Support Branch, August 2008.

- *Validating Semivolatile Organic Compounds By Gas Chromatography/Mass Spectrometry SW-846 Method 8270D*, SOP No. HW-22 Revision #4, USEPA Hazardous Waste Support Branch, August 2008.

- *Exhibit E of New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP)*, NYSDEC June 2005.

Note: Evaluation of PFAS method data followed general semi-volatile guidelines and EPA Method 537 requirements. Control limits established by the laboratory were used for control sample criteria.

### 1.3.1 Organic Parameters

The validation of organic parameters for this project followed the requirements presented in the analytical methodology and the data validation guidelines presented above. The following QA/QC parameters were evaluated:

**Volatile, Semivolatile Organics and PFAS Analyses**

1. Holding Times
2. GC/MS Instrument Tuning Criteria
3. Calibration
   a. Initial Calibration
   b. Continuing Calibration
4. Blank Analysis
5. Surrogate Recovery
6. Matrix Spike / Matrix Spike Duplicate Analysis
7. Reference Standard Analysis
8. Internal Standards Recovery
9. Compound Identification and Quantification
10. Field Duplicate Analysis
11. System Performance
12. Documentation Completeness
13. Overall Data Assessment

## 1.4 Data Qualifiers

The following qualifiers as specified in the guidance documents presented in Section 1.3 of this report have been used for this data validation.

U — Indicates that the compound was analyzed for, but was not detected. The sample quantification limit is presented and adjusted for dilution. This qualifier is also used to signify that the detection limit of an analyte was raised due to blank contamination.

J — Indicates that the result should be considered approximate. This qualifier is used when the data validation procedure identifies a deficiency in the data generation process.

UJ — Indicates that the detection limit for the analyte in this sample should be considered approximate. This qualifier is used when the data validation process identifies a deficiency in the data generation process.

R — Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data are considered to be unusable for both qualitative and quantitative purposes.

The following sections of this document present a summary of the data validation process. Section 2 discusses data compliance with established QA/QC criteria and qualifications performed on the sample data. A discussion of the Precision, Accuracy, Representativeness, Comparability, and Completeness (PARCC) of the data and data usability are discussed in Section 3. The USEPA Region II Data Validation Checklists are presented in Appendix A.

## SECTION 2 - DATA VALIDATION SUMMARY

This section presents a discussion of QA/QC parameter compliance with established criteria and the qualification of data performed when QA/QC parameter deviations were identified. When several deviations from established QA/QC criteria were observed, the final qualifier assigned to the data was based on the cumulative effect of the deviations.

### 2.1 Volatiles Analysis

Data validation was performed on eight water and four sediment soil samples including one equipment blanks. The QA/QC parameters presented in Section 1.3.1 of this report were found to be within specified limits with the exception of the following:

#### Initial Calibration

The initial calibration relative standard deviation (%RSD) limit, which requires the %RSD to be less than 30 percent, was exceeded for several compounds. Sample qualification included the approximation (J, UJ) of results when %RSD criteria were exceeded. Samples requiring qualification due to these deviations are tabulated below.

**Table 2: Volatiles Organics Analyses – Initial Calibration Deviations**

| Date Analyzed | Compound | %RSD | Result Qualifier | Affected Samples |
|---|---|---|---|---|
| GCMSVOA2<br>08/21/2018 | Bromomethane<br>Naphthalene | 69.5 %<br>38.9 % | UJ<br>UJ | AZMW-1<br>AZMW-2<br>AZMW-3<br>AZMW-4<br>AZMW-6<br>AZMW-7<br>AZMW-8<br>MW-6<br>MW-7<br>FD<br>FB<br>Equip Blank |

#### Laboratory Control Sample Analysis

Laboratory control sample (LCS) recovery criteria requiring recoveries to be within laboratory generated control limits were exceeded for several compounds. Qualification of sample data included the approximation of results when spike recoveries were greater than the upper limit, but less than 200 percent or less than the lower limit, but greater than 10 percent. Non-detected sample results were rejected (R) for compounds with recoveries that were less than 10 percent. Samples qualified due to LCS recovery deviations are tabulated below.

**Table 3: Volatile Organics Analysis - Laboratory Control Sample Deviations**

| Matrix | Compound | Percent Recovery | Control Limits | Qualifier | Affected Samples |
|---|---|---|---|---|---|
| Water<br>B211664 | Methyl Acetate | 308 % / 319 % | 70 % to 130 % | R | AZMW-1<br>AZMW-2<br>AZMW-3<br>AZMW-4<br>AZMW-5<br>AZMW-6<br>AZMW-7<br>AZMW-8<br>MW-6<br>MW-7<br>FD<br>FB<br>Equip Blank |

## Matrix Spike Recovery

Matrix spike/matrix spike duplicate (MS/MSD) recovery criteria requiring compound recoveries to be within laboratory generated control limits were exceeded for several compounds. Qualification of sample results included the approximation of results when spike recoveries were greater than the upper limit, but less than 200 percent or less than the lower limit, but greater than 10 percent. Non-detected sample results were rejected (R) for compounds with recoveries less than 10 percent. Samples qualified due to MS/MSD recovery deviations are tabulated below.

**Table 4: Volatile Organics Analyses - MS/MSD Analysis Deviations**

| MS/MSD Sample ID | Compound | Percent Recovery (MS/MSD) | Control Limits | Qual. | Affected Samples |
|---|---|---|---|---|---|
| AZMW-4 | Bromomethane<br>t-Butyl Alcohol<br>Methyl Acetate<br>1,4-Dioxane | 30.8 % / 42.7 %<br>136 % / 134 %<br>311 % / 319 %<br>103 % / 136 % | 70 % to 130 %<br>70 % to 130 %<br>70 % to 130 %<br>70 % to 130 % | UJ<br>UJ<br>R<br>UJ | AZMW-1<br>AZMW-2<br>AZMW-3<br>AZMW-4<br>AZMW-5<br>AZMW-6<br>AZMW-7<br>AZMW-8<br>MW-6<br>MW-7<br>FD<br>FB<br>Equip Blank |

## Overall Data Assessment

Overall, the laboratory performed volatile organics analyses in accordance with the requirements specified in the method listed in Section 1.2. These data have been determined to be usable for qualitative and quantitative purposes with the exception of Methyl Acetate which was rejected in all samples due to matrix spike and laboratory control sample deviations. Sample results for several analytes were also qualified based

on deviations from continuing calibration criteria, laboratory control sample and matrix spike recovery criteria.

## 2.2 Semivolatiles Analysis

Data validation was performed for four groundwater samples analyzed for PAH compounds and 1,4-Dioxane by isotope delusion method. The QA/QC parameters presented in Section 1.3.1 of this report were found to be within specified limits with no exceptions.

### Overall Data Assessment

Overall, the laboratory performed semivolatile organics analyses in accordance with the requirements specified in the method listed in Section 1.2. These data were determined to be usable for qualitative and quantitative purposes for all sample with no exceptions

## 2.3 Polyfluoroalkyl Substances Analyses

Data validation was performed for eight water and four sediment soil samples. The QA/QC parameters presented in Section 1.3.1 of this report were found to be within specified limits with the exception of the following:

### Matrix Spike Recovery

Matrix spike/matrix spike duplicate (MS/MSD) recovery criteria requiring compound recoveries to be within laboratory generated control limits were exceeded for several compounds. Qualification of sample results included the approximation of results when spike recoveries were greater than the upper limit, but less than 200 percent or less than the lower limit, but greater than 10 percent. Non-detected sample results were rejected (R) for compounds with recoveries less than 10 percent. Samples qualified due to MS/MSD recovery deviations are tabulated below.

**Table 5: PFAS Organics Analyses - MS/MSD Analysis Deviations**

| MS/MSD Sample ID | Compound | Percent Recovery (MS/MSD) | Control Limits | Qual. | Affected Samples |
|---|---|---|---|---|---|
| AZMW-4 | PFBS | 123 % / 141 % | 70 % to 130 % | UJ | AZMW-3 |
| | 8:2FTS | 133 % / 110 % | 70 % to 130 % | UJ | AZMW-4 |
| | PFHxS | 178 % / 118 % | 70 % to 130 % | UJ | MW-7 |
| | PFOS | 416 % / 99.7 % | 70 % to 130 % | UJ | FB |
| | PFTrDA | 69.3 % / 94.9 % | 70 % to 130 % | UJ | Equip Blank |
| | PFTA | 58.7 % / 74.3 % | 70 % to 130 % | UJ | |

### Overall Data Assessment

Overall, the laboratory performed Polyfluoroalkyl Substances analyses in accordance with the requirements specified in the method listed in Section 1.2. These data were determined to be usable for qualitative and quantitative purposes as reported by the laboratory with no exceptions. Sample results for several analytes were also qualified based on deviations from matrix spike recovery criteria.

## SECTION 3 - DATA USABILITY and PARCC EVALUATION

### 3.1 Data Usability

This section presents a summary of the usability of the analytical data and an evaluation of the PARCC parameters. Data usability was calculated as the percentage of data that was not qualified as rejected based on a significant deviation from established QA/QC criteria. Data usability, which was calculated separately for each type of analysis, is tabulated below.

**Table 12: Data Usability and PARCC Evaluation - Data Usability**

| Parameter | Usability | Deviations |
|---|---|---|
| Volatile Organic Parameters | 98.7 % | Methyl Acetate results rejected in all samples due to deviations on MS/MSD and LCS recoveries. |
| Semivolatile Oganic Parameters | 100 % | None resulting in the rejection of data. |
| Polyfluoroalkyl Substances Parameters | 100 % | None resulting in the rejection of data. |

### 3.2 PARCC Evaluation

The following sections provide an evaluation of the analytical data with respect to the precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters.

#### 3.2.1 Precision

Precision is measured through field duplicate samples, split samples, and laboratory duplicate samples. For this sampling program, none of the analytical data required qualification based on duplicate analysis.

#### 3.2.2 Accuracy

Matrix spike sample, surrogate recovery, internal standard recovery, laboratory control samples, and calibration criteria indicate the accuracy of the data. For this sampling program, 2.18 percent of the data were qualified for deviations from matrix spike recovery criteria, 1.09% percent of the data were qualified for deviations from laboratory control sample recoveries, none of the data were qualified due to surrogate standard recovery criteria deviations, none of the data were qualified due to internal standard recovery criteria deviations, and none of the data were qualified for calibration criteria deviations.

#### 3.2.3 Representativeness

Holding times, sample preservation, and blank analysis are indicators of the representativeness of the analytical data. For this investigation, none of the analytical data required qualification for blank analysis deviations.

### 3.2.4 Comparability

Comparability is not compromised provided that the analytical methods did not change over time. A major component of comparability is the use of standard reference materials for calibration and QC. These standards are compared to other unknowns to verify their concentrations. Since standard analytical methods and reporting procedures were consistently used by the laboratory, the comparability criteria for the analytical data were met.

### 3.2.5 Completeness

The overall percent usability or completeness of the data was 98.9 percent.

# APPENDIX A

**DATA VALIDATION CHECKLISTS**

# Table of Contents

## Data Validation Checklist - Part A: VOA Analyses

| No: | Parameter | YES | NO | N/A |
|---|---|---|---|---|
| **1.0** | **Traffic Reports and Laboratory Narrative** | | | |
| 1.1 | Are the traffic Report Forms present for all samples? | X | | |
| 1.2 | Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data? | | X | |
| **2.0** | **Holding Times** | | | |
| 2.1 | Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? | | X | |
| **3.0** | **System Monitoring Compound (SMC) Recovery (Form II)** | | | |
| 3.1 | Are the VOA SMC Recovery Summaries (FORM II) present for each of the following matrices: | | | |
| | a. Low Water | X | | |
| | b. Low Soil | | | X |
| | c. Air | | | X |
| 3.2 | Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices: | | | |
| | a. Low Water | X | | |
| | b. Low Soil | | | X |
| | c. Air | | | X |
| 3.3 | Were outliers marked correctly with an asterisk? | | | X |
| 3.4 | Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank? | | X | |
| | If yes, were samples re-analyzed? | | | X |
| | Were method blanks re-analyzed? | | | X |
| 3.5 | Are there any transcription/calculation errors between raw data and Form II? | | X | |
| **4.0** | **Matrix Spikes (Form III)** | | | |
| 4.1 | Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? | X | | |
| 4.2 | Were matrix spikes analyzed at the required frequency for each of the following matrices? | | | |
| | a. Low Water | X | | |
| | b. Low Soil | | | X |
| | c. Air | | | X |
| 4.3 | How many VOA spike recoveries are outside QC limits? | | | |
| | Water 4 out of 77 Soils 0 out of 77 | | | |
| 4.4 | How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits? | | | |
| | Water 0 out of 77 Soils 0 out of 77 | | | |

## Data Validation Checklist - Part A: VOA Analyses

| No: | Parameter | YES | NO | N/A |
|---|---|---|---|---|
| **5.0** | **Blanks (Form IV)** | | | |
| 5.1 | Is the Method Blank Summary (Form IV) present? | X | | |
| 5.2 | Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil, medium soil), whichever is more frequent? | X | | |
| 5.3 | Has a VOA method/instrument blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used? | X | | |
| 5.4 | Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs? | X | | |
| **6.0** | **Contamination** | | | |
| 6.1 | Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for VOAs? | | X | |
| 6.2 | Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)? | | X | |
| 6.3 | Are there field/rinse/equipment blanks associated with every sample? | X | | |
| **7.0** | **GC/MS Instrument Performance Check (Form V)** | | | |
| 7.1 | Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)? | X | | |
| 7.2 | Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift? | X | | |
| 7.3 | Has an instrument performance compound been analyzed for every twelve hours of sample analysis per instrument? | X | | |
| 7.4 | Have the ion abundances been normalized to m/z 95? | X | | |
| 7.5 | Have the ion abundance criteria been met for each instrument used? | X | | |
| 7.6 | Are there any transcription/calculation errors between mass lists and Form V's? | | X | |
| 7.7 | Have the appropriate number of significant figures (two) been reported? | X | | |
| 7.8 | Are the spectra of the mass calibration compound acceptable? | X | | |
| **8.0** | **Target Compound List (TCL) Analytes** | | | |
| 8.1 | Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following: | | | |
| | a. Sample and/or fractions as appropriate? | X | | |
| | b. Matrix spikes and matrix spike duplicates? | X | | |
| | c. Blanks? | X | | |
| 8.2 | Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following? | | | |
| | a. Samples and/or fractions as appropriate? | X | | |
| | b. Matrix spikes and matrix spike duplicates (Mass spectra not required)? | X | | |
| | c. Blanks? | X | | |
| 8.3 | Are the response factors shown in the Quant Report? | X | | |

## Data Validation Checklist - Part A: VOA Analyses

| No: | Parameter | YES | NO | N/A |
|---|---|---|---|---|
| 8.4 | Is the chromatographic performance acceptable with respect to: | | | |
| | Baseline stability? | X | | |
| | Resolution? | X | | |
| | Peak shape? | X | | |
| | Full-scale graph (attenuation)? | X | | |
| | Other: | | | |
| 8.5 | Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample? | X | | |
| 8.6 | Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration? | X | | |
| 8.7 | Are all ions in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum? | X | | |
| 8.8 | Do sample and standard relative ion intensities agree within 20%? | X | | |
| **9.0** | **Tentatively Identified Compounds (TIC)** | | | |
| 9.1 | Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? | | | X |
| 9.2 | Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following: | | | |
| | a. Samples and/or fractions as appropriate? | | | X |
| | b. Blanks? | | | X |
| 9.3 | Are any TCL compounds (from any fraction) listed as TIC compounds? | | | X |
| 9.4 | Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? | | | X |
| 9.5 | Do TIC and "best match" standard relative ion intensities agree within 20%? | | | X |
| **10.0** | **Compound Quantitation and Reported Detection Limits** | | | |
| 10.1 | Are there any transcription/calculation errors in Form I results? | | X | |
| 10.2 | Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? | X | | |
| **11.0** | **Standards Data (GC/MS)** | | | |
| 11.1 | Are the Reconstructed Ion Chromatograms, and data system printouts present for initial and continuing calibration? | X | | |
| **12.0** | **GC/MS Initial Calibration (Form VI)** | | | |
| 12.1 | Are the Initial Calibration Forms (Form VI) present and complete for the volatile fraction at concentrations of 10, 20, 50, 100, 200 ug/L? Are there separate calibrations for low/med soils and low soil samples? | X | | |
| 12.2 | Were all low level soil standards, blanks, and samples analyzed by heated purge? | X | | |
| 12.3 | Are the response factors stable for VOA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30%) | X | | |
| 12.4 | Are the RRFs above 0.01? | X | | |
| 12.5 | Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? | | X | |

## Data Validation Checklist - Part A: VOA Analyses

| No: | Parameter | YES | NO | N/A |
|---|---|---|---|---|
| **13.0** | **GC/MS Continuing Calibration (Form VII)** | | | |
| 13.1 | Are the Continuing Calibration Forms (Form VII) present and complete for the volatile fraction? | X | | |
| 13.2 | Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? | X | | |
| 13.3 | Do any volatile compounds have a percent difference (%D) between the initial and continuing RRF which exceeds the +/- 25% criteria? | | X | |
| 13.4 | Do any volatile compounds have a RRF <0.01? | | X | |
| 13.5 | Are there any transcription/calculation errors in the reporting of average response factor (RRF) or %difference (%D) between initial and continuing RRFs? | | X | |
| **14.0** | **Internal Standard (Form VIII)** | | | |
| 14.1 | Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? | X | | |
| 14.2 | Are the retention times of the internal standards within 30 seconds of the associated calibration standard? | X | | |
| **15.0** | **Field Duplicates** | | | |
| 15.1 | Were any field duplicates submitted for VOA analysis? | X | | |

## Data Validation Checklist - Part B: BNA Analyses

| No: | Parameter | YES | NO | N/A |
|---|---|---|---|---|
| **1.0** | **Traffic Reports and Laboratory Narrative** | | | |
| 1.1 | Are the traffic Report Forms present for all samples? | X | | |
| 1.2 | Do the Traffic Reports or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data? | | X | |
| **2.0** | **Holding Times** | | | |
| 2.1 | Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? | | X | |
| **3.0** | **System Monitoring Compound (SMC) Recovery (Form II)** | | | |
| 3.1 | Are the BNA Surrogate Recovery Summaries (FORM II) present for each of the following matrices: | | | |
| | a. Low Water | X | | |
| | b. Low Soil | | | X |
| | c. Med Soil | | | X |
| 3.2 | Are all the BNA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices: | | | |
| | a. Low Water | X | | |
| | b. Low Soil | | | X |
| | c. Med Soil | | | X |
| 3.3 | Were outliers marked correctly with an asterisk? | X | | |
| 3.4 | Were two or more base neutral or acid surrogate compound recoveries out of specification for any sample or method blank? | X | | |
| | If yes, were samples re-analyzed? | | X | |
| | Were method blanks re-analyzed? | | | X |
| 3.5 | Are there any transcription/calculation errors between raw data and Form II? | | X | |
| **4.0** | **Matrix Spikes (Form III)** | | | |
| 4.1 | Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? | X | | |
| 4.2 | Were matrix spikes analyzed at the required frequency for each of the following matrices? | | | |
| | a. Low Water | | X | |
| | b. Low Soil | | | X |
| | c. Med Soil | | | X |
| 4.3 | How many BNA spike recoveries are outside QC limits? | | | |
| | Water 0 out of 65 Soils 0 out of 65 | | | |

## Data Validation Checklist - Part B: BNA Analyses

| | | | | |
|---|---|---|---|---|
| 4.4 | How many RPD's for matrix spike and matrix spike duplicate recoveries are outside QC limits?<br>Water 0 out of 65 Soils 0 out of 65 | | | |
| **5.0** | **Blanks (Form IV)** | | | |
| 5.1 | Is the Method Blank Summary (Form IV) present? | X | | |
| 5.2 | Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of a similar matrix, or concentration level, for each extraction batch? | X | | |
| 5.3 | Has a BNA method blank been analyzed for each GC/MS system used? | X | | |
| 5.4 | Is the chromatographic performance (baseline stability) for each instrument acceptable for BNAs? | X | | |
| **6.0** | **Contamination** | | | |
| 6.1 | Do any method/instrument/reagent blanks have positive results (TCL and/or TIC) for BNAs? | | X | |
| 6.2 | Do any field/rinse blanks have positive BNA results (TCL and/or TIC)? | | X | |
| 6.3 | Are there field/rinse/equipment blanks associated with every sample? | X | | |
| **7.0** | **GC/MS Instrument Performance Check (Form V)** | | | |
| 7.1 | Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)? | X | | |
| 7.2 | Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve-hour shift? | X | | |
| 7.3 | Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument? | X | | |
| 7.4 | Have the ion abundances been normalized to m/z 198? | X | | |
| 7.5 | Have the ion abundance criteria been met for each instrument used? | X | | |
| 7.6 | Are there any transcription/calculation errors between mass lists and Form V's? | | X | |
| 7.7 | Have the appropriate number of significant figures (two) been reported? | X | | |
| 7.8 | Are the spectra of the mass calibration compound acceptable? | X | | |
| **8.0** | **Target Compound List (TCL) Analytes** | | | |
| 8.1 | Are the Organic Analysis Data Sheets (Form I BNA) present with required header information on each page, for each of the following: | | | |
| | a. Sample and/or fractions as appropriate? | X | | |
| | b. Matrix spikes and matrix spike duplicates? | X | | |
| | c. Blanks? | X | | |
| 8.2 | Has GPC cleanup been performed on all soil/sediment sample extracts? | X | | |
| 8.3 | Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (Quant Reports) included in the sample package for each of the following? | | | |
| | a. Samples and/or fractions as appropriate? | X | | |

## Data Validation Checklist - Part B: BNA Analyses

| | | | | |
|---|---|---|---|---|
| | b. Matrix spikes and matrix spike duplicates (Mass spectra not required)? | X | | |
| | c. Blanks? | X | | |
| 8.4 | Are the response factors shown in the Quant Report? | X | | |
| 8.5 | Is the chromatographic performance acceptable with respect to: | | | |
| | Baseline stability? | X | | |
| | Resolution | X | | |
| | Peak shape? | X | | |
| | Full-scale graph (attenuation)? | X | | |
| | Other: | | | |
| 8.6 | Are the lab-generated standard mass spectra of identified BNA compounds present for each sample? | X | | |
| 8.7 | Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration? | X | | |
| 8.8 | Are all ions in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum? | X | | |
| 8.9 | Do sample and standard relative ion intensities agree within 20%? | X | | |
| **9.0** | **Tentatively Identified Compounds (TIC)** | | | |
| 9.1 | Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? | | | X |
| 9.2 | Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following: | | | |
| | a. Samples and/or fractions as appropriate? | | | X |
| | b. Blanks? | | | X |
| 9.3 | Are any TCL compounds (from any fraction) listed as TIC compounds? | | | X |
| 9.4 | Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? | | | X |
| 9.5 | Do TIC and "best match" standard relative ion intensities agree within 20%? | | | X |
| **10.0** | **Compound Quantitation and Reported Detection Limits** | | | |
| 10.1 | Are there any transcription/calculation errors in Form I results? | | X | |
| 10.2 | Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? | X | | |
| **11.0** | **Standards Data (GC/MS)** | | | |
| 11.1 | Are the Reconstructed Ion Chromatograms, and data system printouts present for initial and continuing calibration? | X | | |
| **12.0** | **GC/MS Initial Calibration (Form VI)** | | | |
| 12.1 | Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? | X | | |

## Data Validation Checklist - Part B: BNA Analyses

| | | | | |
|---|---|---|---|---|
| 12.2 | Are response factors stable for BNA's over the concentration range of the calibration (%Relative Standard Deviation (%RSD) <30%) | X | | |
| 12.3 | Are all BNA compound RRFs > 0.01? | X | | |
| 12.4 | Are there any transcription/calculation errors in the reporting of average response factors (RRF) or %RSD? | X | | |
| **13.0** | **GC/MS Continuing Calibration (Form VII)** | | | |
| 13.1 | Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? | X | | |
| 13.2 | Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? | X | | |
| 13.3 | Do any semivolatile compounds have a percent difference (%D) between the initial and continuing RRF which exceeds the +/- 25% criteria? | | X | |
| 13.4 | Do any semivolatile compounds have a RRF <0.01? | | X | |
| 13.5 | Are there any transcription/calculation errors in the reporting of average response factor (RRF) or percent difference (%D) between initial and continuing RRFs? | X | | |
| **14.0** | **Internal Standard (Form VIII)** | | | |
| 14.1 | Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? | X | | |
| 14.2 | Are the retention times of the internal standards within 30 seconds of the associated calibration standard? | X | | |
| **15.0** | **Field Duplicates** | | | |
| 15.1 | Were any field duplicates submitted for BNA analysis? | X | | |