TETRA TECH

Former Lockheed Martin French Road Facility
Utica, New York
Solvent Dock Site
(NYSDEC Site ID #633036A)

Data Summary and Observations
Annual 2018 Groundwater Monitoring

General Notes

- In October 2017, 13 wells were decommissioned in preparation for the Former Northern Perimeter Ditch (FNPD) excavation. These 13 wells are as follows:
  - MW-18, A2-PZ-1, and A2-PZ-2 (all Objective 1 locations); and
  - MW-16, MW-17, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7, A2-PZ-8, PZ-32, and PZ-33 (all Objective 4 locations).

  After completing the excavation activities, wells MW-18, A2-PZ-1, A2-PZ-2, MW-17, A2-PZ-3, and A2-PZ-4 will be re-installed. The excavation activities are anticipated to be completed by December 2018. As recommended in the 2017 Annual Site Management Report, it is suggested that wells MW-16, A2-PZ-5, A2-PZ-6, A2-PZ-7, A2-PZ-8, PZ-32, and PZ-33 not be replaced. The monitoring well network is shown on Figure D-1. We plan to sample MW-18, A2-PZ-1 and A2-PZ-2 in December 2018 with the A2-PZ-1 sampling to also include PFAS and 1,4-dioxane.
- Annual groundwater gauging and sampling was performed on June 5, 2018. Of the 68 wells subject to water level gauging, eleven wells were sampled and analyzed for Volatile Organic Compounds (VOCs), and fourteen of the monitoring wells were reported as dry. The attached Tables 4-1 and 4-2 summarize gauging data and analytical results, respectively. Note that analytical data qualifiers have been included in Table 4-2. The analytical data qualifiers have been included in Table 4-2 according to results of the attached Data Usability Summary Report (DUSR). Based on the results of data validation and as summarized in the attached DUSR, the analytical data are usable.
- On June 6, 2018, prior to purging and field parameter measurement, extra 40 milliliter (mL) sample vials of well water were collected from PZ-5 and PZ-6, in case the wells did not recharge after purging. The water levels were checked on June 7, 2018 at PZ-5 and PZ-6, and there was insufficient recharge to collect additional sample from either piezometer. The before purge sample results have been used in this summary.
- At the request of the New York State Department of Environmental Conservation (NYSDEC), ten (10) wells were sampled and analyzed for emerging compounds Per- and polyfluoroalkyl substances (PFAS) and nine (9) wells were sampled and analyzed for 1,4-dioxane. Due to insufficient groundwater recovery during sampling, PZ-8 was not sampled and 1,4-dioxane was not analyzed from PZ-2. The attached Table 4-5 summarizes the gauging and analytical results for the emerging compounds and depicted graphically on Figure D-4A. Since this is the first time that these parameters have been analyzed, there is no historical data to compare.

Contaminant of Concern (COC) Observations

- Chlorinated volatile organic compounds (CVOCs) are the predominant contaminants of concern (COCs). Certain CVOCs continue to be detected in some wells at concentrations greater than NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1: *Ambient Water Quality Standards and Guidance Values* (SGVs). The ranges of detected COC levels were generally similar to those observed in previous sampling events. Analytical results are summarized on Table 4-2 and depicted graphically for the June 2018 sampling event on Figure D-3A.
- The predominant constituents detected at concentrations greater than the SGVs continue to be PCE, TCE, cis-1,2-DCE, and VC.
- A Mann-Kendall trend analysis was performed using data from the June 2018 sampling event and the seven previous rounds of sampling (see Table 4-4 and Figures 4-3a through 4-3o). Statistically-significant decreasing trends were identified for PCE at PZ-6 and MW-3 (Objective 1 locations); cis-1,2-DCE at PZ-5 (Objective 1 location), MW-2 and MW-10 (Objective 3 locations); 1,1-DCA at MW-2 (Objective 3 location); TCE at PZ-5 (Objective 1 location); and VC at MW-2 and MW-10 (Objective 3 locations).
- Statistical analysis of June 2018 volatile organic compound data identified no sudden increases (Table 4-4).
- Currently, there is no groundwater standard for 1,4-dioxane and per- and polyfluoroalkyl substances. The NYSDEC is assessing the 1,4-dioxane and per- and polyfluoroalkyl substances data to determine if additional information is needed.
- Due to 1,4-dioxane detections, the New York State Department of Health (NYSDOH) has contacted the Oneida County Department of Health. The Oneida County Department of Health has stated that no potable wells are in the vicinity of the Site. Lockheed Martin Corporation performed a groundwater use survey in the vicinity of the Site in 2012. Results of that survey, which did not identify potable use of area groundwater, were re-transmitted to NYSDEC/NYSDOH in July 2018.

Objective 1 Wells

- Objective 1 Wells that were decommissioned in October 2017 are MW-18, A2-PZ-1, and A2-PZ-2.
- No SGV exceedances were observed in, A1-PZ-2, and PZ-13R.
- MW-1, PZ-5, PZ-6, have consistently exhibited SGV exceedances of PCE, TCE, and cis-1,2-DCE; the concentrations reported for this annual sampling event are generally consistent with results of the previous sampling year for these wells. During this sampling event, PZ-6 PCE and TCE concentrations were below their respective SGVs.
- MW-3 continues to exhibit exceedances of cis-1,2-DCE and TCE; the concentrations of PCE were below the SGV, and VC has been fluctuating above and below its SGV since 2013, but exceeded its SGV during this sampling event.
- MW-20 continues to exhibit fluctuating VC concentrations above and below the SGV, consistent with results collected since 2012, but exceeded its SGV during this sampling event.
- PZ-8 was not analyzed for VOCs due to insufficient groundwater recovery during sampling.

Objective 2 Wells

- No Objective 2 Wells were decommissioned.
- Monitoring well MW-21 was the only Objective 2 well sampled for VOCs in June 2018. No SGV exceedances were observed.

Objective 3 Wells

- No Objective 3 Wells were decommissioned.
- Two of the three Objective 3 wells sampled exhibited SGV exceedances for cis-1,2-DCE and VC (MW-2 and MW-10).
- The exceedance concentrations in MW-2 and MW-10 are similar to concentrations reported for these locations during previous annual sampling events.
- Monitoring well MW-4 exhibited an exceedance of VC only in its duplicate sample (2.1 ug/L), the original sample concentration was 1.1 ug/L.

Objective 4 Wells

- Objective 4 Wells that were decommissioned in October 2017 are MW-16, MW-17, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7, A2-PZ-8, PZ-32, and PZ-33.
- No Objective 4 wells were sampled in the June 2018 event.

PFAS and 1,4-Dioxane Observations

- PFAS was analyzed in samples from 10 wells, and 1,4-Dioxane was analyzed in samples from 9 wells approved by NYSDEC.
- PFAS were detected in 8 of the 10 wells (MW-F, MW-23, MW-5, MW-1, PZ-11R, OW-1, MW-21, and PZ-2) with no individual PFAS above the 70 ng/L US EPA health advisory level.
- 1,4-Dioxane was detected in 2 of the 9 wells (all wells that had PFAS analysis except PZ-2 due to insufficient volume, also had analysis for 1,4 Dioxane) at concentrations of 0.36 ug/L (MW-1) and 2.2 ug/L (MW-21 with 2.0 ug/L in the duplicate).

Geochemical Observations

Geochemical analyses during the June 2018 sampling event included pH, conductivity, dissolved oxygen (DO), and oxidation-reduction potential (ORP). Field parameters were collected at the monitoring wells by bailing and measurement at the surface. Downhole DO and ORP were measured at all locations where there was sufficient recharge, except at A1-PZ-2; piezometer A1-PZ-2 is too narrow to accommodate the downhole probes available. The locations where PFAS and 1,4-Dioxane were collected did not analyze downhole field parameters to avoid any potential cross contamination. Thus, DO and ORP measured at A1-PZ-2, and at those locations where PFAS and 1,4-Dioxane were also collected, may not accurately reflect *in situ* conditions. PZ-8 did not have sufficient volume to collect field parameters.

The attached Table 4-3 summarizes the measured field parameters for all wells sampled during the June 2018 sampling event. The following observations are made relative to these data:

- Measured pH levels in groundwater site-wide ranged from 7.32 to 8.93 SU; indicating conditions are slightly basic.
- DO values ranged from 0.231 to 7.83 mg/L; this range of values is consistent with previous sampling events and is within the historical range observed for each of the sampled wells, with the exception of PZ-5, MW-5 and MW-21 which exhibited historical high values, although MW-5 and MW-21 were not downhole measurements. These data indicate that groundwater varies from oxygen rich to oxygen deprived depending on location.
- ORP values ranged from 172 to 259 mV; ORP was positive in all eighteen wells sampled for ORP. All of the locations with historical data exhibited historical high ORP values. These data may indicate an equipment or equipment usage issue; during the next sampling event special attention will be paid to ORP values to confirm whether or not values from this round are representative or should be discarded. As noted, a number of these readings were taken ex-situ.

Groundwater Elevation Measurements

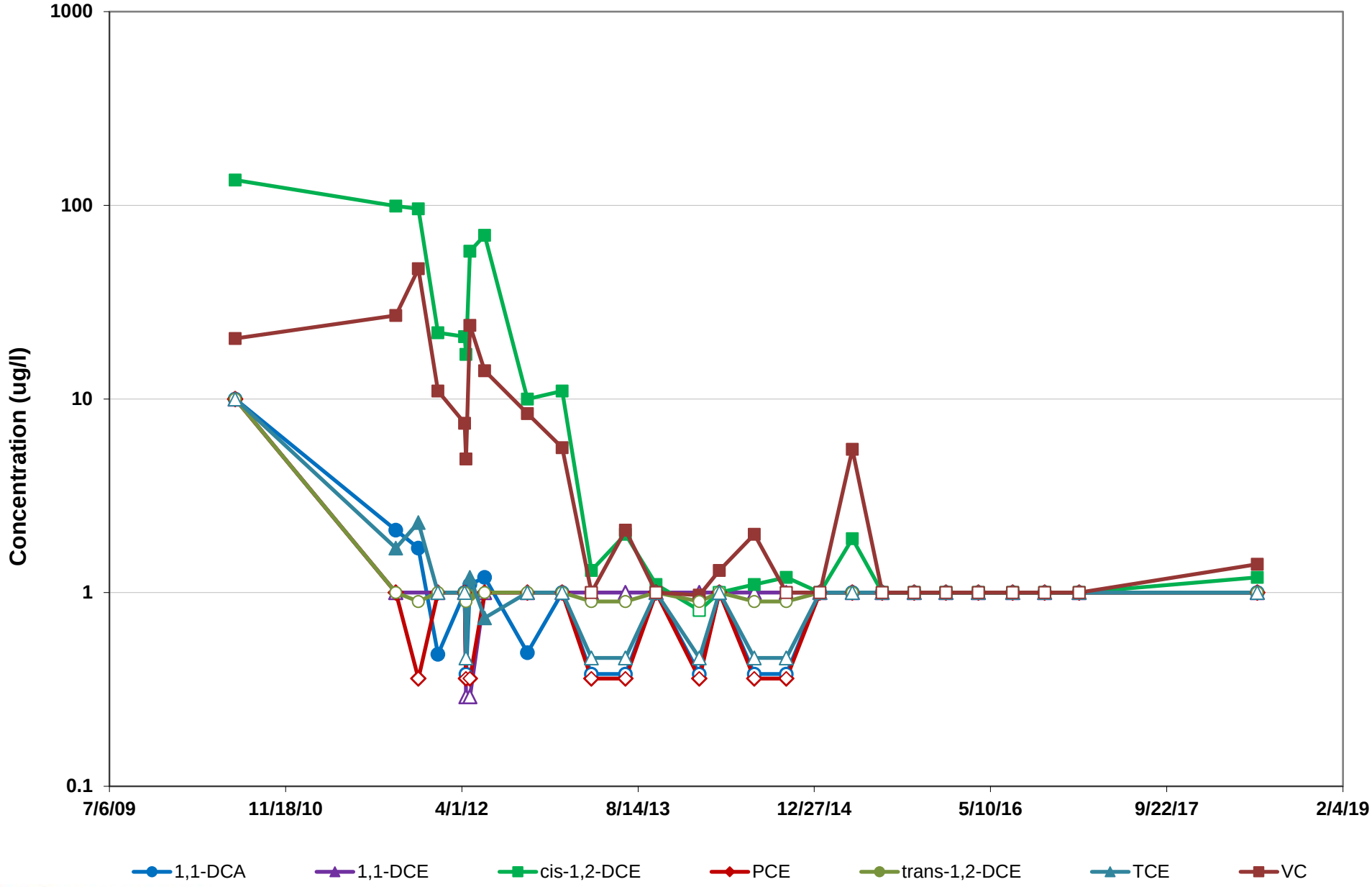
Groundwater elevations in monitoring wells that were measured in the Solvent Dock Area were relatively consistent with historical measurements at the site (Table 4-1). In general, the groundwater elevations indicate a lower water table when compared to the January 2017 event, but higher than the July 2016 event. Most of the groundwater elevations are within the historical ranges observed. The following three locations exhibited new historical maxima: MW-14BR, MW-15BR, and PZ-26. The following two locations exhibited new historical minima: PZ-8 and MW-14S. The following fourteen locations were reported as dry (also historic minima): MW-18, A2-PZ-1, A2-PZ-2, MW-16, MW-17, PZ-21, PZ-32, PZ-33, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7 and A2-PZ-8.

As shown on the attached groundwater contour plan (Figure D-2A), without the monitoring wells measured north of the pole barn, groundwater flow direction is indicated to be to the east to southeast but highly variable on the site. The groundwater capture by the Groundwater Collection and Treatment System is apparent near the MH-2 and MH-3 drains. Due to the decommissioning of the monitoring wells north of the pole barn, groundwater capture by MH-1 is not as apparent (note that replacement wells for A2-PZ-1, A2-PZ-1 and MW-18 will be installed following the ongoing excavation work and will provide information for future analysis in this area). The low groundwater level in PZ-27 is similar to previous sampling events thus indicating that MH-1 is providing groundwater capture. Note that bedrock well and injection well water levels are not used in the development of the contour plan.

TETRA TECH

FIGURES

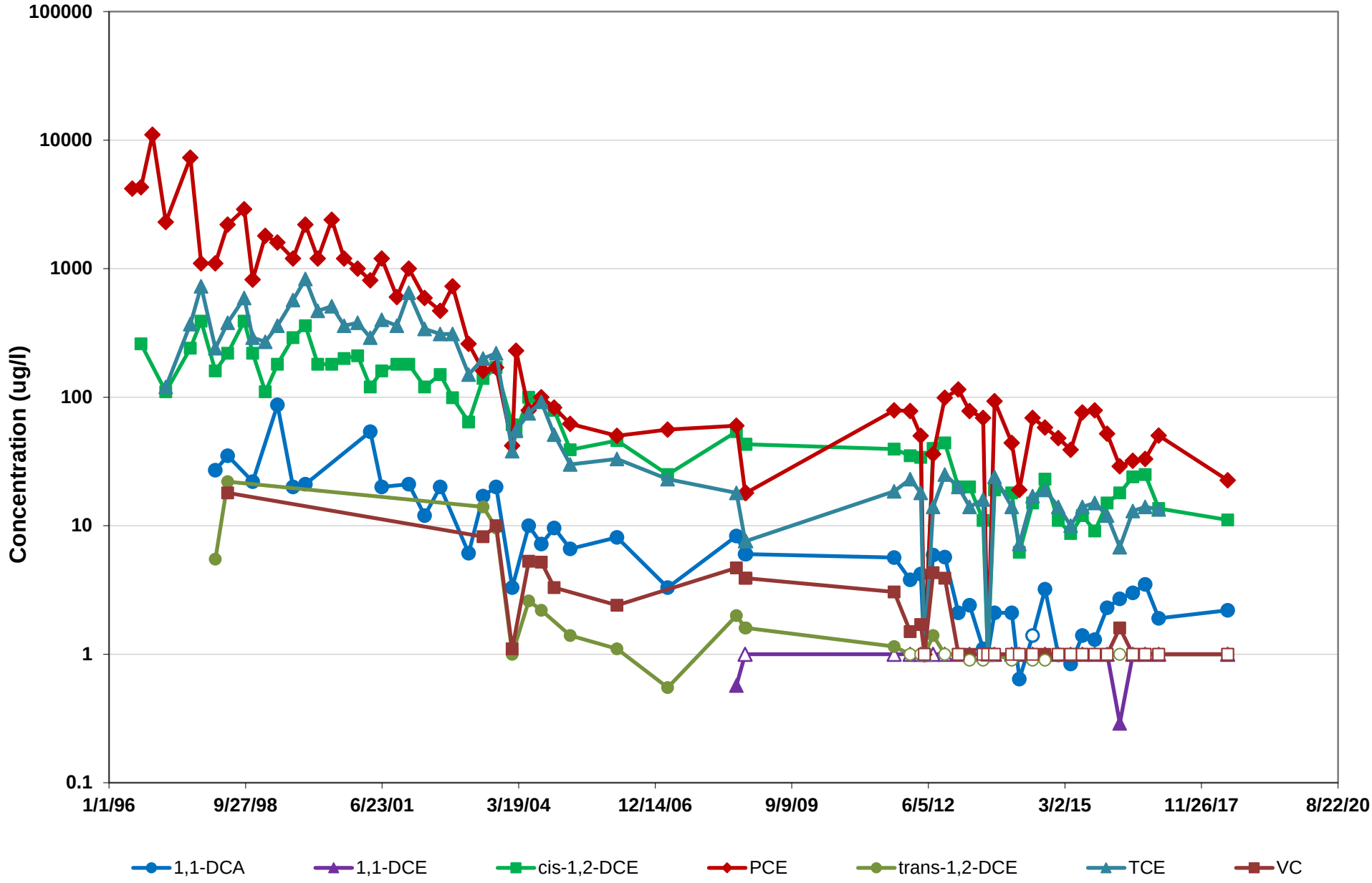
Figure 4-3a: Well A1-PZ-2 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

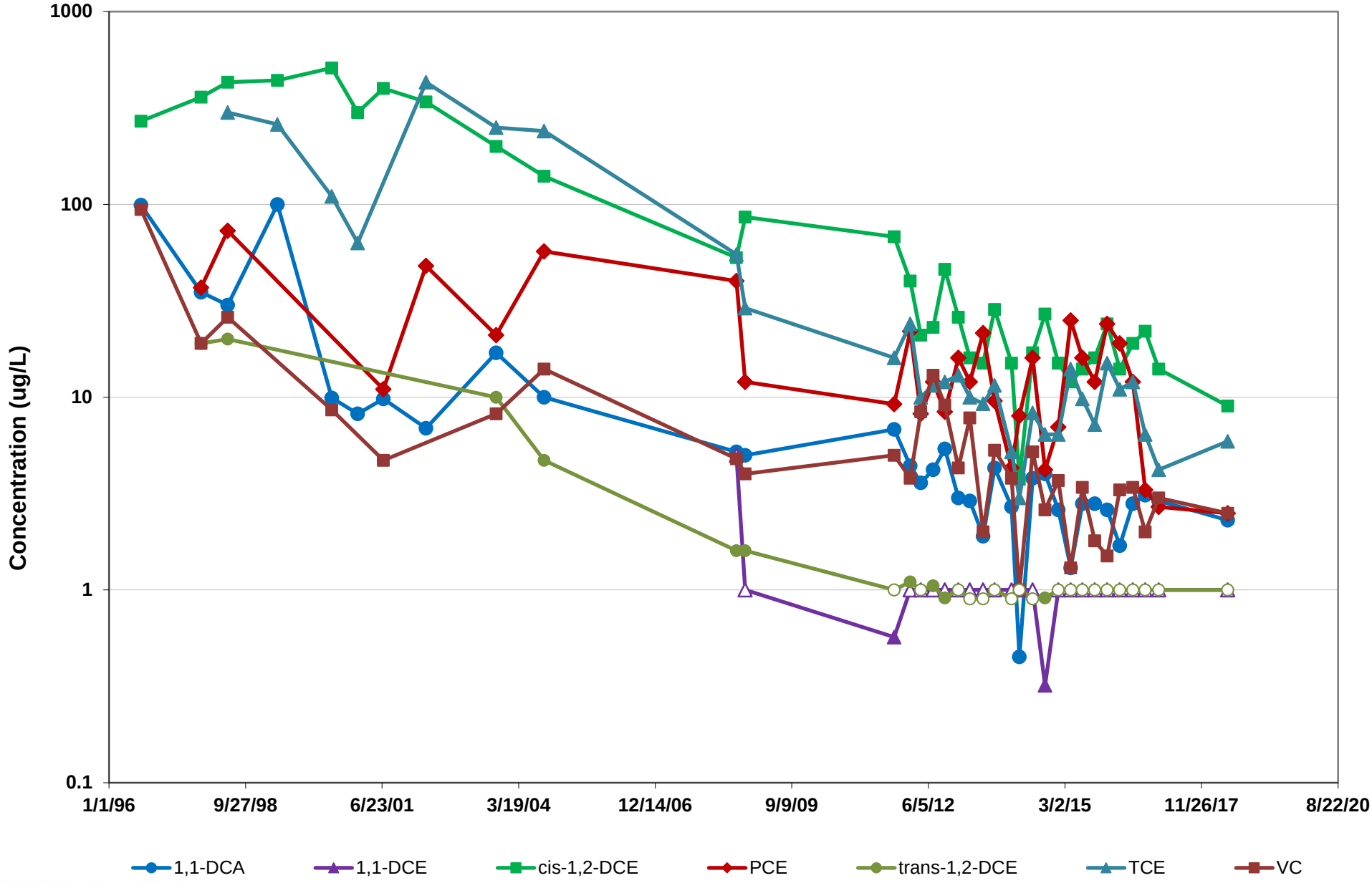
Figure 4-3d: Well MW-1 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

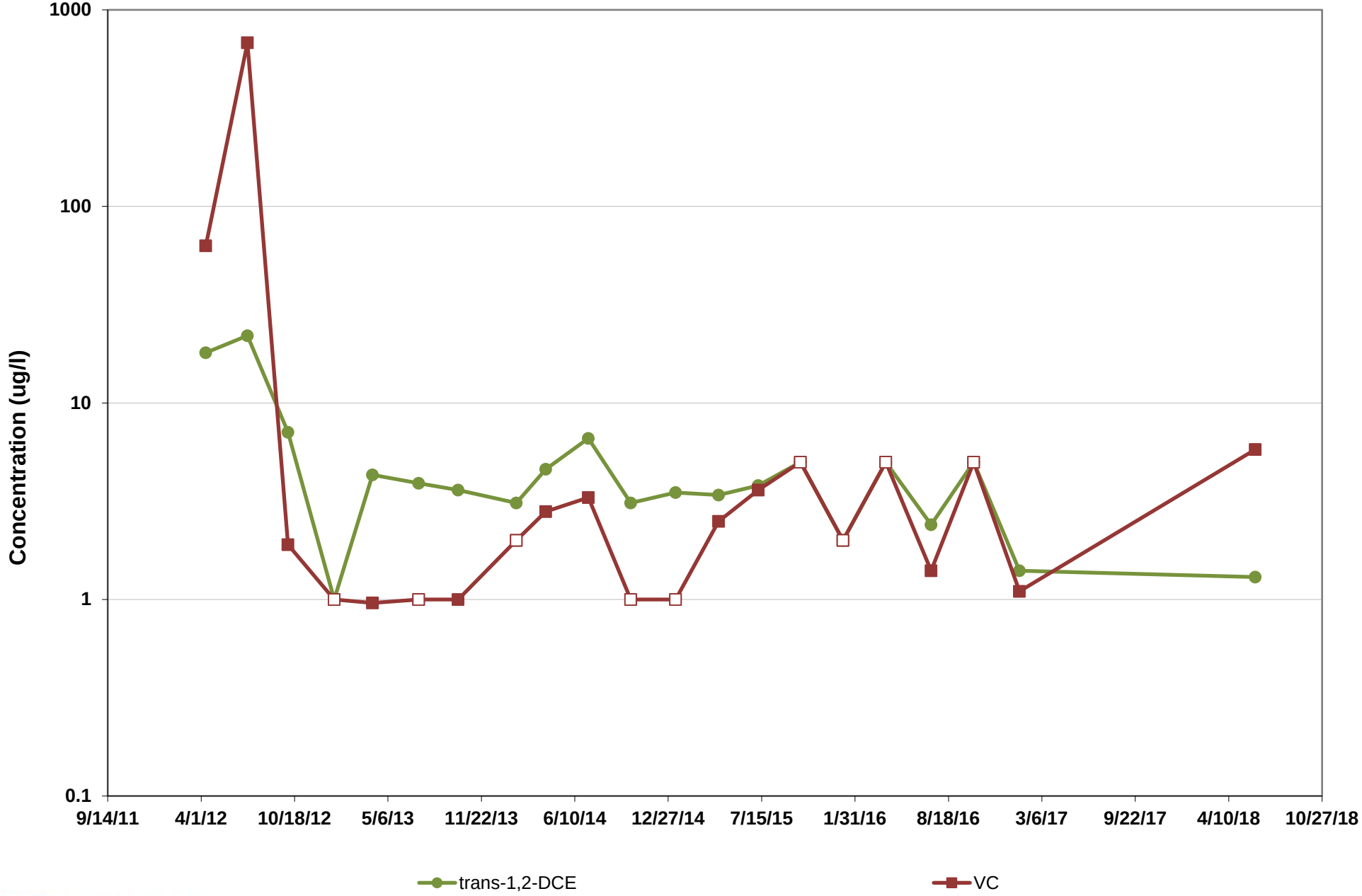
Figure 4-3e: Well MW-3 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

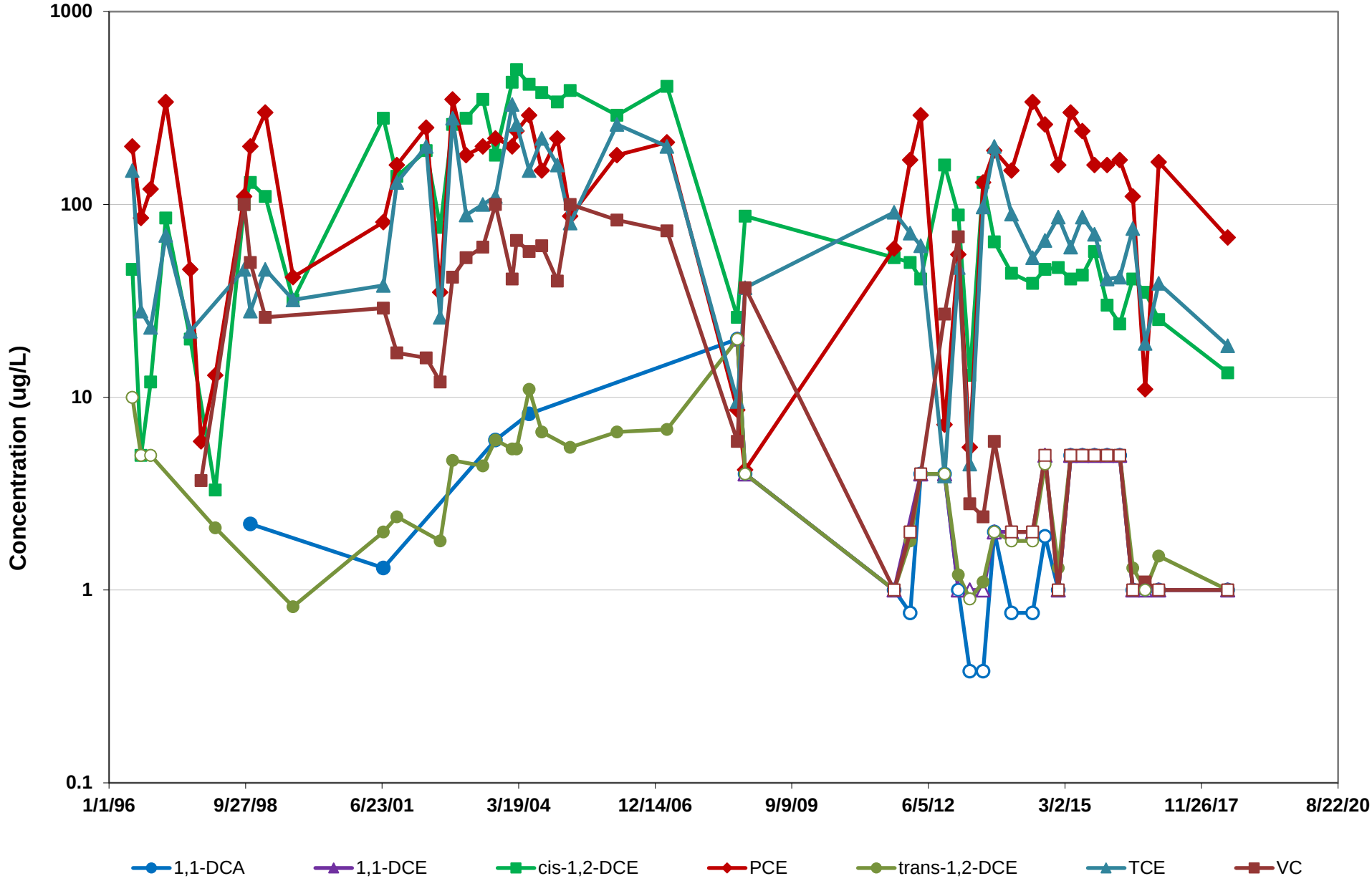
Figure 4-3g: Well MW-20 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

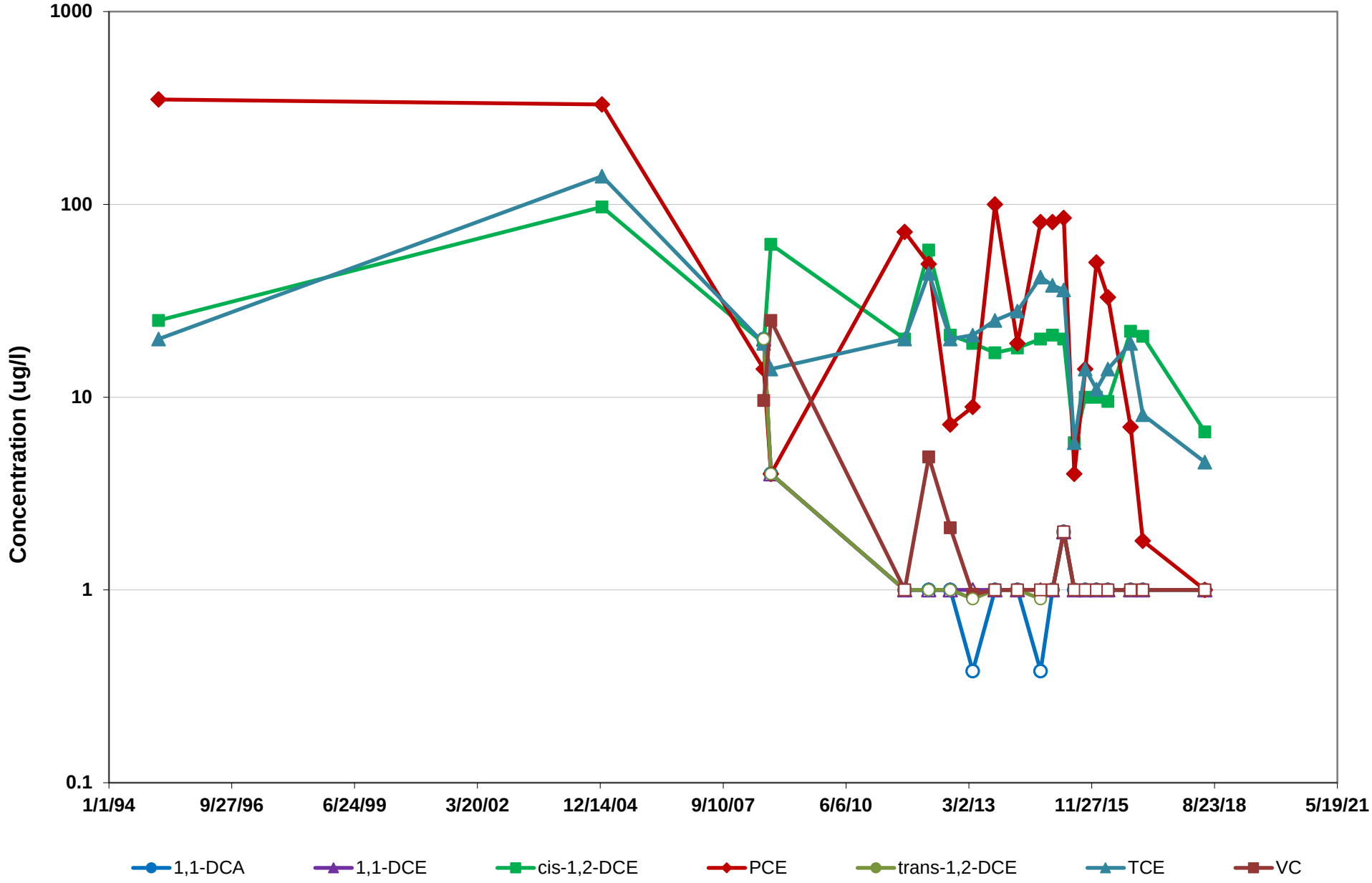
Figure 4-3h: Well PZ-5 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

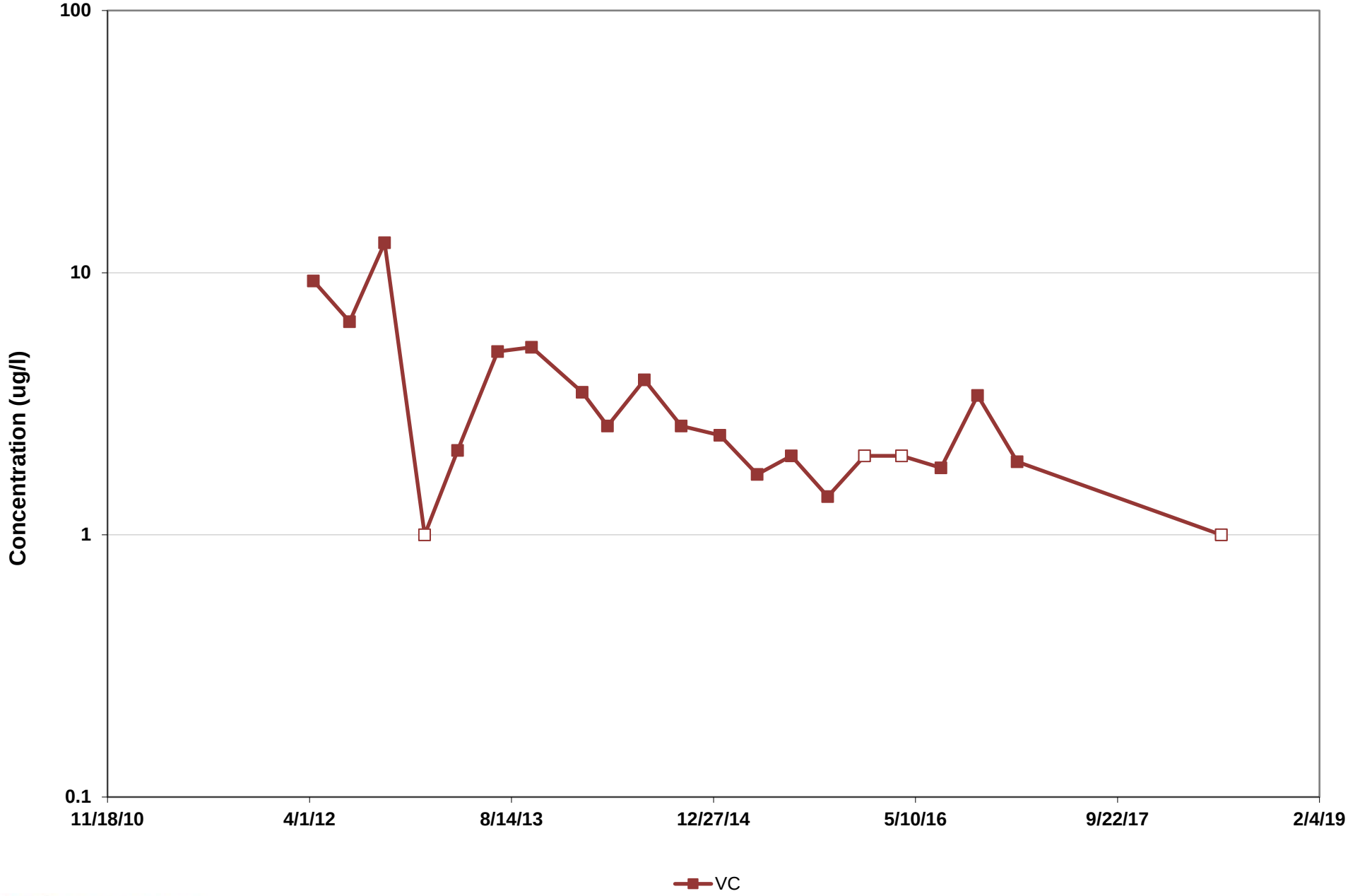
Figure 4-3i: Well PZ-6 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

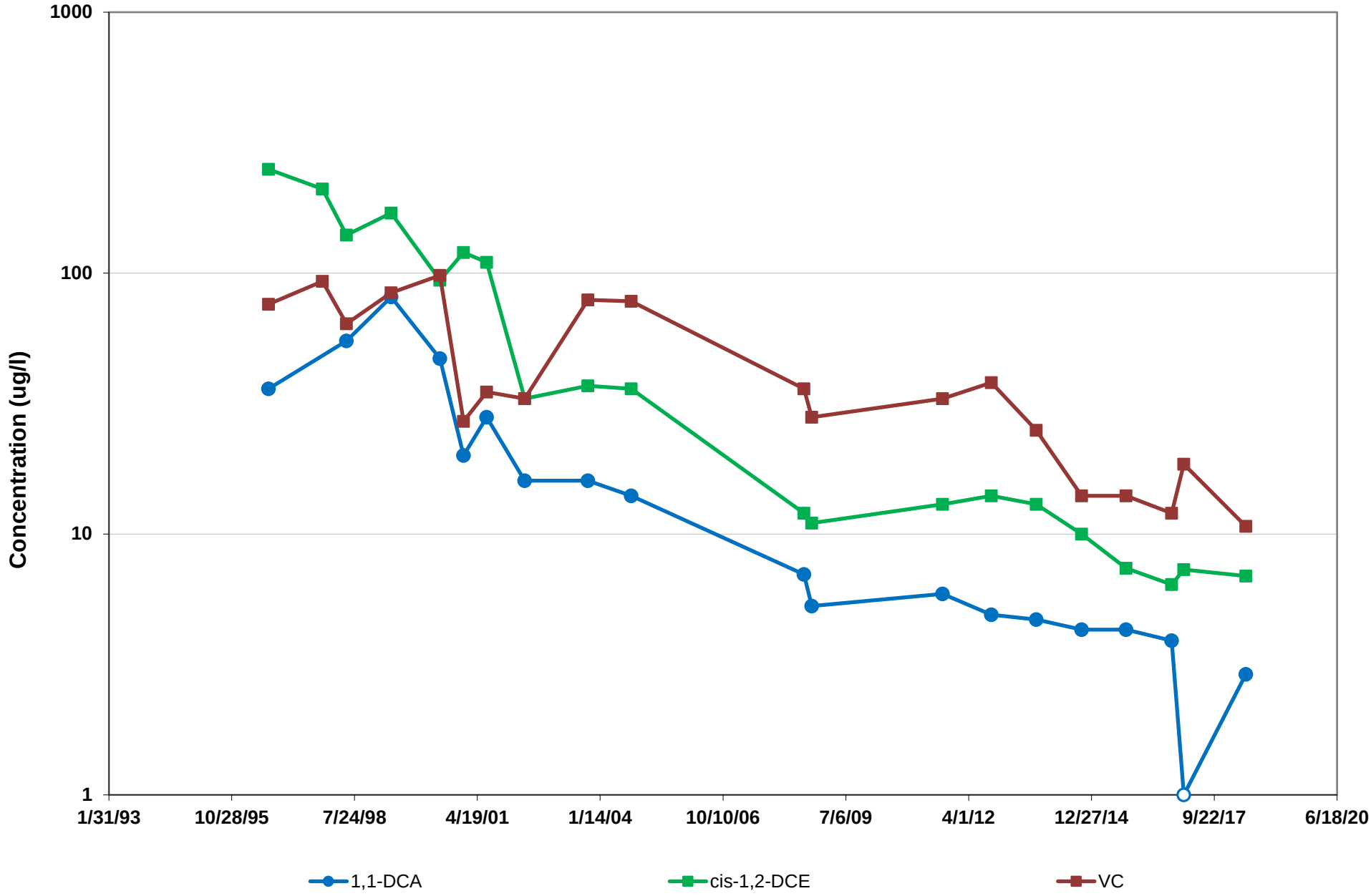
Figure 4-3l: Well MW-21 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

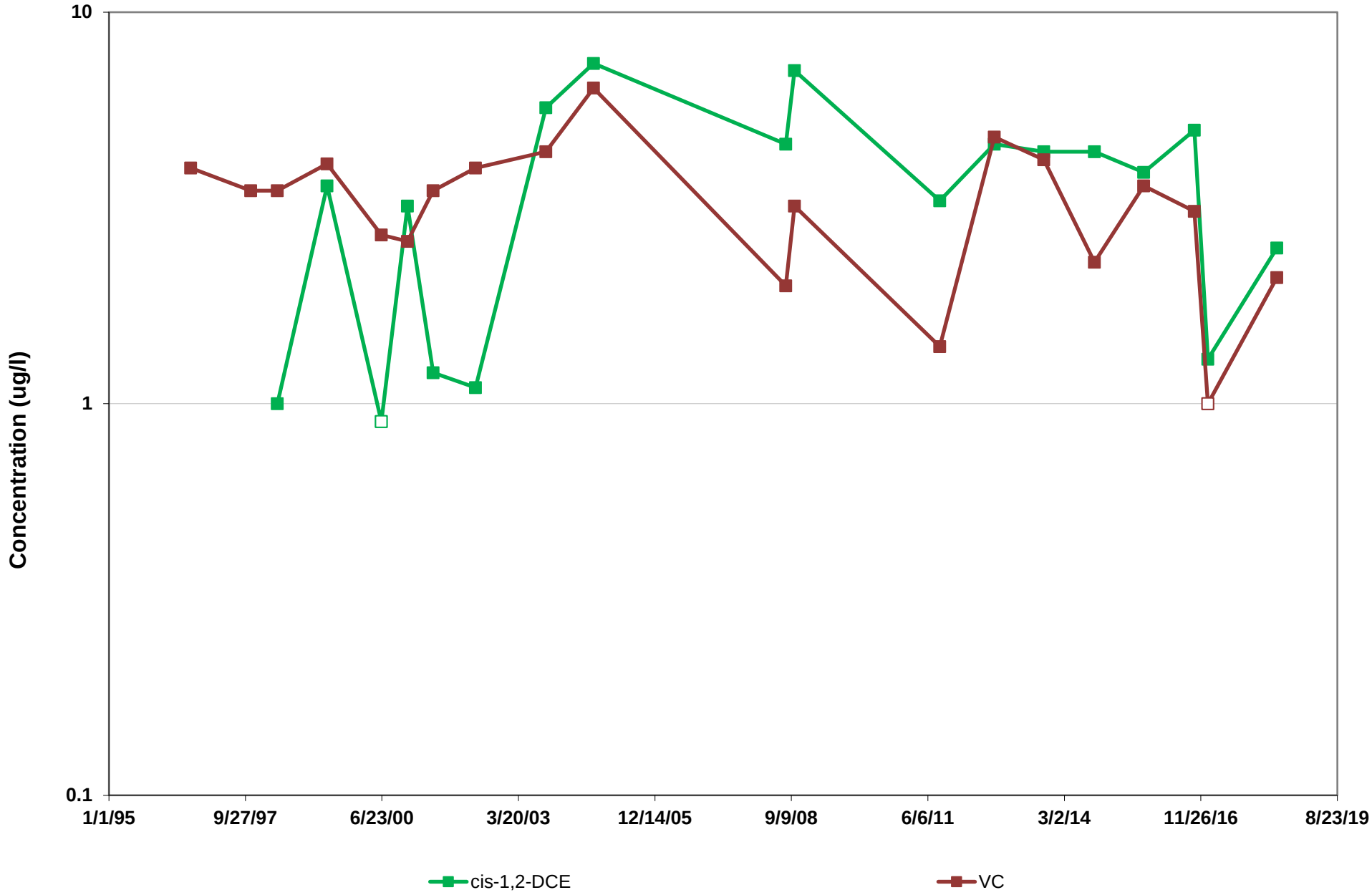
Figure 4-3m: Well MW-2 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.

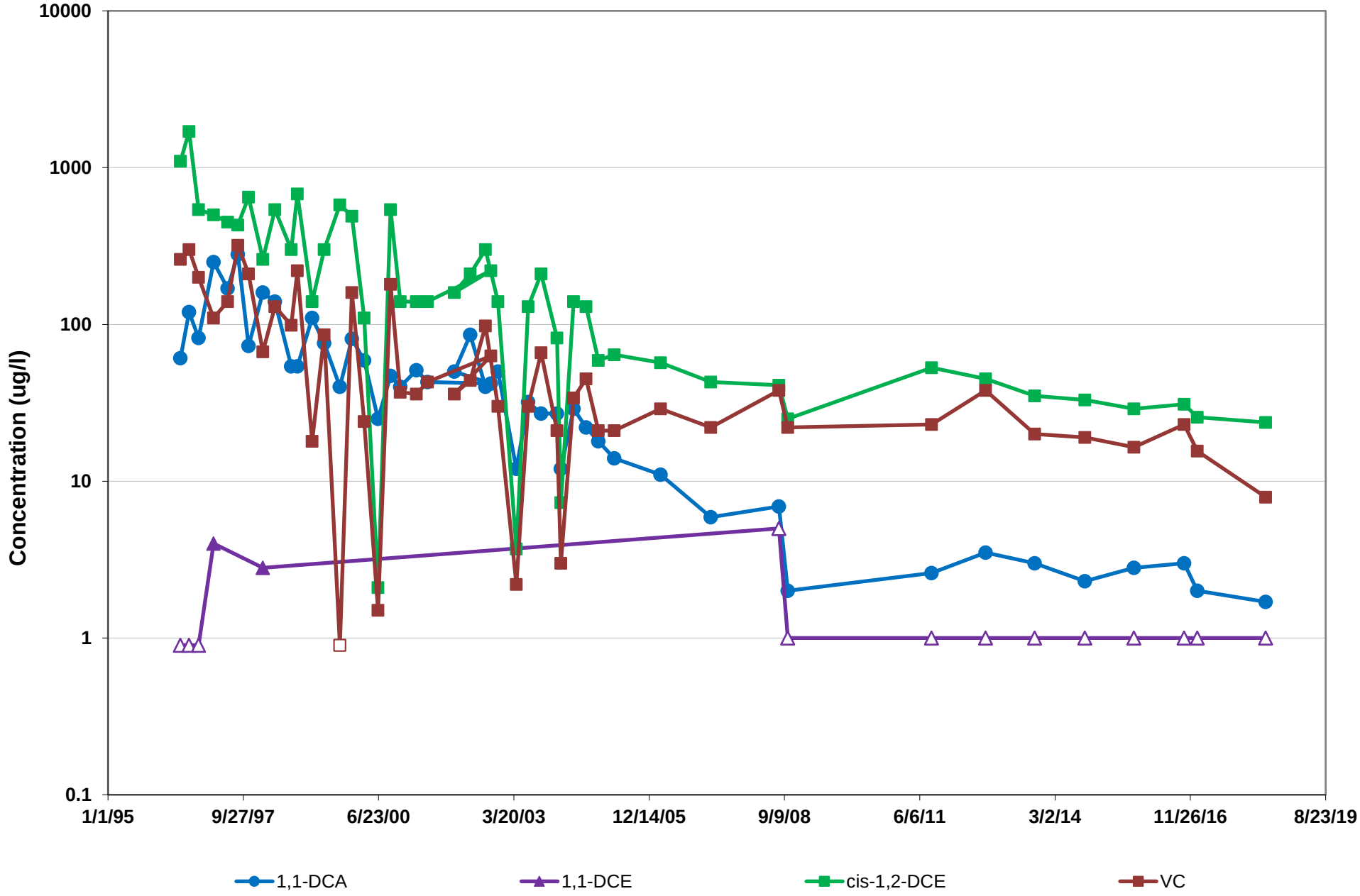
Figure 4-3n: Well MW-4 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

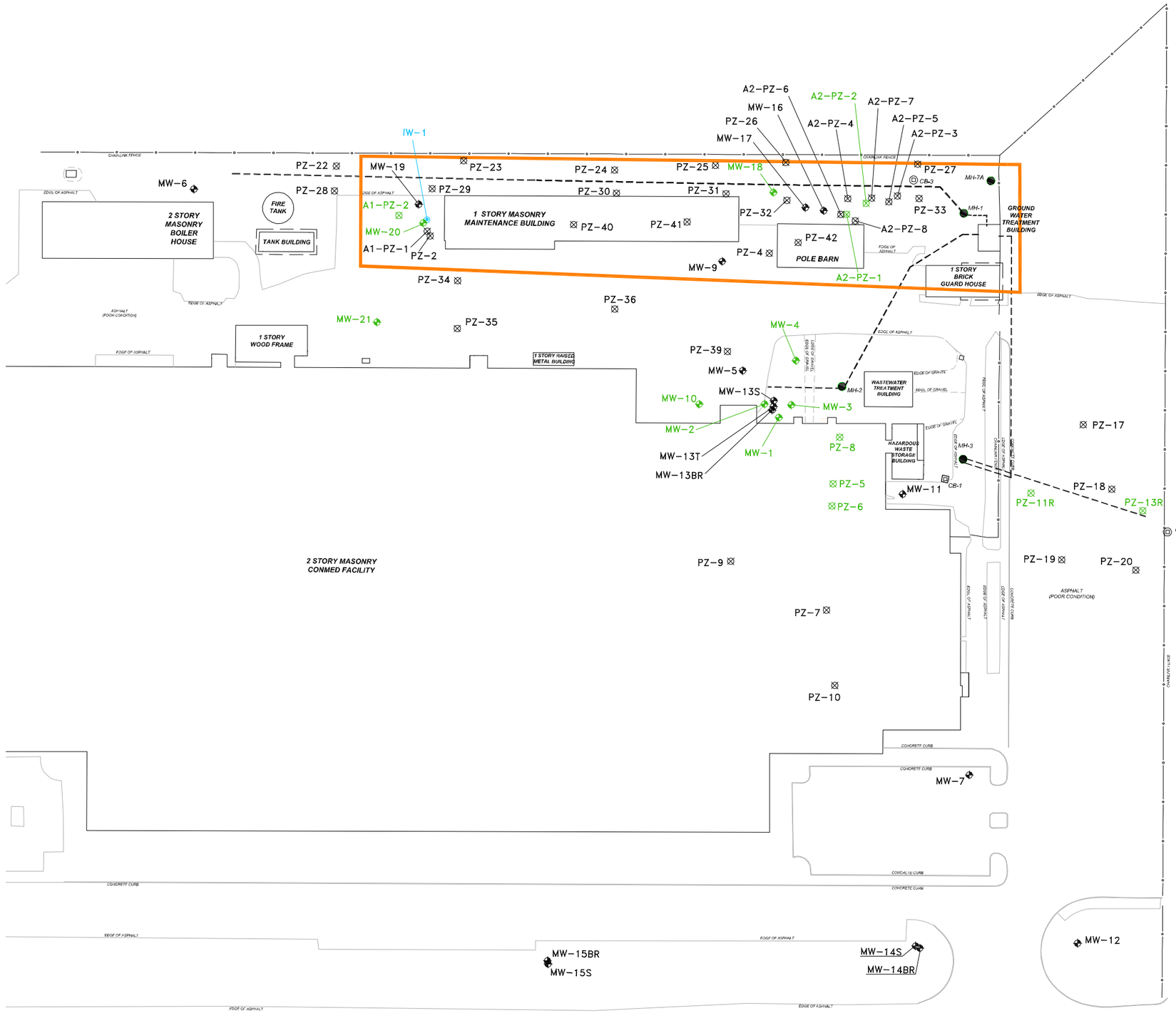
Non-detect sample results are represented with open symbols.

Figure 4-3o: Well MW-10 Groundwater Volatile Organic Compound Concentration Trends
Former Lockheed Martin Facility, Utica, New York



TETRA TECH

Non-detect sample results are represented with open symbols.



LEGEND:

- FORMER NORTHERN PERIMETER DITCH (FNPD)
- IW-1 — INJECTION WELL LOCATION
- MW-10 — MONITORING WELL LOCATION
- PZ-9 — PIEZOMETER LOCATION
- ANNUAL SAMPLING LOCATION
- GROUNDWATER COLLECTION TRENCH AND PIPING
- FENCE LINE
- MH-2 — GROUNDWATER COLLECTION MANHOLE LOCATION
- CB-2 — CATCH BASIN WITH INLET GRATE LOCATION

NOTES:

1. BASE PLAN ADAPTED FROM DRAWING ENTITLED "2013 ANNUAL GROUNDWATER MONITORING REPORT, JANUARY 2013 GROUNDWATER CONTOURS" PREPARED BY ACRCADIS.
2. THIS DRAWING IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLAN COORDINATE SYSTEM (CENTRAL ZONE).
3. THE REFERENCED HORIZONTAL CONTROL STATION IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION (CORS) DESIGNATED AS "ROME CORS ARP" (NYRM). NYRM IS A SPECIAL HORIZONTAL AND VERTICAL CONTROL STATION ESTABLISHED BY NATIONAL GEODETIC SURVEY IN JULY 1997.
4. IN 2017, MONITORING WELLS MW-18, AZ-PZ-1, AZ-PZ-2, MW-16, MW-17, AZ-PZ-3, AZ-PZ-4, AZ-PZ-5, AZ-PZ-6, AZ-PZ-7, AZ-PZ-8, PZ-32, AND PZ-33 WERE DECOMMISSIONED IN PREPARATION FOR THE FNPD EXCAVATION, AND THEREFORE WERE NOT MEASURED THIS EVENT. GROUNDWATER INFORMATION WILL BE OBTAINED ONCE THE WELLS ARE REINSTALLED.

2017 ANNUAL SITE MANAGEMENT REPORT
APPENDIX D: Groundwater Monitoring Report
FORMER LOCKHEED MARTIN, FRENCH ROAD FACILITY

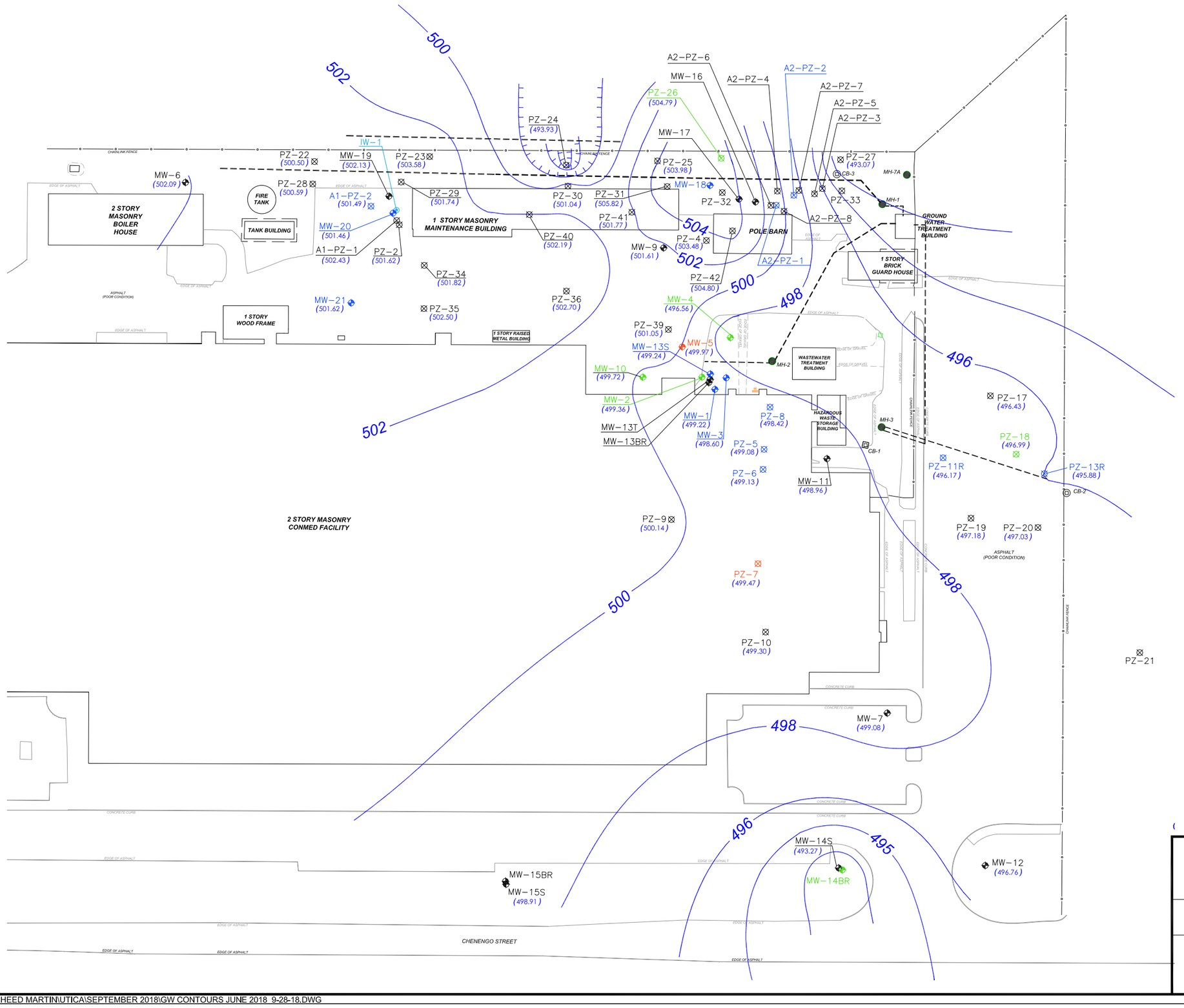
ANNUAL 2018 GROUNDWATER MONITORING

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-0507677
DATE	9/6/18

FIGURE: D-1

S:\CAD\LOCKHEED MARTIN\UTICA\AUGUST 2018\MONITORING WELL NETWORK_9-6-18.DWG



LEGEND:

- IW-1 — INJECTION WELL LOCATION
- MW-10 — MONITORING WELL LOCATION
- PZ-9 — PIEZOMETER LOCATION
- QUARTERLY SAMPLING LOCATION
- SEMI-ANNUAL SAMPLING LOCATION
- ANNUAL SAMPLING LOCATION
- (498.42) — QUARTERLY GROUNDWATER ELEVATION POINT (AMSL)
- 500 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER COLLECTION TRENCH AND PIPING
- FENCE LINE
- MH-2 — GROUNDWATER COLLECTION MANHOLE LOCATION
- CB-2 — CATCH BASIN WITH INLET GRATE LOCATION

NOTES:

1. BASE PLAN ADAPTED FROM DRAWING ENTITLED "2013 ANNUAL GROUNDWATER MONITORING REPORT, JANUARY 2013 GROUNDWATER CONTOURS" PREPARED BY ACRCADIS.
2. THIS DRAWING IS REFERENCED HORIZONTALLY TO THE NORTH AMERICAN DATUM OF 1983 (NAD83) AND PROJECTED ON THE NEW YORK STATE PLAN COORDINATE SYSTEM (CENTRAL ZONE).
3. THE REFERENCED HORIZONTAL CONTROL STATION IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION (CORS) DESIGNATED AS "ROME CORS ARP" (NYRM). NYRM IS A SPECIAL HORIZONTAL AND VERTICAL CONTROL STATION ESTABLISHED BY NATIONAL GEODETIC SURVEY IN JULY 1997.
4. CONTOURS DEVELOPED USING WATER LEVEL DATA FROM JUNE 5, 2018.
5. MW-18, A2-PZ-1, A2-PZ-2, MW-16, MW-17, PZ-21, PZ-32, PZ-33, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7 AND A2-PZ-8 WERE GAUGED BUT WERE DRY.
6. IN 2017, MONITORING WELLS MW-18, A2-PZ-1, A2-PZ-2, MW-16, MW-17, A2-PZ-3, A2-PZ-4, A2-PZ-5, A2-PZ-6, A2-PZ-7, A2-PZ-8, PZ-32, AND PZ-33 WERE DECOMMISSIONED IN PREPARATION FOR THE FNPD EXCAVATION, AND THEREFORE WERE NOT MEASURED THIS EVENT. GROUNDWATER INFORMATION WILL BE OBTAINED ONCE THE WELLS ARE REINSTALLED.

0 50 100
SCALE IN FEET

2017 ANNUAL SITE MANAGEMENT REPORT
APPENDIX D: Groundwater Monitoring Report
FORMER LOCKHEED MARTIN, FRENCH ROAD FACILITY
UTICA, NEW YORK

GROUNDWATER CONTOURS JUNE 2018

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-0507677
DATE	9/28/18

FIGURE: D-2A

S:\CAD\LOCKHEED MARTIN\UTICA\SEPTEMBER 2018\GW CONTOURS JUNE 2018 9-28-18.DWG

A1-PZ-2	
Tetrachloroethene	1.0 U
Trichloroethene	1.0 U
cis-1,2 Dichloroethene	1.2
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.4
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

MW-20	
Tetrachloroethene	1.0 U
Trichloroethene	1.0 U
cis-1,2 Dichloroethene	1.6
trans 1,2-Dichloroethene	1.3
Vinyl Chloride	**5.8**
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

MW-2	
Tetrachloroethene	1.0 U
Trichloroethene	1.0 U
cis-1,2 Dichloroethene	**6.9**
trans 1,2-Dichloroethene	1.3
Vinyl Chloride	**10.7**
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	2.9
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

MW-4	
Tetrachloroethene	1.0 U [1.0 U]
Trichloroethene	1.0 U [1.0 U]
cis-1,2 Dichloroethene	2.5 [2.3]
trans 1,2-Dichloroethene	1.0 U [1.0 U]
Vinyl Chloride	1.1 **[2.1]**
1,1,1-Trichloroethane	1.0 U [1.0 U]
1,1-Dichloroethane	1.0 U [1.0 U]
1,2-Dichloroethane	1.0 U [1.0 U]
1,1-Dichloroethene	1.0 U [1.0 U]
1,1,2,Trichloroethane	1.0 U [1.0 U]
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U [1.0 U]
Dichloro-difluoromethane (Freon 12)	1.0 U [1.0 U]
Ethylbenzene	1.0 U [1.0 U]
Toluene	1.0 U [1.0 U]
Xylenes, total	3.0 U [3.0 U]
Acetone	5.0 U [5.0 U]

MW-3	
Tetrachloroethene	2.5
Trichloroethene	**5.9**
cis-1,2 Dichloroethene	**9**
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	**2.5**
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	2.3
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

MW-21	
Tetrachloroethene	1.0 U
Trichloroethene	1.0 U
cis-1,2 Dichloroethene	1.0 U
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.0 U
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

MW-10	
Tetrachloroethene	1.0 U
Trichloroethene	1.0 U
cis-1,2 Dichloroethene	**23.7**
trans 1,2-Dichloroethene	2.2
Vinyl Chloride	**7.9**
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.7
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

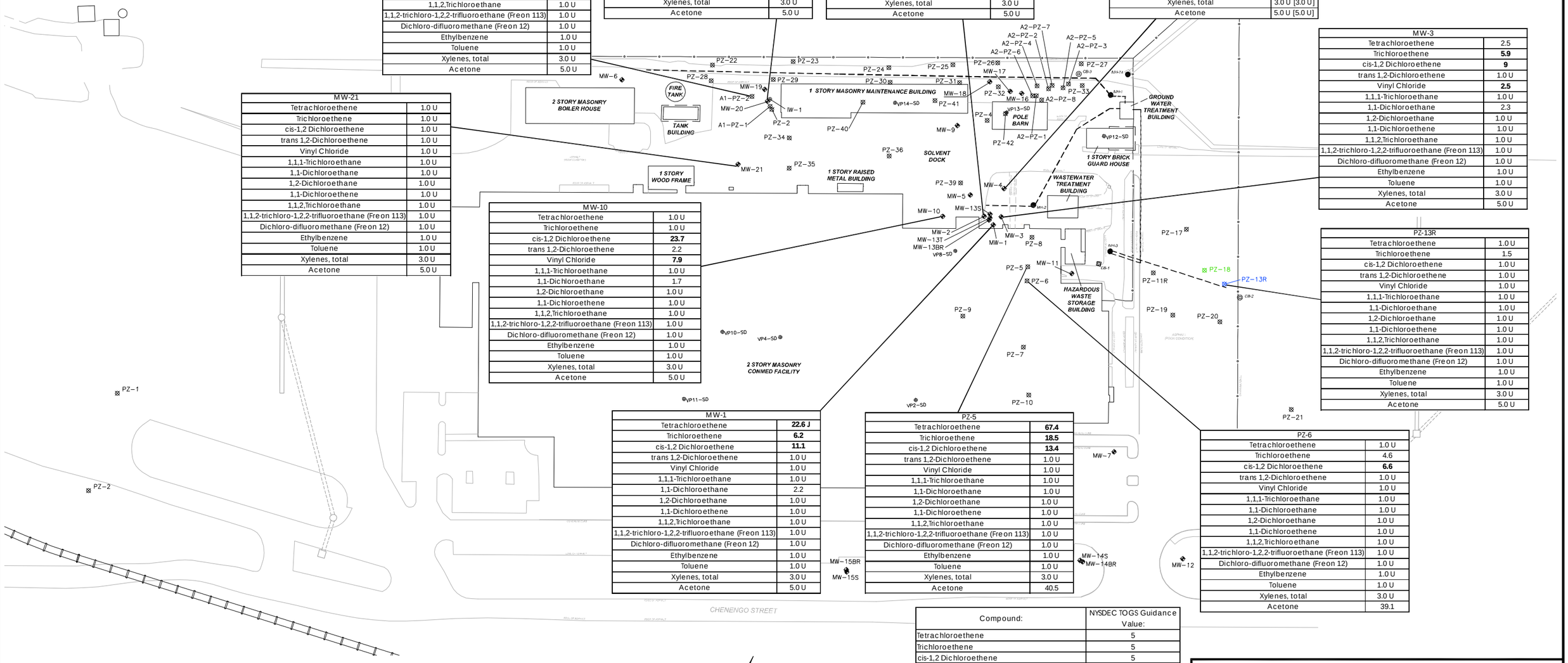
MW-1	
Tetrachloroethene	**22.6 J**
Trichloroethene	**6.2**
cis-1,2 Dichloroethene	**11.1**
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.0 U
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	2.2
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

PZ-5	
Tetrachloroethene	**67.4**
Trichloroethene	**18.5**
cis-1,2 Dichloroethene	**13.4**
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.0 U
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	40.5

PZ-13R	
Tetrachloroethene	1.0 U
Trichloroethene	1.5
cis-1,2 Dichloroethene	1.0 U
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.0 U
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	5.0 U

PZ-6	
Tetrachloroethene	1.0 U
Trichloroethene	4.6
cis-1,2 Dichloroethene	**6.6**
trans 1,2-Dichloroethene	1.0 U
Vinyl Chloride	1.0 U
1,1,1-Trichloroethane	1.0 U
1,1-Dichloroethane	1.0 U
1,2-Dichloroethane	1.0 U
1,1-Dichloroethene	1.0 U
1,1,2,Trichloroethane	1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	1.0 U
Dichloro-difluoromethane (Freon 12)	1.0 U
Ethylbenzene	1.0 U
Toluene	1.0 U
Xylenes, total	3.0 U
Acetone	39.1

Compound:	NYSDEC TOGS Guidance Value:
Tetrachloroethene	5
Trichloroethene	5
cis-1,2 Dichloroethene	5
trans 1,2-Dichloroethene	5
Vinyl Chloride	2
1,1,1-Trichloroethane	5
1,1-Dichloroethane	5
1,2-Dichloroethane	0.6
1,1-Dichloroethene	5
1,1,2,Trichloroethane	1
1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)	5
Dichloro-difluoromethane (Freon 12)	5
Ethylbenzene	5
Toluene	5
Xylenes, total	5
Acetone	50



LEGEND:

- MW-10 ⊕ MONITORING WELL LOCATION
- PZ-9 ⊠ PIEZOMETER LOCATION
- GROUNDWATER COLLECTION TRENCH AND PIPING
- FENCE LINE
- MH-2 ● GROUNDWATER COLLECTION MANHOLE LOCATION
- CB-2 ⓒ CATCH BASIN WITH INLET GRATE LOCATION

NOTES:

1. LABORATORY ANALYSIS: EPA METHOD 8270D SIM ID AND EPA METHOD 537 (MODIFIED).
2. CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) AND NANOGRAMS PER LITER (ng/L).
3. QUALIFIERS:
   - J FLAG IDENTIFIES ESTIMATED CONCENTRATION

0 70 140
SCALE IN FEET

ANNUAL 2018 GROUNDWATER MONITORING

FORMER LOCKHEED MARTIN, FRENCH ROAD FACILITY
UTICA, NEW YORK

VOC GROUNDWATER MONITORING DATA

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-0507677
DATE	9-6-18

FIGURE: D-3A

S:\CAD\LOCKHEED MARTIN\UTICA\AUGUST 2018\GW QUALITY VOC_9-6-18.DWG

MW-5	
Analyte	Result
PFBS	0.45 J ng/L
PFBA	4.1 ng/L
PFHpA	0.60 J ng/L
PFHxA	1.2 J ng/L
PFOS	0.68 J ng/L
PFOA	0.98 J ng/L
PFPeA	1.8 J ng/L

OW-1	
Analyte	Result
PFBS	0.44 J ng/L
PFBA	4.4 ng/L
PFHpA	0.70 J ng/L
PFHxA	1.1 J ng/L
PFOS	2.9 ng/L
PFOA	1.4 J ng/L
PFPeA	1.5 J ng/L

MW-23	
Analyte	Result
PFBS	0.31 J ng/L
PFBA	4.5 ng/L
PFHpA	0.92 J ng/L
PFHxA	3.5 ng/L
PFPeA	5.1 ng/L

MWF	
Analyte	Result
PFBA	3.9 ng/L
PFOS	0.92 J ng/L
PFPeA	0.89 J ng/L

PZ-2	
Analyte	Result
6:2 FTS	4.5 J ng/L
PFBA	2.9 ng/L
PFHpA	0.85 J ng/L
PFHxA	0.85 J ng/L
PFNA	0.52 J ng/L
PFOS	23 ng/L
PFOA	1.3 J ng/L
PFPeA	0.77 J ng/L

A1-PZ-2
Non-Detect

MW-1	
Analyte	Result
1,4-Dioxane	0.36 µg/L
PFBS	0.54 J ng/L
PFBA	6.9 ng/L
PFHpA	2.2 ng/L
PFHxA	3.5 ng/L
PFNA	0.79 J ng/L
PFOS	4.8 ng/L
PFOA	6.1 ng/L
PFPeA	6.4 ng/L

MW-21	
Analyte	Result
1,4-Dioxane	2.2 µg/L
PFBS	0.34 J ng/L
PFBA	14 ng/L
PFDA	1.3 J ng/L
PFDoA	0.88 J ng/L
PFHpS	0.21 J ng/L
PFHpA	7.5 ng/L
PFHxA	41 ng/L
PFNA	1.4 J ng/L
FOSA	0.60 J ng/L
PFOS	26 J ng/L
PFOA	7.7 ng/L
PFPeA	46 J ng/L
MW-21 (dup)	
Analyte	Result
1,4-Dioxane	2.0 µg/L
NEtFOSAA	2.4 J ng/L
PFBS	0.51 J ng/L
PFBA	12 ng/L
PFDA	1.4 J ng/L
PFDoA	0.90 J ng/L
PFHpA	6.6 ng/L
PFHxA	33 ng/L
PFNA	1.2 J ng/L
FOSA	0.57 J ng/L
PFOS	20 J ng/L
PFOA	6.3 ng/L
PFPeA	32 J ng/L

MW-13BR
Non-Detect

PZ-11R	
Analyte	Result
6:2 FTS	2.5 J ng/L
PFBS	0.34 J ng/L
PFBA	5.8 ng/L
PFDA	1.0 J ng/L
PFHpA	2.6 ng/L
PFHxA	3.1 ng/L
PFNA	1.3 J ng/L
PFOS	14 ng/L
PFOA	4.6 ng/L
PFPeA	3.9 ng/L

PZ-A
FORMER BURN PIT AREA
OW-2
MW-5
PW-1
OW-1
MW-E
MW-C
MW-24
MW-D
MW-23
MW-22
WEST LOT
MW-F
MW-1
PZ-1
PZ-2
CHENENGO STREET
CITY OF UTICA TOWN OF NEW HARTFORD
2 STORY MASONRY BOILER HOUSE
FIRE TANK
TANK BUILDING
1 STORY MASONRY MAINTENANCE BUILDING
1 STORY WOOD FRAME
1 STORY RAISED METAL BUILDING
SOLVENT DOCK
2 STORY MASONRY CONMED FACILITY
POLE BARN
GROUND WATER TREATMENT BUILDING
1 STORY BRICK GUARD HOUSE
WASTEWATER TREATMENT BUILDING
HAZARDOUS WASTE STORAGE BUILDING
MW-6
MW-16
MW-17
MW-18
MW-19
MW-20
MW-21
MW-5
MW-10
MW-13S
MW-4
MW-2
MW-13T
MW-13BR
MW-1
MW-3
MW-11
MW-7
MW-15BR
MW-15S
MW-14S
MW-14BR
PZ-22
PZ-23
PZ-24
PZ-25
PZ-26
PZ-27
PZ-28
PZ-29
PZ-30
PZ-31
PZ-32
PZ-33
PZ-41
PZ-4
PZ-34
PZ-40
PZ-9
PZ-35
PZ-36
PZ-39
PZ-42
PZ-8
PZ-5
PZ-6
PZ-7
PZ-10
PZ-11R
PZ-17
PZ-19
A1-PZ-2
A1-PZ-1
A2-PZ-7
A2-PZ-2
A2-PZ-4
A2-PZ-6
A2-PZ-5
A2-PZ-3
A2-PZ-8
A2-PZ-1
IW-1
VP14-SD
VP13-SD
VP12-SD
VP10-SD
VP4-SD
VP11-SD
VP2-SD
VP8-SD
CB-2
CB-1
MH-1A
MH-1
MH-2
MH-3

LEGEND:

- MW-10 ⊕ MONITORING WELL LOCATION
- PZ-9 ⊠ PIEZOMETER LOCATION
- GROUNDWATER COLLECTION TRENCH AND PIPING
- FENCE LINE
- MH-2 GROUNDWATER COLLECTION MANHOLE LOCATION
- CB-2 CATCH BASIN WITH INLET GRATE LOCATION

NOTES:

1. LABORATORY ANALYSIS: EPA METHOD 8270D SIM ID AND EPA METHOD 537 (MODIFIED).
2. CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) AND NANOGRAMS PER LITER (ng/L).
3. QUALIFIERS:
   - J FLAG IDENTIFIES ESTIMATED CONCENTRATION

0 70 140
SCALE IN FEET

ANNUAL 2018 GROUNDWATER MONITORING

FORMER LOCKHEED MARTIN, FRENCH ROAD FACILITY
UTICA, NEW YORK

DETECTED EMERGING PFAS COMPOUNDS GROUNDWATER MONITORING DATA

TETRA TECH

CHECKED	MRN
DRAFTED	CMP
PROJECT	117-0507677
DATE	9-28-18

FIGURE: D-4A

S:\CAD\LOCKHEED MARTIN\UTICA\SEPTEMBER 2018\GW QUALITY PFAS 9-28-18.DWG

TETRA TECH

TABLES

Table 4-1
Groundwater Elevation Measurements
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Well ID	Top of Casing Elevation (ft)	Ground Water Elevation (ft)									
		Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1											
MW-1	507.27	500.45	500.85	499.41	498.93	499.32	499.52	499.06	498.32	499.50	499.22
MW-3	509.45	499.57	499.85	498.87	498.55	498.78	498.88	497.56	497.91	498.79	498.60
MW-18	504.97	502.29	502.12	501.89	501.58	502.19	502.00	501.62	501.43	502.22	DRY
MW-20	503.40	501.86	502.01	501.28	501.00	501.35	501.40	501.06	500.49	501.27	501.46
PZ-5*	508.20	498.70	498.46	498.73	498.98	499.98	499.31	498.60	498.89	499.27	499.08
PZ-6*	508.28	499.12	499.01	499.13	499.07	499.99	499.11	499.03	499.05	499.06	499.13
PZ-8	508.23	499.60	499.68	499.10	498.86	499.21	498.81	498.70	498.53	498.92	498.42
PZ-11R	504.88	496.83	496.90	496.39	496.32	496.50	496.52	496.24	496.13	496.62	496.17
PZ-13R	503.98	495.98	495.96	495.81	495.83	495.89	496.00	495.85	495.82	495.98	495.88
A1-PZ-2	503.00	--	501.73	501.40	500.77	501.15	501.56	500.89	500.62	501.33	501.49
A2-PZ-1	509.00	--	505.83	504.88	504.40	504.87	505.06	504.78	504.70	505.50	DRY
A2-PZ-2	509.74	503.59	503.45	503.39	503.32	503.28	503.09	503.16	503.03	503.73	DRY
Objective 2											
MW-5	504.33	500.78	501.77	500.02	499.49	500.03	500.44	499.46	500.10	500.38	499.97
MW-13S	505.81	500.21	500.68	499.37	498.93	499.30	499.52	499.06	DRY	497.92	499.24
MW-14BR	507.95	447.55	453.44	459.39	464.31	447.89	452.18	458.24	462.85	494.10	495.75
MW-21	503.66	501.41	501.73	501.48	501.09	499.64	500.74	501.15	500.96	501.11	501.62
PZ-18	504.85	497.27	497.22	496.99	496.94	497.15	497.16	496.94	496.86	497.17	496.99
PZ-26	510.95	502.23	502.14	501.98	501.68	501.93	501.70	501.66	501.46	502.23	504.79
Objective 3											
MW-2	504.60	500.43	501.05	499.50	498.95	499.39	499.67	499.15	498.38	499.58	499.36
MW-4	506.73	497.11	497.02	495.91	495.28	496.08	496.58	495.61	495.13	497.18	496.56
PZ-7*	508.26	499.44	499.49	499.50	499.48	499.57	499.38	499.38	499.45	502.45	499.47
MW-10	504.48	501.33	501.86	499.98	499.34	500.02	500.25	499.56	498.71	500.08	499.72
Others											
IW-1	506.80	505.25	505.73	504.96	505.03	505.19	505.41	504.86	504.48	--	504.75
MW-6	508.06	502.27	502.22	502.00	501.62	502.00	502.06	501.77	501.24	502.00	502.09
MW-7	506.94	--	498.80	498.96	499.08	498.49	498.41	498.86	498.94	498.56	499.08
MW-9	504.84	501.73	502.09	501.21	500.93	502.04	502.15	501.40	500.59	502.19	501.61
MW-11	507.03	499.31	498.70	499.06	499.09	499.18	498.61	498.91	499.03	498.79	498.96
MW-12	508.30	496.67	497.92	496.64	496.27	496.83	496.92	496.23	495.97	497.51	496.76
MW-13BR	506.12	495.73	495.28	494.69	495.52	495.20	496.17	495.40	496.17	496.78	490.52
MW-14S	507.85	498.05	500.13	499.04	498.12	499.32	499.47	498.08	497.27	499.99	493.27
MW-15S	507.26	--	499.35	498.99	498.92	499.30	499.08	498.78	498.74	499.20	498.91
MW-15BR	507.24	--	488.47	488.88	489.39	489.84	490.23	490.65	490.97	491.37	493.33
MW-16	504.69	501.03	503.46	500.76	500.87	501.09	504.14	501.72	500.71	501.33	DRY
MW-17	504.64	500.95	501.49	500.71	500.95	501.49	501.73	500.95	500.68	501.41	DRY
MW-19*	503.07	502.58	502.17	502.32	501.83	501.84	501.80	501.94	501.89	501.59	502.13
PZ-2*	503.76	501.85	502.14	501.46	501.14	501.36	501.79	501.40	500.87	501.69	501.62
PZ-4	506.13	504.13	504.16	503.74	503.63	503.78	503.76	503.38	502.97	503.22	503.48
PZ-9	508.08	500.07	499.99	500.22	500.16	500.11	500.07	500.19	500.17	500.11	500.14
PZ-10	508.14	499.44	499.50	499.30	499.28	499.46	499.11	499.23	499.23	499.34	499.30
PZ-17	504.05	497.85	497.66	497.06	497.03	497.34	497.09	496.61	496.66	497.38	496.43
PZ-19	504.60	--	498.06	497.33	497.40	497.55	497.49	497.22	497.13	497.35	497.18
PZ-20	503.85	--	497.66	497.01	497.02	497.20	497.28	496.92	496.72	497.11	497.03
PZ-21	505.70	DRY	496.77	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
PZ-22	508.57	502.02	501.86	501.18	499.80	501.58	501.34	500.34	499.39	501.52	500.50
PZ-23	510.07	503.96	503.91	503.59	503.31	503.62	503.05	503.18	503.05	503.81	503.58
PZ-24	504.77	494.49	494.52	494.12	493.79	494.19	494.18	493.83	493.77	494.15	493.93
PZ-25	510.62	504.56	504.58	504.23	503.86	504.21	503.86	503.83	503.57	504.43	503.98
PZ-27	504.12	--	495.36	493.70	492.70	494.09	493.64	492.74	492.57	493.80	493.07
PZ-28	504.12	500.85	500.74	500.42	500.30	500.58	500.77	497.02	500.05	500.70	500.59
PZ-29	503.84	--	501.80	501.67	501.61	501.64	501.79	501.68	501.19	501.72	501.74
PZ-30	504.72	501.44	501.45	501.24	500.92	501.17	501.18	500.86	500.77	501.30	501.04
PZ-31	506.17	505.86	505.87	505.06	505.67	505.77	505.87	505.11	505.47	505.62	505.82
PZ-32	504.90	504.15	504.11	503.40	503.44	503.51	504.38	502.88	503.53	503.83	DRY
PZ-33	510.00	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
PZ-34	503.88	502.00	502.09	501.59	501.19	501.36	501.78	501.06	500.77	501.61	501.82
PZ-35	503.98	502.32	503.30	502.27	501.86	501.74	502.81	501.86	501.54	502.21	502.50
PZ-36	504.23	--	503.36	502.90	502.51	502.93	503.47	502.79	502.24	503.17	502.70
PZ-39	504.51	502.49	503.15	501.54	500.93	501.26	501.87	500.92	500.30	501.52	501.05
PZ-40	506.68	502.51	502.54	502.09	501.83	501.98	502.23	501.87	501.41	502.14	502.19
PZ-41	506.27	501.97	502.51	502.01	501.58	501.84	501.95	501.63	501.25	501.93	501.77
PZ-42	505.18	504.63	504.49	504.53	504.63	504.53	504.73	504.53	504.49	504.68	504.80
A1-PZ-1	503.77	--	502.70	502.62	502.12	501.82	502.75	502.47	502.15	501.72	502.43
A2-PZ-3	509.46	508.23	508.05	506.98	506.15	507.64	507.53	505.82	505.36	507.40	DRY
A2-PZ-4	509.40	--	509.20	507.81	507.97	508.12	508.95	507.27	507.62	508.07	DRY
A2-PZ-5	510.03	--	508.35	503.13	502.38	506.61	508.49	502.33	502.07	510.03	DRY
A2-PZ-6	509.74	509.24	509.57	508.39	509.09	509.04	509.38	508.90	508.82	508.44	DRY
A2-PZ-7	509.59	508.85	508.46	503.94	503.41	506.52	507.69	503.47	503.20	506.25	DRY
A2-PZ-8	509.70	509.50	509.27	506.42	507.75	508.12	509.36	508.53	507.94	508.22	DRY

Notes:
1. "--" - Not measured due to access
2. DRY - No measurable water
3. All measurements presented above are given in feet Above Mean Sea Level (AMSL), as measured from the July 1997 National Geodetic Survey datum.
4. PZ-11R, MW-2 and MW-19 measurements were unable to be collected on 10/1/2013. The values presented above were calculated from the initial water level collected during the sampling event between 10/2 and 10/4/2013.
5. The Oct. 2014 MW-14BR groundwater elevation was recorded immediately prior to sampling and not during the earlier gauging event, due to instrument malfunction.
6. PZ-11R was inaccessible on 7/11/16 during gauging (car parked on top of piezometer); the water level was measured the next day on 7/12/16 at 7:40 AM.
7. * Indicates a monitoring well or piezometer with an adjusted TOC elevation following the cutting of casing (MW-19, PZ-5, PZ-6, and PZ-7) or the replacement of PVC top (PZ-2) for improved well cover fitting. Repairs were performed on May 27, 2015 (MW-19), June 17, 2015 (PZ-2), and July 11, 2016 (PZ-5, PZ-6, and PZ-7). The casings were re-surveyed on January 21, 2016 (MW-19 and PZ-2) or re-measured on July 11, 2016 (PZ-5, PZ-6, PZ-7). Note that groundwater elevations calculated prior to the July 2015 monitoring event are based on the previous [surveyed] TOC elevations for MW-19 and PZ-2; the groundwater elevations calculated prior to the October 2016 monitoring event are based on the previous [surveyed] TOC elevations for PZ-5, PZ-6, and PZ-7.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Tetrachloroethene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	**77 [81]**	**78**	**50**	**36**	**99**	**110D [120D]**	**70 [78]**	**69**	**93**	**43 [44]**	**19**	**69 [66]**	**58 [57]**	**48 [48]**	**37 [39]**	**76**	**79**	**48 [52]**	**29**	**32**	**29 [33]**	**50.2**	**22.6 J**
	MW-3	**9.2**	**22**	**8.2**	**12[12]**	**8.4**	**16**	**12**	**21 [22]**	**9.6 [9.5]**	4.3	**7.9 [8.1]**	**16**	4.2	**7.0**	**25**	**16 [16]**	**12**	**24**	**19 [17]**	**12**	3.3	2.7	2.5
	MW-18	--	--	**64 D**	**57**	**11**	**130 D**	**95**	**29**	**16 J**	**37**	**180**	**20**	**14**	**56**	**75**	40 U	**18 J**	**290**	**480**	**120**	**85**	**181**	--
	MW-20	--	--	7.2U	5.0 U	1.0 U	1.0 U	0.36 U	0.36 U	1.0 UJ	0.72 U	2.0 U	0.72 U	0.36 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	**59**	**170**	**290**	NS	**7.2**	**55**	**5.5**	**130**	**190**	**150**	NS	**340**	**260**	**160**	**300**	**240**	**160**	**160**	**170**	**110**	**11**	**166**	**67.4**
	PZ-6	**72**	**--**	**49**	**--**	**7.2**	--	**8.9**	--	**100 D**	--	**19**	--	**81**	**81**	**85**	4.0	**14**	**50**	**33**	--	**7.0**	1.8	1.0 U
	PZ-8	**350 D**	**470**	NS	NS	**380**	**450 D**	**350**	**280**	NS	NS	**270**	**280**	NS	**55**	**190**	**210**	NS	**160**	**160**	NS	NS	**133**	--
	PZ-11R	**5.5**	2.2	2.7	**5.2**	2.8	1.9	1.8	4.4	1.4	1.3	0.99 J	1.9	2.4	1.8	1.4	2.9	3.4	2.4	1.9	4.6	4.2	2.2	--
	PZ-13R	1.7	0.98 J	0.75 J	1.1	0.59 J	1.0 U	0.57	0.92	0.59 J	0.49	1.0 U	0.67	0.89	0.66	1.0 U	0.83 J	1.1	0.88 J	0.59 J	1.2	1.3	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.36 U	0.36 U	1.0 U	0.36 U	1.0 U	0.36 U	0.36 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	5	250 U	250 U **[5.3]**	250 U	250 U	1.0 U	90 U	90 U	250 U	90 U	250 U	90 U	180 U	3.2	1.7	4.4	1.8	100 U	200 U	3.2	2.2	3.8	--
	A2-PZ-2	--	--	**2300 D**	**810**	**730**	**1700 D**	**440 D**	**800**	**520**	**310**	**220**	**410**	**120**	**690**	**720**	**650 T**	**340**	**910**	**720**	**1100**	**400**	**936**	**--**
Objective 2	MW-5	1.0 U	**--**	1.0 U	--	0.55 J	--	0.36 U	--	1.0 UJ	--	1.0 U	--	0.36 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.36 U	0.36 U	NS	NS	1.0 U	0.36 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	**--**	--	--	1.0 U	--	--		1.0 U	--	--	--	0.36 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	**--**	1.0 U	1.0 U	1.0 U	1.0 U	0.36 U	0.36 U	1.0 U	0.36 U	1.0 U	0.36 U	0.36 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	**--**	--	--	0.41 J	--	--	--	1.0 U	--	--	--	0.36 U	--	--	--	0.36 J	--	--	--	--	--	--
	PZ-26	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.36 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.36 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.36 U [3.6 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	0.36 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	**--**	1.0 U	--	1.0 U	--	0.36 U	--	1.0 U	--	1.0 U	--	0.36 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Trichloroethene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	**18 [19]**	**23**	**18**	**14**	**25**	**20 [20]**	**14 [14]**	**16**	**24**	**13 [14]**	**7.2**	**17 [16]**	**19 [19]**	**14 [13]**	**9.7 [10]**	**14**	**15**	**12 [11]**	**6.8**	**13**	**12 [14]**	**13.4**	**6.2**
	MW-3	**16**	**24**	**10**	**12 [11]**	**12**	**13**	**10**	**8.9 [9.6]**	**11 [12]**	**5.2**	3.0 [3.0]	**8.3**	**6.4**	**6.4**	**14**	**9.5 [9.8]**	**7.2**	**15**	**11 [11]**	**12**	**6.4**	4.2	**5.9**
	MW-18	--	--	**120 D**	**220**	**80**	**420 D**	**290**	**170**	**160**	**180**	**340**	**140**	**180**	**290**	**470**	**110**	**120**	**510**	**170**	**160**	**120**	**50.6**	**--**
	MW-20	--	--	170	2.6 J	1.0 U	1.0 U	0.46 U	0.46 U	1.0 UJ	0.92 U	2.0 U	0.92 U	0.46 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	**91 D**	**52**	**61**	NS	3.9 J	47	4.5	**97**	**200**	**89**	NS	**53**	**65**	**86**	**60**	**86**	**70**	**41**	**42**	**75**	**19**	**39**	**18.5**
	PZ-6	**20**	**--**	**44**	**--**	**20**	--	**21**	--	**25**	--	**28**	--	**42**	**38**	**36**	**5.8**	**14**	**11**	**14**	--	**19**	**8.1**	4.6
	PZ-8	**290 D**	**410**	NS	NS	**320**	**260 D**	**220**	**180**	NS	NS	**210**	**180**	NS	**58**	**230**	**220**	NS	**180**	**120**	NS	NS	**185**	--
	PZ-11R	**9.0**	4.2	4.5	**8.7**	**6**	3.9	2.9	**5.6**	4.7	2.3	1.9	3.8	**5.3**	3.4	2.0	**5.4**	**5.9**	3.3	2.5	**5.4**	**7.2**	2.5	--
	PZ-13R	**5.5**	3.7	3.9	4.3	3.5	3.2 J	2.8	4.1	4.2	2.4	1.0 U	2.3	3.7	2.8	1.7	3.2	4.6	3.1	2.0	4.3	**5.1**	2.4	1.5
	A1-PZ-2	1.7	1.0 U	1.2	1.0 U	1.0 U	1.0 U	0.46 U	0.46 U	1.0 U	0.46 U	1.0 U	0.46 U	0.46 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**2100 D**	**2300**	**4100 [4800]**	**2600**	**1500**	**1100**	**2300**	**2300**	**1300**	**1200**	**1300**	**5500**	**2300**	**880**	**480**	**1900**	**420**	**520**	**830**	**600**	**530**	**716**	--
	A2-PZ-2	**--**	**--**	**740 D**	**360**	**330**	**580 D**	**390**	**380**	**260**	**160**	**100**	**170**	**85**	**270**	**260**	**240 T**	**140**	**360**	**260**	**430**	**230**	**354**	--
Objective 2	MW-5	1.0 U	**--**	1.0 U	--	1.0 U	--	0.46 U	--	1.0 UJ	--	1.0 U	--	0.46 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.46 U	0.46 U	NS	NS	1.0 U	0.46 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.46 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.46 U	0.46 U	1.0 U	0.46 U	1.0 U	0.46 U	0.46 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.46 U	--	--	--	0.48 J	--	--	--	--	--	--
	PZ-26	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.46 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.46 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.46 U [4.6 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	2.5	--	--	--	1.7	--	--	--	0.72 J [0.79 J]	--	--	--	1.0	--	--	--	0.61 J [0.58 J]	--	--	--	0.87 NJ	1.0 U	1.0 U
	PZ-7	0.58 J	**--**	1.0 U	--	1.0 U	--	0.46 U	--	1.0 U	--	0.59 J	--	0.46 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		cis-1,2 Dichloroethene																						
NYSDEC TOGS Guidance Value:		5																						
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	**40 [39]**	**35**	**34**	**40**	**44**	**20 [20]**	**19 [20]**	**11**	**19 J**	**17 [18]**	**6.2**	**15 [14]**	**23 [23 J]**	**11 [11]**	**8.7 [8.5]**	**12**	**9.1**	**15 [14]**	**18**	**24**	**23 [25]**	**13.6**	**11.1**
	MW-3	**68**	**40**	**21**	**23 [23]**	**46**	**26**	**16**	**15 [15]**	**28 [29]**	**15**	3.6 [3.9]	**17**	**27**	**15**	**12 F1**	**14 [14]**	**16**	**24**	**13 [14]**	**19**	**22**	**14**	**9**
	MW-18	--	--	**420 D**	**890**	**420**	**1500 D**	**1700 D**	**1400**	**1700**	**1100**	**1200**	**1000**	**1600**	**1500**	**1900**	**800**	**630**	**670**	**210**	**500**	**780**	**108**	--
	MW-20	--	--	**1400 J**	**890 D**	1.0 U	1.0 U	1.2	0.93	1.0 UJ	1.6 U	2.0 U	2.4	0.81 U	1.0 U	1.2	1.7	5.0 U	5.0 U	5.0 U	0.92 J [1.1]	5.0 U	1.0 U	1.6
	PZ-5	**53**	**41**	**41**	NS	**160**	**88**	**13**	**130**	**64**	**44**	NS	**39**	**46**	**47**	**41**	**43**	**57**	**30**	**24**	**41**	**35**	**25.3**	**13.4**
	PZ-6	**20**	--	**58**	--	**21**	--	**19**	--	**17**	--	**18**	--	**20**	**21**	**20**	**5.8**	**10**	**9.6**	**9.5**	--	**22**	**20.7**	**6.6**
	PZ-8	**77**	**91**	NS	NS	**56**	**52**	**36**	**26**	NS	NS	**34**	**28**	NS	**14**	**42**	**30**	NS	**34**	**20**	NS	NS	**30.8**	--
	PZ-11R	**5.0**	3.3	1.9	2.4	2.8	2.8	2.6	4.3	1.8	1.9	2.3	2.0	1.8	3.3	2.9	2.3	1.7	3.0	1.6	1.8	1.7	1.9	--
	PZ-13R	2.4	1.1	1.2	1.7	1.9		0.81 U	1.3	1.7	0.81 U	1.0 U	1.2	1.7	0.99 J	1.0 U	1.3	2.0	1.3	1.0 U	1.9	2.2	1.0 U	1.0 U
	A1-PZ-2	**99**	**22**	58	57	**10**	**11**	1.3	2	1.1	0.81 U	1.0 U	1.1	1.2	1.0 U	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2
	A2-PZ-1	**27000 D**	**42000 D**	**24000 [28000 D]**	**17000**	**23000**	**17000**	**19000**	**18000**	**24000**	**22000**	**11000**	**35000**	**34000**	**19000**	**7100 F1**	**16000**	**7400**	**17000**	**20000**	**13000**	**12000 J**	**19500**	--
	A2-PZ-2	--	--	**210 D**	**130**	**120**	**190 D**	**150**	**150**	**95**	**100**	**58**	**100**	**69**	**120**	**120**	**110**	**61**	**150**	**120**	**160**	**82**	**188**	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	0.81 U	--	1.0 UJ	--	1.0 U	--	0.81 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.81 U	0.81 U	NS	NS	1.0 U	0.81 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.81 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.81 U	0.81 U	1.0 U	0.81 U	1.0 U	0.81 U	0.81 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	0.85 J	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.81 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.81 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	**13**	--	--	--	**14**	--	--	--	**13**	--	--	--	**10**	--	--	--	**7.4**	--	--	--	**6.4**	**7.3**	**6.9**
	MW-4	3.3	--	--	--	4.6	--	--	--	4.4	--	--	--	4.4 [8.1 UJ]	--	--	--	3.9	--	--	--	5.0	1.3 [1.1]	2.5 [2.3]
	MW-10	**53**	--	--	--	**45**	--	--	--	**35 [34]**	--	--	--	**33**	--	--	--	**29 [29]**	--	--	--	**31**	**25.6**	**23.7**
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	0.81 U	--	1.0 U	--	1.0 U	--	0.81 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		trans 1,2-Dichloroethene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.3]	1.0 U	1.0 U	1.4	1.0 U	1.0 U	0.90 U	0.90 U	1.0 U	0.90 U [0.90 U]	1.0 U	0.90 U [0.90 U]	0.90 U [0.90 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.1	1.0 U	1.1 [1]	0.91 J	1.0 U	0.90 U	0.90 U [0.90 U]	1.0 U [1.0 U]	0.90 U	1.0 U [1.0 U]	0.90 U	0.91	1.0 U	1.0 UF1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	2.6	5.0 U	4.4	4.5 U	18 U	20 U	9.0 U	20 U	18 U	18 U	4.7	4.9	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	18 J	**22**	**7.1**	1.0 U	4.3	3.9	3.6 J	3.1	4.6	**6.6**	3.1	3.5	3.4	3.8	5.0 U	5.0 U	5.0 U	2.4 [2.4]	5.0 U	1.4	1.3
	PZ-5	1.0 U	3.6 U	4.0 U	NS	4.0 U	1.2	0.90 U	1.1	2.0 U	1.8 U	NS	1.8 U	4.5 U	1.3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.3	1.0 U	1.5	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	0.90 U	--	1.0 U	--	1.0 U	--	0.90 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	4.5 U	NS	NS	5.0 U	1	4.5 U	4.5 U	NS	NS	5.0 U	4.5 U	NS	1.0 U	1.2	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.5	--
	PZ-11R	1.0 U	0.97	1.0 U	1.0 U	1.0 U	1.0 U	0.9 U	0.90 U	1.0 U	0.90 U	1.0 U	0.90 U	0.90 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.9 U	0.90 U	1.0 U	0.90 U	1.0 U	0.90 U	0.90 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.9 U	0.90 U	1.0 U	0.90 U	1.0 U	0.90 U	0.90 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**33**	250 U	250 U **[11]**	250 U	250 U	1.0 U	230 U	230 U	250 U	230 U	250 U	230 U	450 U	**19**	**8.0**	**14**	**14**	100 U	200 U	**16**	**9.0**	**69.0**	--
	A2-PZ-2	**--**	--	1.0 U	10 U	10 U	1.0 U	4.5 U	9.0 U	10 U	4.5 U	5.0 U	4.5 U	1.8 U	1.0 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	**--**	1.0 U	--	1.0 U	--	0.9 U	--	1.0 UJ	--	1.0 U	--	0.90 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.9 U	0.90 U	NS	NS	1.0 U	0.90 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.90 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.9 U	0.90 U	1.0 U	0.90 U	1.0 U	0.90 U	0.90 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.90 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.90 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	2.0	**--**	--	--	1.7	--	--	--	2	--	--	--	1.7	--	--	--	1.4	--	--	--	1.5	1.6	1.3
	MW-4	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.90 U [9.0 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	3.4	--	--	--	3.2	--	--	--	2.3 [2.4]	--	--	--	2.6	--	--	--	2.0 [2.3]	--	--	--	2.8	2.2	2.2
	PZ-7	1.0 U	**--**	1.0 U	--	1.0 U	--	0.9 U	--	1.0 U	--	1.0 U	--	0.90 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Vinyl Chloride																							
NYSDEC TOGS Guidance Value:		2																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	**3.1 [3]**	1.5	1.7	**4.3**	**3.9**	1.0 U	1.0 U [1.0]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	0.91 [1.0 J]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U J	1.0 U [1.0 U]	1.6	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	**5**	**3.8**	**8.4**	**13 [13]**	**9.1**	**4.3**	**7.8**	2.0 [2.0]	**5.2 [5.4]**	**3.8**	1.0 U [1.0 U]	**5.2**	**2.6**	**3.7**	1.3	**3.4 [3.0]**	1.8	1.5	**3.3 [2.1]**	**3.4**	2.0	**3.0**	**2.5**
	MW-18	--	--	**5.5**	**7.6**	5.0 U	**7.6**	**7.9**	20 U	20 U	10 U	20 U	20 U	20 U	**9.0**	**10**	40 U	20 UJ	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	63	**680 D**	1.9	1.0 U	0.96 J	1.0 U	1.0 UJ	2.0 U	**2.8**	**3.3**	1.0 U	1.0 U	**2.5**	**3.6**	5.0 U	5.0 U	5.0 U	1.4 [1.1]	5.0 U	1.1	**5.8**
	PZ-5	1.0 U	4.0 U	4.0 U	NS	**27**	**68**	**2.8**	**2.4**	**5.9**	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.1	1.0 U	1.0 U
	PZ-6	1.0 U	--	**4.9**	--	**2.1**	--	0.95 J	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.1	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	**27**	**11**	24	15	**8.4**	**5.6**	1.0 U	**2.1**	1.0 U	0.97 J	1.3	2.0	1.0 U	1.0 U	**5.5**	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4
	A2-PZ-1	**720 D**	**1800**	**940 [1300 D]**	**830**	**1300**	**840**	**900**	**1000**	**1300**	**900**	**670**	**1300**	**1300**	**960**	**460^**	**850**	**460 J**	**690**	**1400**	**600**	**710**	**1200**	--
	A2-PZ-2	--	--	**14**	10 U	10 U	**7.8**	**6.7**	10 U	10 U	5.0 U	5.0 U	5.0 U	**2.3**	10 U	10 U	**4.4**	5.0 UJ	**6.4**	20 U	20 U	8.0 U	**8.6**	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	**9.3**	**6.5**	**13**	1.0 U	**2.1**	**5**	**5.2**	**3.5**	**2.6**	**3.9**	**2.6**	**2.4**	1.7	2.0	1.4	2.0 U	2.0 U	1.8	**3.4**	1.9	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	--	--	--
Objective 3	MW-2	**33**	--	--	--	**38**	--	--	--	**25**	--	--	--	**14**	--	--	--	**14**	--	--	--	**12**	**18.5**	**10.7**
	MW-4	1.4	--	--	--	**4.8**	--	--	--	**4.2**	--	--	--	**2.3 [10 UJ]**	--	--	--	**3.6**	--	--	--	**3.1**	1.0 U [1.0 U]	1.1 [**2.1**]
	MW-10	**23**	--	--	--	**38**	--	--	--	**20 [20]**	--	--	--	**19**	--	--	--	**17 [16 J]**	--	--	--	**23**	**15.6**	**7.9**
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,1,1-Trichloroethane																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.82 U [0.82 U]	0.82 U	1.0 U	0.82 U [0.82 U]	1.0 U	0.82 U [0.82 U]	0.82 U [0.82 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 UT	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	0.82 U	0.82 U [0.82 U]	1.0 U [1.0 U]	0.82 U	1.0 U [1.0 U]	0.82 U	0.82 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.0 U	5.0 U	1.0 U	4.1 U	16 U	20 U	8.2 U	20 U	16 U	16 U	1.0 U	1.0 U	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	16 U	5.0 U	1.0 U	1.0 U	0.82 U	0.82 U	1.0 UJ	1.6 U	2.0 U	1.6 U	0.82 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	3.3 U	4.0 U	NS	4.0 U	1.0 U	0.82 U	0.82 U	2.0 U	1.6 U	NS	1.6 U	4.1 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	0.82 U	--	1.0 U	--	1.0 U	--	0.82 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	4.1 U	NS	NS	5.0 U	1.0 U	4.1 U	4.1 U	NS	NS	5.0 U	4.1 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	0.82 U	1.0 U	1.0 U	1.0 U	1.0 U	0.82 U	0.82 U	1.0 U	0.82 U	1.0 U	0.82 U	0.82 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.82 U	0.82 U	1.0 U	0.82 U	1.0 U	0.82 U	0.82 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.82 U	0.82 U	1.0 U	0.82 U	1.0 U	0.82 U	0.82 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	1.0 U	250 U	250 U [1.0 U	250 U	250 U	1.0 U	210 U	210 U	250 U	210 U	250 U	210 U	410 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U	200 U	1.0 U	1.0 U	1.0 U	--
	A2-PZ-2	--	--	1.0 U	10 U	10 U	1.0 U	4.1 U	8.2 U	1.0 U	4.1 U	5.0 U	4.1 U	1.6 U	10 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	0.82 U	--	1.0 UJ	--	1.0 U	--	0.82 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.82 U	0.82 U	NS	NS	1.0 U	0.87	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.82 U	--	--	--	1.0 U	--	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.82 U	0.82 U	1.0 U	0.82 U	1.0 U	0.82 U	0.82 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.82 U	--	--	--	1.0 U	--	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.82 U	--	--	--	1.0 U	--	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.82 U	--	--	--	1.0 U	--	--	--	1.0 U	3.7	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.82 U [8.2 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	0.82 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	0.82 U	--	1.0 U	--	1.0 U	--	0.82 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,1-Dichloroethane																						
NYSDEC TOGS Guidance Value:		5																						
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	**5.8 [5.5]**	3.8	4.2	**5.9**	**5.7**	2.1 [2.1]	2.4 [2.4]	1.1	2.1	2.1 [2.0]	0.64 J	1.4 [1.4]	2.8 [3.2]	0.99 J [0.94 J]	0.78 J [0.84 J]	1.4	1.3	2.3 [2.3]	2.7	3.0	3.3 [3.5]	1.9	2.2
	MW-3	**6.8**	4.4	3.6	4.3 [4.1]	**5.4**	3	2.9	1.8 [2.0]	4.2 [4.4]	2.7	0.45 J [1.0 U]	3.8	4.0	2.6	1.3	2.8 [2.8]	2.8	2.6	1.7 [1.6]	2.8	3.1	2.9	2.3
	MW-18	--	--	**20 D**	**37**	**18**	**40**	**46**	**42**	**43**	**36**	**36**	**31**	**37**	**37**	**41**	**22 J**	**13 J**	**17 J**	20 U	**13 J**	**18 NJ**	3.2	--
	MW-20	--	--	7.6 U	**7.9**	0.41 J	1.0 U	0.38 U	0.7	1.0 UJ	0.76 U	2.0 U	1.2	0.65	0.70 J	1.0 U	1.0	5.0 U	5.0 U	5.0 U	0.81 J [0.85 J]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	1.5 U	4.0 U	NS	4.0 U	1.0 U	0.38 U	0.38 U	2.0 U	0.76 U	NS	0.76 U	1.9 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	0.38 U	--	1.0 U	--	1.0 U	--	0.38 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	4.8	**5.4**	NS	NS	4.2 J	4	3.4	3.4	NS	NS	3.3 J	2.8	NS	1.4	3.7	3.8 J	NS	5.0 U	1.9 J	NS	NS	2.9	--
	PZ-11R	1.0 U	0.38 U	1.0 U	1.0 U	1.0 U	1.0 U	0.38 U	0.38 U	1.0 U	0.38 U	1.0 U	0.38 U	0.38 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.38 U	0.38 U	1.0 U	0.38 U	1.0 U	0.38 U	0.38 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	2.1	0.48 J	1.1	1.3	0.49 J	1.0 U	0.38 U	0.38 U	1.0 U	0.38 U	1.0 U	0.38 U	0.38 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	A2-PZ-1	**1900 D**	**2800**	**1900 [2300 D]**	**1100**	**1300**	**990**	**1200**	**1100**	**1200**	**1300**	**790**	**2200**	**1600**	**890**	**350**	**860**	**370**	**730**	**990**	**600**	**600**	**984**	--
	A2-PZ-2	--	--	**12**	10 U	10 U	**6**	**7.2**	**6.6**	3.9 J	3.1	2.3 J	3.8	1.9	**5.4 J**	4.6 J	**5.1**	5.0 U	**7.4**	20 U	**8.3 J**	3.4 NJ	**8.6**	--
Objective 2	MW-5	0.69 J	--	1.0 U	--	1.0 U	--	0.38 U	--	1.0 UJ	--	1.0 U	--	0.38 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	2.4	NS	NS	NS	NS	1.1	1.4	2	NS	NS	1.1	2.6	NS	0.89 J	0.96 J	1.3	NS	0.96 J	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.38 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.38 U	0.38 U	1.0 U	0.38 U	1.0 U	0.38 U	0.38 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.38 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.38 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	**5.9**	--	--	--	4.9	--	--	--	4.7	--	--	--	4.3	--	--	--	4.3	--	--	--	3.9	1.0 U	2.9
	MW-4	0.70 J	--	--	--	1.0	--	--	--	0.78 J	--	--	--	0.68 [3.8 U]	--	--	--	0.74 J	--	--	--	0.88 NJ	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	2.6	--	--	--	3.5	--	--	--	2.9 [3.0]	--	--	--	2.3	--	--	--	2.8 [2.8]	--	--	--	3.0	2.0	1.7
	PZ-7	0.83 J	--	0.69 J	--	0.58 J	--	0.57	--	0.45 J	--	1.0 U	--	0.39	--	0.38 J	--	0.43 J	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,2-Dichloroethane																							
NYSDEC TOGS Guidance Value:		0.6																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	20 U	20 U	10 U	20 U	20 U	20 U	1.0 U	1.0 U	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	15 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	0.76 U	4.0 U	NS	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**5**	250 U	250 U [1.0 U]	250 U	250 U	1.0 U	250 U	250 U	250 U	250 U	250 U	250 U	500 U	**1.2**	0.39 J	**1.2**	1.0 U	100 U	200 U	**0.95 J**	**0.96 NJ**	1.0 U	--
	A2-PZ-2	**--**	--	1.0 U	10 U	10 U	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 U	10 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	**--**	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	**--**	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,1-Dichloroethene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 UT	1.0 U	1.0 U [1.0 U]	0.29 J	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	0.57 J	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	0.32 J	1.0 U	1.0 UF1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.3	5.0 U	2.2	3.7 J	20 U	20 U	10 U	20 U	20 U	20 U	2.7	3.6	40 U	20 U	20 U	20 U	20 U	20 UJ	1.0 U	--
	MW-20	--	--	5.8 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 UJ	1.0 U	1.0 U
	PZ-5	1.0 U	2.0 U	4.0 U	NS	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	0.39 J	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**45**	250 U	250 U **[23]**	250 U	250 U	1.0 U	250 U	250 U	250 U	250 U	250 U	250 U	500 U	**24**	**10**	**18**	**10 J**	100 U	200 U	**15**	**13 J**	**33.1**	**--**
	A2-PZ-2	**--**	--	1.5	10 U	10 U	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 U	10 U	10 U	0.76 J	5.0 U	5.0 U	20 U	20 U	8.0 U	1.5	--
Objective 2	MW-5	1.0 U	**--**	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	PZ-18	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	**--**	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 UJ	1.0 U	1.0 U
	PZ-7	1.0 U	**--**	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--		--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,1,2,Trichloroethane																							
NYSDEC TOGS Guidance Value:		1																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 UF1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	20 U	20 U	10 U	20 U	20 U	20 U	1.0 U	1.0 U	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	4.6 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	2.0 U	4.0 U	NS	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**3**	250 U	250 U **[1.7]**	250 U	250 U	1.0 U	250 U	250 U	250 U	250 U	250 U	250 U	500 U	0.28 J	1.0 U	1.0 U	1.0 U	100 U	200 U	1.0 U	1.0 U	1.0 U	--
	A2-PZ-2	--	--	1.0 U	10 U	10 U	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 U	**15**	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		1,1,2-trichloro-1,2,2-trifluoroethane (Freon 113)																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 UJ	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 UJ [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.2	1.0 U	5.0 U	1.0 U	5.0 U	20 U	20 UJ	10 U	20 U	20 U	20 U	2.4	3.4	40 U	20 U	20 U	20 U	20 U	20 UJ	2.9	--
	MW-20	--	--	6.2 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 UJ	1.0 U	1.0 U
	PZ-5	1.0 U	2.0 U	4.0 U	NS	4.0 U	1.0 U	1.0 U	1.0 U	2.0 UJ	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U		1.0 UJ	--	1.0 U	--	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	A2-PZ-1	**1600 EJ**	**1900**	**1300 [1100 D]**	**940**	250 U	**680**	**400**	**850**	**550 J**	**660**	**400**	**1200**	**730 J**	**470**	**180**	**520**	**150**	**200**	**260**	**230 J**	**180 NJ**	**241**	**--**
	A2-PZ-2	**--**	**--**	1.0 U	10 U	10 U	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 UJ	10 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 UJ	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Dichloro-difluoromethane (Freon 12)																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U* [1.0 U*]	1.0 UT	1.0 UJ	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 UJ	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U*	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.0 U	5.0 UJ	0.96 J	5.0 U	20 U	20 U	10 U	20 U	20 U	20 U	1.0 U	1.0 U*	40 U	20 UJ	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	14 UJ	5.0 J	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	4.0 U	4.0 U	NS	4.0 UJ	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U*	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U*	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 UJ	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.0 U*	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 J	1.0 J	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U*	1.0 U	1.0 UJ	1.0 U	1.0 UT	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	**960 E**	**1200**	**830 [740 D]**	250 U	250 UJ	1.0 U	250 U	250 U	**560 J**	**440**	**240 J**	**300**	500 UJ	1.0 U	**160**	**460**	1.0 UJ	100 U	200 UT	1.0 U	**320 J**	1.0 U	**--**
	A2-PZ-2	**--**	**--**	1.0 U	10 U	10 UJ	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 UJ	10 U	10 U	1.0 U	5.0 U	5.0 U	20 UT	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U*	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U*	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U*	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 UJ	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 UJ	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 UJ]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U*	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Ethylbenzene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.74 U [0.74 U]	0.74 U	1.0 U	0.74 U [0.74 U]	1.0 U	0.74 U [0.74 U]	0.74 U [0.74 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	0.74 U	0.74 U [0.74 U]	1.0 U [1.0 U]	0.74 U	1.0 U [1.0 U]	0.74 U	0.74 U	1.0 U	1.0 UF1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	0.91 J	1.4	5.0 U	2.4	3.7 U	15 U	20 U	7.4 U	20 U	15 U	15 U	1.0 U	0.88 J	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	15 U	5.0 U	1.0 U	1.0 U	0.74 U	0.74 U	1.0 UJ	1.5 U	2.0 U	1.5 U	0.74 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	4.0 U	4.0 U	NS	3.8 J	1.7	4.5	4.3	2.0 U	1.5 U	NS	1.5 U	3.7 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	0.74 U	--	1.0 U	--	1.0 U	--	0.74 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	3.7 U	NS	NS	5.0 U	1.0 U	3.7 U	3.7 U	NS	NS	5.0 U	3.7 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	0.74 U	1.0 U	1.0 U	1.0 U	1.0 U	0.74 U	0.74 U	1.0 U	0.74 U	1.0 U	0.74 U	0.74 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.74 U	0.74 U	1.0 U	0.74 U	1.0 U	0.74 U	0.74 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.74 U	0.74 U	1.0 U	0.74 U	1.0 U	0.74 U	0.74 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	1.0 U	250 U	250 U [1.0 U]	250 U	250 U	1.0 U	190 U	190 U	250 U	190 U	250 U	190 U	370 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U	200 U	1.0 U	1.0 U	1.0 U	--
	A2-PZ-2	--	--	9.0	10 U	10 U	1.0 U	3.7 U	7.4 U	10 U	3.7 U	5.0 U	3.7 U	1.5 U	10 U	10 U	2.0	5.0 U	5.0 U	20 U	20 U	8.0 U	1.8	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	0.74 U	--	1.0 UJ	--	1.0 U	--	0.74 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.74 U	0.74 U	NS	NS	1.0 U	0.74 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.74 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.74 U	0.74 U	1.0 U	0.74 U	1.0 U	0.74 U	0.74 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.74 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.74 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.74 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.74 U [7.4 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	0.74 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	0.74 U	--	1.0 U	--	1.0 U	--	0.74 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Toluene																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.51 U [0.51 U]	0.51 U	1.0 U	0.51 U [0.51 U]	1.0 U	0.51 U [0.51 U]	0.51 U [0.51 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	0.51 U	0.51 U [0.51 U]	1.0 U [1.0 U]	0.51 U	1.0 U [1.0 U]	0.51 U	0.51 U	1.0 U	1.0 UF1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.9	1.4	5.0 U	1.7	2.6 U	10 U	20 U	5.1 U	20 U	10 U	10 U	0.94 J	1.1	40 U	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	10 U	5.0 U	1.0 U	1.0 U	0.51 U	0.51 U	1.0 UJ	1.0 U	2.0 U	1.0 U	0.51 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	2.0 U	4.0 U	NS	4.0 U	1.0 U	0.51 U	0.51 U	2.0 U	1.0 U	NS	1.0 U	2.6 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	0.51 U	--	1.0 U	--	1.0 U	--	0.51 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	2.6 U	NS	NS	5.0 U	1.0 U	2.6 U	2.6 U	NS	NS	5.0 U	2.6 U	NS	1.0 U	1.0 U	5.0 U	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	0.51 U	1.0 U	1.0 U	1.0 U	1.0 U	0.51 U	0.51 U	1.0 U	0.51 U	1.0 U	0.51 U	0.51 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.51 U	0.51 U	1.0 U	0.51 U	1.0 U	0.51 U	0.51 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.51 U	0.51 U	1.0 U	0.51 U	1.0 U	0.51 U	0.51 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	5	250 U	250 U [4.6]	250 U	250 U	1.0 U	130 U	130 U	250 U	130 U	250 U	130 U	260 U	3.6	1.7	5.0	1.8	100 U	200 U	3.3	2.7	4.9	--
	A2-PZ-2	--	--	1.0 U	10 U	10 U	1.0 U	2.6 U	5.1 U	10 U	2.6 U	5.0 U	2.6 U	1.0 U	10 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	0.51 U	--	1.0 UJ	--	1.0 U	--	0.51 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	0.51 U	0.51 U	NS	NS	1.0 U	0.51 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.51 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	0.51 U	0.51 U	1.0 U	0.51 U	1.0 U	0.51 U	0.51 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.51 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.51 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.51 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	0.51 U [5.1 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	0.51 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	1.0 U	--	1.0 U	--	0.51 U	--	1.0 U	--	1.0 U	--	0.51 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Xylenes, total																							
NYSDEC TOGS Guidance Value:		5																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	2.0 U [2.0U]	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	2.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	2.0 U [2.0 U]	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U [2.0 U]	1.0 U	3.0 U
	MW-3	2.0 U	2.0 U	2.0 U	2.0 U [2.0U]	2.0 U	2.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	2.0 U [2.0 U]	1.0 U	1.0 U	2.0 U	2.0 UF1	2.0 U [2.0 U]	2.0 U	2.0 U	2.0 U [2.0 U]	2.0 U	2.0 U	1.0 U	3.0 U
	MW-18	--	--	1.3 J	1.0 J	10 U	2.0 U	5.0 U	20 U	20 U	10 U	40 U	20 U	20 U	2.0 U	2.0 U	80 U	40 U	40 U	40 U	40 U	40 U	1.0 U	--
	MW-20	--	--	13 U	10 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	4.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	10 U	2.0 U [2.0 U]	10 U	1.0 U	3.0 U
	PZ-5	2.0 U	4.0 U	8.0 U	NS	**14**	**5.7**	**18**	**13**	2.0 U	2.0 U	NS	2.0 U	5.0 U	2.0 U	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	1.0 U	3.0 U
	PZ-6	2.0 U	--	1.0 U	--	2.0 U	--	0.74 J	--	1.0 U	--	2.0 U	--	1.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	--	2.0 U	1.0 U	3.0 U
	PZ-8	2.0 U	5.0 U	NS	NS	10 U	2.0 U	5.0 U	5.0 U	NS	NS	10 U	5.0 U	NS	2.0 U	2.0 U	10 U	NS	10 U	10 U	NS	NS	1.0 U	--
	PZ-11R	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	--
	PZ-13R	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	3.0 U
	A1-PZ-2	2.0 U	2.0 U	2.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	3.0 U
	A2-PZ-1	2.0 U	500 U	500 U [2.0U]	500 U	500 U	2.0 U	250 U	250 U	250 U	250 U	500 U	250 U	250 U	2.0 U	2.0 U	2.0 U	2.0 U	200 U	400 U	2.0 U	2.0 U	1.0 U	--
	A2-PZ-2	--	--	2.0 U	20 U	20 U	2.0 U	5.0 U	10 U	10 U	5.0 U	10 U	5.0 U	2.0 U	20 U	20 U	2.0 U	10 U	10 U	40 U	40 U	16 U	1.0 U	--
Objective 2	MW-5	2.0 U	--	1.0 U	--	2.0 U	--	1.0 U	--	1.0 UJ	--	2.0 U	--	1.0 U	--	2.0 U	--	2.0 U	--	--	--	--	--	--
	MW-13S	2.0 U	NS	NS	NS	NS	2.0 U	1.0 U	1.0 U	NS	NS	2.0 U	1.0 U	NS	2.0 U	2.0 U	2.0 U	NS	2.0 U	--	--	--	--	--
	MW-14BR	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	2.0 U	--	--	--	--	--	--
	MW-21	--	--	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	4.0 U	2.0 U	2.0 U	1.0 U	3.0 U
	PZ-18	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	2.0 U	--	--	--	--	--	--
	PZ-26	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	2.0 U	--	--	--	--	--	--
Objective 3	MW-2	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	2.0 U	--	--	--	2.0 U	1.0 U	3.0 U
	MW-4	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	2.0 U	--	--	--	2.0 U	1.0 U [1.0 U]	3.0 U [3.0 U]
	MW-10	2.0 U	--	--	--	2.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	2.0 U [2.0 U]	--	--	--	2.0 U	1.0 U	3.0 U
	PZ-7	2.0 U	--	1.0 U	--	2.0 U	--	1.0 U	--	1.0 U	--	2.0 U	--	1.0 U	--	2.0 U	--	2.0 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Acetone																							
NYSDEC TOGS Guidance Value:		50																							
	Sampling Date:	Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	10 U [10U]	10 U	10 U	8.8 J	10 U	10 U	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U [10 U]	10 U [10 U]	10 U [10 U]	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U [10 U]	5.0 U	5.0 U
	MW-3	10 U	10 U	10 U	1.0 U [1.0 U]	10 U	10 U	10 U	10 U [10 U]	10 U [10 U]	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U [10 U]	10 U	10 U	10 U [10 U]	3.8 J	10 U	5.0 U	5.0 U
	MW-18	--	--	10 U	9.1 J	50 U	10 U	50 U	200 U	200 U	100 U	200 U	200 U	200 U	10 U	10 U	400 U	200 U	200 U	200 U	200 U	200 UJ	5.0 U	--
	MW-20	--	--	200	**400**	**78**	10 U	4.5 J	8.7 J	10 UJ	20 U	20 U	20 U	10 U	10 U	10 U	4.7 J	50 U	50 U	50 U	5.2 J [3.1 J]	50 UJ	5.0 U	5.0 U
	PZ-5	3.1 J	16	40 U	NS	40 U	10 U	6.1 J	3.1 J	20 U	6.6 J	NS	20 U	50 U	10 U	50 U	50 U	50 U	50 U	50 U	10 U	10 U	41	40.5
	PZ-6	10 U	--	3.8 J	--	10 U	--	10 U	--	10 U	--	10 U	--	10 U	10 U	20 U	10 U	10 U	5.5 J	3.4 J	--	10 U	15.5	39.1
	PZ-8	10 U	50 U	NS	NS	50 U	10 U	50 U	50 U	NS	NS	50 U	50 U	NS	3.0	3.8 J	50 U	NS	50 U	50 U	NS	NS	**13.6**	--
	PZ-11R	10 U	10 U	10 U	9.4 J	10 U	10 U	3.1 J	10 U	17	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	5.0 U	--
	PZ-13R	10 U	10 U	10 U	9.3 J	10 U	10 U	3.2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	5.0 U	5.0 U
	A1-PZ-2	6.6 J	10 U	10 UB	16 UB	10 U	10 U	10 U	9.2 J	10 U	10 U	10 U	4.9 J	44	3.8	3.7 J	4.5 J	3.0 J	10 U	4.4 J	10 U	10 UJ	5.0 U	5.0 U
	A2-PZ-1	9.5 J	2500 U	2500 U [14]	2500 U	2500 U	10 U	2500 U	2500 U	2500 U	2500 U	2500 U	2500 U	5000 U	10 U	10 U	6.9 J	10 U	1000 U	2000 U	3.9 J	10 UJ	5.0 U	--
	A2-PZ-2	--	--	10 U	100 U	100 U	10 U	50 U	100 U	100 U	50 U	50 U	50 U	20 U	100 U	100 U	10 U	50 U	50 U	200 U	200 U	80 UJ	5.0 U	--
Objective 2	MW-5	10 U	--	10 U	--	10 U	--	6.8 J	--	4.5 J	--	10 U	--	10 U	--	10 U	--	10 U	--	--	--	--	--	--
	MW-13S	10 U	NS	NS	NS	NS	10 U	10 U	10 U	NS	NS	10 U	10 U	NS	10 U	10 U	10 U	NS	10 U	--	--	--	--	--
	MW-14BR	10 U	--	--	--	16	--	--	--	19	--	--	--	18	--	--	--	15	--	--	--	--	--	--
	MW-21	--	--	10 U	8.8 J	10 U	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	24	10 U	10 U	20 U	20 U	10 U	10 UJ	5.0 U	5.0 U
	PZ-18	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	--	--	--
	PZ-26	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	--	--	--
Objective 3	MW-2	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U	5.0 U	5.0 U
	MW-4	10 U	--	--	--	10 U	--	--	--	10 U	--	--	--	10 U [100 U]	--	--	--	10 U	--	--	--	10 U	5.0 U [5.0 U]	5.0 U [5.0 U]
	MW-10	10 U	--	--	--	10 U	--	--	--	10 U [10 U]	--	--	--	10 U	--	--	--	10 U [10 U]	--	--	--	10 UJ	5.0 U	5.0 U
	PZ-7	10 U	--	4.2 J	--	10 U	--	10 U	--	10 U	--	5.5 J	--	10 U	--	7.3 J	--	10 U	--	--	--	--	--	--

See last page for notes.

Table 4-2
Groundwater Monitoring Data - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Compound:		Methylene Chloride																						
NYSDEC TOGS Guidance Value:		5																						
Sampling Date:		Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	10 U [10 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10 U [10 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U
	MW-3	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U	1.0 U
	MW-18	--	--	1.0 U	1.0 U	5.0 U	1.0 U	5.0 U	20 U	20 U	10 U	20 U	20 U	20 U	1.0 U	1.0 U	**20 J**	20 U	20 U	20 U	20 U	20 U	1.0 U	--
	MW-20	--	--	8.8 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	5.0 U	5.0 U	1.0 U [1.0 U]	5.0 U	1.0 U	1.0 U
	PZ-5	1.0 U	4.0 U	4.0 U	NS	4.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	NS	2.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-6	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	1.0 U	2.0 U	0.56 J	1.0 U	1.0 U	1.0 U	--	1.0 U	1.0 U	1.0 U
	PZ-8	1.0 U	5.0 U	NS	NS	5.0 U	1.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	NS	1.0 U	1.0 U	3.1 J	NS	5.0 U	5.0 U	NS	NS	1.0 U	--
	PZ-11R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--
	PZ-13R	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A1-PZ-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	A2-PZ-1	1.0 U	250 U	250 U [14]	250 U	250 U	110 JB	250 U	250 U	250 U	250 U	250 U	250 U	500 U	1.0 U	0.85 J	1.1	1.0 U	100 U	200 U	0.50 J	1.0 U	1.0 U	--
	A2-PZ-2	--	--	1.0 U	10 U	10 U	1.0 U	5.0 U	10 U	10 U	5.0 U	5.0 U	5.0 U	2.0 U	10 U	10 U	1.0 U	5.0 U	5.0 U	20 U	20 U	8.0 U	1.0 U	--
Objective 2	MW-5	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 UJ	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--
	MW-13S	1.0 U	NS	NS	NS	NS	1.0 U	1.0 U	1.0 U	NS	NS	1.0 U	1.0 U	NS	1.0 U	1.0 U	1.0 U	NS	1.0 U	--	--	--	--	--
	MW-14BR	0.57 J	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	MW-21	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	PZ-18	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
	PZ-26	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	--	--	--
Objective 3	MW-2	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U
	MW-4	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [10 U]	--	--	--	1.0 U	--	--	--	1.0 U	1.0 U [1.0 U]	1.0 U [1.0 U]
	MW-10	1.0 U	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	--	--	--	1.0 U [1.0 U]	--	--	--	1.0 U	1.0 U	1.0 U
	PZ-7	1.0 U	--	0.55 J	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	1.0 U	--	--	--	--	--	--

Notes:
1. B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspected.
2. D = Diluted sample result within calibration range
3. E = Analyte exceeded calibration range.
4. F1 or T or * = MS and/or MSD Recovery or LCS or LCSD is outside acceptance limits.
5. ^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
6. J = Indicates an estimated value.
7. NYSDEC TOGS = New York State Department of Environmental Conservation Technical and Operational Guidance Series
8. U = The compound was analyzed for but not detected. The associated value is the compound Reporting Limit.
9. "--" indicates not measured
10. "NS" indicates insufficient groundwater was available for sampling
11. "Green font" indicates sampled as part of the pilot test; the pilot test sampling was performed post-injection on 4/24/12 and 7/12/12.
12. **Bold** indicates concentration above NYSDEC TOGS Value
13. All units in micrograms per liter (µg/l)
14. [ ] = Field duplicate results
15. Potential exists that an air bubble in the PZ-6 sampling vial (collected July 2015) resulted in underestimated VOC concentrations (see Q3 2015 data summary).
16. NJ = The analysis indicates the presence of a compound that has been "tentatively identified"; the associated numerical value represents its approximate concentration.

Table 4-3
Groundwater Sampling Field Parameters - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

	Well ID	pH (s.u.)																					
Sampling Date		Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	6.92	7.52	7.20	7.36	7.03	7.19	6.92	7.08	7.10	7.30	7.37	7.24	7.18	7.35	7.51	7.06	6.96	7.78	7.39	7.55	7.46	5.67	7.82***
	MW-3	6.93	7.57	7.27	7.33	7.15	7.38	6.98	6.95	7.15	7.35	7.14	6.74	7.25	7.34	7.19	7.10	6.92	7.47	7.52	7.48	7.37	5.93	7.70
	MW-18	--	--	7.51	7.41	7.5	7.17	7.53	7.32	7.59	7.57	7.30	7.91	7.62	7.63	7.53	7.41	7.49	7.73	7.54	7.56	7.76	6.98	--
	MW-20	--	--	--	6.24	6.85	6.78	6.82	6.75	7.3	6.87	6.75	7.1	7.10	6.95	7.03	6.98	6.95	7.11	7.20	7.12	7.04	6.91	7.32
	PZ-5	7.79	8.04	7.79	--	7.59	7.85	8.44	7.5	7.59	7.72	NA	7.64	7.89	7.77	8.03	NA	NA	NA	NA	NA	NA	6.9	8.07
	PZ-6	7.11	--	7.62	--	7.82	--	8.1	--	7.15	--	7.81	--	7.95	7.90	7.82	NA	NA	NA	NA	--	NA	6.7	8.34
	PZ-8	6.76	7.43	--	--	NA	7.16	NA	7.09	NA	NA	7.30	7.28	NA	NA	7.18	NA	NA	NA	NA	NA	NA	5.51	NA***
	PZ-11R	7.24	7.56	7.07	6.93	7.07	6.51	7.12	7.54	7.18	7.11	6.78	7.49	7.14	7.03	7.21	6.92	7.18	7.36	7.50	6.77	7.05	6.33	7.52***
	PZ-13R	6.70	7.60	6.85	6.67	6.85	6.79	7.19	6.79	8.18	7.00	6.93	7.89	7.14	7.45	7.08	6.84	6.95	7.46	7.24	7.04	7.14	6.11	7.48
	A1-PZ-2	6.90	7.68	7.42	2.25*	7.25	7.49	7.74	8.13	7.85	7.88	7.42	7.33	7.95	7.99	7.24	7.42	7.68	8.47	8.04	7.77	8.08	8.11	8.74***
	A2-PZ-1	6.90	7.42	7.12	7.25	6.95	7.07	7.34	7.10	7.09	7.22	6.99	6.73	7.11	7.21	7.16	7.02	6.94	7.47	7.60	7.45	7.17	6.53	--
	A2-PZ-2	--	--	--	7.18	6.94	7.24	7.38	7.15	7.14	7.14	7.12	6.53	7.13	7.32	7.19	7.11	7.14	7.47	7.63	7.59	7.49	5.3	--
Objective 2	MW-5	6.81	--	6.91	--	7.17	--	7.29	--	7.42	--	7.36	--	7.52	--	7.44	--	7.36	--	--	--	--	--	7.59***
	MW-13S	6.97	--	--	--	--	6.58	7.31	7.05	NA	NA	7.30	7.26	NA	7.49	7.35	7.52	NA	7.42	--	--	--	--	--
	MW-14BR	9.67	--	--	--	7.64	--	--	--	7.25	--	--	--	7.42	--	--	--	7.65	--	--	--	--	--	--
	MW-21	--	--	7.35	7.13	7.23	7.55	7.81	7.38	7.66	7.50	7.48	7.62	7.63	7.72	7.73	7.82	7.50	7.76	8.06	7.65	7.54	7.51	8.14***
	PZ-18	6.78	--	--	--	6.9	--	--	--	6.99	--	--	--	7.23	--	--	--	7.00	--	--	--	--	--	--
	PZ-26	7.72	--	--	--	7.66	--	--	--	8.11	--	--	--	8.21	--	--	--	7.79	--	--	--	--	--	--
Objective 3	MW-2	7.29	--	--	--	7.3	--	--	--	7.61	--	--	--	7.70	--	--	--	7.41	--	--	--	7.49	7.23	7.7
	MW-4	6.83	--	--	--	7.11	--	--	--	7.26	--	--	--	7.37	--	--	--	7.02	--	--	--	7.36	6.38	7.67
	MW-10	7.30	--	--	--	7.37	--	--	--	7.44	--	--	--	7.46	--	--	--	7.30	--	--	--	7.50	7.84	7.86
	PZ-7	7.18	--	7.21	--	7.13	--	7.27	--	7.07	--	7.00	--	7.69	--	7.47	--	NA	--	--	--	--	--	--
Others	MW-19	--	--	--	7.63	--	--	--	--	7.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PZ-2	--	--	--	7.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.67***
	PZ-27	6.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A1-PZ-1	--	--	--	7.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A2-PZ-7	6.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	OW-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.34***
	MW-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.65***
	MW-F	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.85***
	MW-13BR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8.93***

See last page for notes.

Table 4-3
Groundwater Sampling Field Parameters - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

	Well ID	Specific Conductivity (mS/cm)																					
Sampling Date		Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	1.764	1.123	1.816	1.625	1.173	0.658	1.217	0.868	0.983	0.722	0.740	0.780	1.220	0.780	0.750	0.870	0.910	0.81	1.47	1.62	1.23	1.05	1.488***
	MW-3	1.966	1.435	2.514	1.919	1.299	0.829	3.563	1.182	1.455	1.031	0.530	0.007	1.790	1.730	1.600	1.940	1.320	0.94	3.38	2.06	1.13	1.98	3.484
	MW-18	--	--	0.836	0.696	0.759	0.689	0.966	0.929	0.736	0.570	0.810	0.780	0.770	0.655	0.720	0.444	0.490	0.497	0.389	1.08	0.79	0.468	--
	MW-20	--	--	--	8.13	5.737	5.153	6.672	6.010	5.082	4.258	9.130	9.060	7.740	7.360	9.130	8.420	3.240	7.69	9.05	8.98	8.13	9.16	9.530
	PZ-5	1.372	1.193	1.527	--	1.533	1.364	0.815	1.745	1.832	1.634	NA	1.800	1.740	1.590	1.020	NA	NA	NA	NA	NA	NA	1.528	1.570
	PZ-6	1.666	--	1.445	--	1.774	--	1.573	--	1.727	--	1.720	--	1.800	1.630	0.990	NA	NA	NA	NA	--	NA	1.785	1.594
	PZ-8	1.316	1.021	--	--	NA	0.942	NA	1.380	NA	NA	0.900	0.522	NA	NA	0.550	NA	NA	NA	NA	NA	NA	0.881	NA***
	PZ-11R	3.222	1.398	4.986	3.639	2.867	2.846	6.129	4.125	3.180	3.200	8.940	4.930	3.620	5.110	8.880	5.630	4.050	4.82	7.94	7.15	4.71	4.457	0.0083***
	PZ-13R	7.593	2.762	5.503	7.164	6.601	4.704	6.226	9.009	6.874	4.840	12.700	9.350	7.320	6.720	14.460	9.540	8.640	8.30	16.01	10.09	9.57	9.06	10.06
	A1-PZ-2	2.397	1.096	1.262	1.828	1.214	0.859	0.659	0.648	0.512	0.477	1.100	0.476	0.511	0.583	2.510	1.040	1.020	0.672	0.542	0.310	0.492	0.681	0.606***
	A2-PZ-1	1.271	0.709	1.247	1.22	1.097	0.769	1.186	1.097	0.931	0.638	1.180	1.450	1.380	1.020	1.060	1.120	1.110	1.04	0.97	1.07	0.94	1.18	--
	A2-PZ-2	--	--	--	1.738	1.134	0.826	1.015	1.081	1.023	0.699	0.770	1.140	1.200	0.990	1.190	1.230	1.110	1.13	1.21	1.54	1.14	1.05	--
Objective 2	MW-5	9.422	--	8.55	--	5.004	--	5.690	--	6.862	--	7.060	--	5.890	--	3.510	--	5.060	--	--	--	--	--	0.598***
	MW-13S	1.756	--	--	--	--	0.885	1.417	0.878	NA	NA	1.130	1.180	NA	0.920	0.744	0.403	NA	0.85	--	--	--	--	--
	MW-14BR	8.862	--	--	--	11.57	--	--	--	8.825	--	--	--	10.790	--	--	--	8.940	--	--	--	--	--	--
	MW-21	--	--	9.773	8.36	12.15	5.203	4.104	4.588	5.891	4.514	8.650	6.450	5.760	4.570	5.310	4.760	5.340	3.01	2.81	2.15	5.63	2.145	0.601***
	PZ-18	6.487	--	--	--	3.062	--	--	--	0.102	--	--	--	3.41	--	--	--	3.770	--	--	--	--	--	--
	PZ-26	0.636	--	--	--	0.67	--	--	--	0.599	--	--	--	0.740	--	--	--	0.740	--	--	--	--	--	--
Objective 3	MW-2	1.831	--	--	--	2.003	--	--	--	1.715	--	--	--	1.870	--	--	--	2.360	--	--	--	2.34	3.391	5.130
	MW-4	1.729	--	--	--	2.164	--	--	--	1.544	--	--	--	2.510	--	--	--	2.580	--	--	--	2.90	1.705	3.100
	MW-10	1.751	--	--	--	2.722	--	--	--	2.634	--	--	--	2.980	--	--	--	2.920	--	--	--	2.92	6.91	5.630
	PZ-7	1.389	--	1.063	--	1.22	--	1.091	--	1.019	--	1.030	--	0.930	--	0.980	--	NA	--	--	--	--	--	--
Others	MW-19	--	--	--	0.984	--	--	--	--	0.732	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PZ-2	--	--	--	2.806	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.0029***
	PZ-27	1.082	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A1-PZ-1	--	--	--	1.362	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A2-PZ-7	0.978	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	OW-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.896***
	MW-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.831***
	MW-F	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.720***
	MW-13BR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.865***

See last page for notes.

Table 4-3
Groundwater Sampling Field Parameters - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

	Well ID	DO (mg/L)																					
Sampling Date		Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	0.24	2.90	1.69	0.52	0.80	3.25	4.30	3.59	1.06	3.91	8.52	2.49	0.27	5.78	6.90	2.02	1.74	8.07	7.58	4.43	6.06	5.17	6.13***
	MW-3	0.71	1.01	1.76	0.46	0.68	1.06	2.71	0.86	0.33	0.39	6.13	1.14	0.14	0.45	3.35	0.53	0.18	3.20	3.57	1.75	5.71	2.04	2.33
	MW-18	--	--	0.82	1.03	0.2	0.16	4.4	0.64	0.33	1.04	0.75	0.21	0.16	2.80	0.33	2.30[A]	0.75	0.00	0.70	0.53	0.53	5.62	--
	MW-20	--	--	--	0.55	0.62	4.5	1.28	1.95	0.21	2.1	0.78	0.27	3.62	1.06	0.61	1.99[A]	0.30	0.42	0.70	0.25	0.93	1.37	0.69
	PZ-5	0.85	2.40	2.59	--	0.68	0.6	2.45	1.14	2.15	2.38	NA	4.8	3.57**	3.24	1.60	NA	NA	1.89	NA	NA	NA	3.35	4.3
	PZ-6	1.70	--	1.55	--	0.89	--	NA	--	2.39	--	0.52	--	2.28**	4.57**	2.51	NA	NA	2.75	NA	--	NA	1.88	4.05
	PZ-8	0.89	1.58	--	--	NA	1.48	NA	4.01	NA	NA	2.61	6.19	NA	NA	3.58	NA	NA	5.25	NA	NA	NA	3.5	NA***
	PZ-11R	0.60	4.34	7.45	5.19	2.91	3.31	8.82	2.30	3.94	4.31	7.48	6.27	1.92**	3.40**	8.92	0.84**	1.78	4.43***	2.64***	3.88***	3.48***	7.06	5.47***
	PZ-13R	0.04	2.48	3.44	2.09	0.80	2.83	3.52	2.89	2.34	4.58	2.53	3.85	4.40**	5.72**	9.02	1.07**	2.81	4.33***	3.16***	1.37***	3.65***	5.26	3.6
	A1-PZ-2	1.31	8.24	0.51	0.16	0.10	1.02	0.88	5.37	0.10	2.62	0.88	0.80	0.035**	3.60**	0.10	0.38	0.02	1.23	1.47	2.07	0.39	0.97	2.12***
	A2-PZ-1	0.43	1.07	0.86	0.65	0.80	5.4	1.09	0.09	0.49	0.08	0.69	0.02	1.97	0.70	0.10	0.09	0.13	0.47	0.30	0.43	0.86	1.31	--
	A2-PZ-2	--	--	--	1.10	1.40	0.87	2.6	1.07	2.17	1.52	8.14	2.33	2.87**	6.45**	2.28	1.34	1.32	3.47	4.16	1.49	2.45	1.97	--
Objective 2	MW-5	0.03	--	1.04	--	0.22	--	3.67	--	1.54	--	1.73	--	1.18	--	1.27	--	1.45	--	--	--	--	--	7.83***
	MW-13S	1.52	--	--	--	--	2.95	1.97	0.77	NA	NA	5.82	1.21	NA	3.97	2.87	3.47**	NA	7.20***	--	--	--	--	--
	MW-14BR	1.90	--	--	--	4.17	--	--	--	1.59	--	--	--	1.93	--	--	--	0.64	--	--	--	--	--	--
	MW-21	--	--	0.54	0.33	0.89	0.15	0.57	0.53	0.13	2.7	2.75	0.5	0.37	0.85	0.31	1.23[A]	0.20	0.21	0.62	0.54	0.22	1.19	3.26***
	PZ-18	0.12	--	--	--	4.34	--	--	--	2.44	--	--	--	1.94**	--	--	--	0.56	--	--	--	--	--	--
	PZ-26	0.08	--	--	--	0.2	--	--	--	2.39	--	--	--	0.17	--	--	--	0.20	--	--	--	--	--	--
Objective 3	MW-2	0.60	--	--	--	0.2	--	--	--	0.18	--	--	--	0.76	--	--	--	0.67	--	--	--	0.25	0.91	0.23
	MW-4	0.57	--	--	--	0.4	--	--	--	2.19	--	--	--	3.74	--	--	--	1.08	--	--	--	1.54	8.94	2.31
	MW-10	0.09	--	--	--	0.2	--		--	0.15	--	--	--	0.08	--	--	--	0.00	--	--	--	0.37	1.65	0.83
	PZ-7	1.81	--	1.6	--	0.75	--	1.46	--	2.17	--	1.91	--	2.71**	--	2.05	--	NA	--	--	--	--	--	--
Others	MW-19	--	--	--	0.26	--	--	--	--	0.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PZ-2	--	--	--	0.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.20***
	PZ-27	1.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A1-PZ-1	--	--	--	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A2-PZ-7	4.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	OW-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.77***
	MW-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.73***
	MW-F	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.77***
	MW-13BR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.60***

See last page for notes.

Table 4-3
Groundwater Sampling Field Parameters - September 2011 through June 2018
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

	Well ID	ORP (mV)																					
Sampling Date		Sep-11	Jan-12	Apr-12	Jul-12	Oct-12	Jan-13	Apr-13	Jul-13	Oct-13	Feb-14	Apr-14	Jul-14	Oct-14	Jan-15	Apr-15	Jul-15	Oct-15	Jan-16	Apr-16	Jul-16	Oct-16	Jan-17	Jun-18
Objective 1	MW-1	121.2	-42.7	46.9	63.1	-203.6	82.0	97.30	69.0	50.7	32.3	202.1	151.7	150.9	111.7	115.0	125.6	171.8	65.2	70.7	212.5	3.0	-33.0	227***
	MW-3	89.6	-42.9	59.3	62.4	-216.6	119.6	81.20	70.3	62.7	29.2	208.6	127.4	177.1	120.9	84.9	147.5	129.1	105.0	104.0	220.9	80.0	-70.0	237
	MW-18	--	--	-77.4	92.8	-73.8	-53.8	-35.0	-84.3	-35.2	-94.5	40.2	-74.1	-76.9	-46.6	-30.6	-44.9	-82.6	-79.3	-2.0	90.7	-82	-21	--
	MW-20	--	--	--	-100	-160.6	-67.4	-63.5	-114.3	-94.4	-98.4	-51.1	-92	60.3	-69.3	-88.0	-103.0	-106.0	-61.8	-78.5	-80.2	-57.0	-144.0	259
	PZ-5	-139.2	-88.3	-84.3	--	-132	121.16	92.40	-75.9	-48.6	-90.0	NA	181.20	53.4	86.0	63.8	NA	NA	127.2	NA	NA	NA	-30	212
	PZ-6	12.4	--	-74	--	-58.6	--	16.1	--	-40	--	30.3	--	30.2	51.6	71.1	NA	NA	106.5	NA	--	NA	-7	202
	PZ-8	73.7	-23.4	--	--	NA	115.4	NA	102.0	NA	NA	-19.3	241.7	NA	NA	227.3	NA	NA	136.5	NA	NA	NA	-44	NA***
	PZ-11R	33.0	-70.7	-2.1	104.2	-2.0	146.6	44.50	88.5	62.2	61.4	2.40	125.00	204.1	118.6	85.4	55.5	146.0	126.3***	111.2***	161.3***	92***	-18	245***
	PZ-13R	-28.2	-28.1	201.3	-35.0	-18.5	3.3	5.30	83.5	-52.9	22.5	-23.40	-110.10	34.4	103.3	39.1	67.8	35.7	133.3***	138.9***	118.3***	78***	-20	245***
	A1-PZ-2	-96.0	-39.2	-63.1	-78.3	-190.7	-28.9	186.90	-41.7	-178.5	-104.1	-115.70	-126.70	-149.6	-75.0	-121.6	-121.8	-198.7	-107.7	-72.8	40.9	-160	-118	216***
	A2-PZ-1	-48.4	-87.9	-91.4	50.4	-208.2	-39.7	-36.90	-110.3	-111.1	-112.1	-90.60	-99.80	-68.8	-74.7	-49.0	-109.6	-104.6	-43.8	-86.2	203.5	-86.0	2.0	--
	A2-PZ-2	--	--	--	-78.3	-16.8	25.3	96.0	-16.0	-53.6	-1.1	60.9	-41.9	-10.0	21.3	-15.5	-55.4	44.6	1.4	26.6	84.5	-23.7	-10	--
Objective 2	MW-5	-55.1	--	-83.6	--	-97.2	--	20.4	--	-21.8	--	-10.7	--	-63.1	--	-80.1	--	-110.7	--	--	--	--	--	244***
	MW-13S	83.2	--	--	--	--	160.7	65.2	153.7	NA	NA	215.8	109.8	NA	175.6	98.5	107.9	NA	133.7***	--	--	--	--	--
	MW-14BR	-27.4	--	--	--	-254.5	--	--	--	-141.3	--	--	--	-105.4	--	--	--	-204.5	--	--	--	--	--	--
	MW-21	--	--	-98.8	90.4	-112.7	-101.9	-85.6	-110.1	-68.5	-113.6	-77.2	-116.5	-86.7	-86.6	-112.3	-19.6	-131.1	-143.3	-102.6	58.7	-102	-124	213***
	PZ-18	-17.9	--	--	--	-48.4	--	--	--	-61.1	--	--	--	37.4	--	--	--	-81.6	--	--	--	--	--	--
	PZ-26	-55.6	--	--	--	-27.8	--	--	--	-40.9	--	--	--	-59.9	--	--	--	-89.0	--	--	--	--	--	--
Objective 3	MW-2	-122.4	--	--	--	-108	--	--	--	-52.9	--	--	--	-66.9	--	--	--	-98.9	--	--	--	-147	-44	236
	MW-4	68.8	--	--	--	-53	--	--	--	-12.7	--	--	--	41.4	--	--	--	-1.1	--	--	--	-147	-49	239
	MW-10	-145.3	--	--	--	-254.2	--	--	--	-118.3	--	--	--	-110.4	--	--	--	-134.8	--	--	--	-167	-80	228
	PZ-7	-20.0	--	-97.8	--	-88	--	-31.0	--	-60.9	--	-41.0	--	67.5	--	98.8	--	NA	--	--	--	--	--	--
Others	MW-19	--	--	--	-128.2	--	--	--	--	-35.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	PZ-2	--	--	--	-154.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	238***
	PZ-27	-24.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A1-PZ-1	--	--	--	-153.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	A2-PZ-7	46.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	OW-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	254***
	MW-23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	234***
	MW-F	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	237***
	MW-13BR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	172***

See last page for notes.

Table 4-3
Groundwater Sampling Field Parameters - September 2011 through January 2017
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Notes:
1. DO = dissolved oxygen
2. mg/L = milligrams per liter
3. mS/cm = milliSiemens per centimeter
4. mV = millivolts
5. ORP = oxidation reduction potential
6. s.u. = standard units
7. * Instrument error
8. NA = not analyzed due to well being dry or insufficient sample volume.
9. -- = Not included in the specified sampling round.
10. Note for ORP analysis: only three wells are purged by the low flow evacuation method and parameters monitored using a flow-through cell: MW-1, MW-3, and MW-10. For the others, groundwater parameters are generally collected by bailer and are evaluated at the surface, which is not a reliable or reproducible method for evaluating ORP results.
11. ** Indicates downhole DO was not collected due to insufficient volume.
12. Field parameters for the following wells were collected prior to purging during the Q4 2014 event due to insufficient volume: PZ-5, PZ-6, PZ-7, PZ-9, and PZ-18.
13. Field parameters for the following wells were collected during purging during the Q4 2014 event due to the well going dry prior to purging three well volumes: PZ-13R, MW-14BR, A2-PZ-2, and A1-PZ-2.
14. Field parameters for the following wells were collected prior to purging due to insufficient volume during the Q1 2015 event: PZ-5, PZ-6, PZ-11R, and PZ-13R.
15. Field parameters for the following wells were collected prior to purging due to insufficient volume during the Q2 2015 event: PZ-5, PZ-6, PZ-7, and PZ-8.
16. Field parameters for the following wells were collected prior to purging due to insufficient volume during the Q3 2015 event: PZ-11R, PZ-13R, and MW-13S.
17. Field parameters for the following wells were collected during purging during the Q4 2015 event due to the well going dry prior to purging three well volumes: PZ-11R, PZ-18, and MW-14BR.
18. [A] Due to downhole DO instrument error, the DO value provided was measured using the YSI during bailer purging.
19. Beginning Q1 (January) 2016, all wells were purged and sampled using a bailer. Downhole DO and ORP were measured at all locations (assuming sufficient water column and unless otherwise noted) except at A1-PZ-2, which is too narrow to accommodate the downhole probes available.
20. *** Indicates downhole field parameters were not collected due to insufficient volume, or due to PFAS sampling.
21. Field parameters for the following wells were collected prior to or during purging due to insufficient volume during the Q1 2016 event: PZ-5, PZ-6, PZ-8, PZ-11R, PZ-13R, and MW-13S.
22. Field parameters for the following wells were collected prior to or during purging due to insufficient volume during the Q2-Q4 2016 events: PZ-11R and PZ-13R.

Table 4-4
Summary of Mann-Kendall Trend Analysis of Groundwater Analytical Data
Quarterly Data Summary
Former Lockheed Martin French Road Facility
Utica, New York

Monitoring Well Objective	Location ID[A]	Analyte	Cleanup Goal (µg/L)	M-K?	Data Range							Mann-Kendall Analysis[B]		Sudden Increase Evaluation			
					Start Date	End Date	Min[B] (µg/L)	Max[B] (µg/L)	Historic Maximum[C] (µg/L)	Most recent result[D] (µg/L)	Comparison of the most recent data with Historic Maximum[D]	p Value	Data Trend[D]	Mean[B]	Std Dev[B]	Mean[B] +3xSTDV[B]	June 2018 Results
Objective 1	MW-1	cis-1,2-Dichloroethene	5	Y	06/20/96	06/06/18	9.1	25	390	11.1	Less than	0.2740	No Trend	16	5.9	34	No Sudden Increase
	MW-1	Tetrachloroethene	5	Y	06/20/96	06/06/18	29	79	11000	22.6	Less than	0.0540	No Trend	50	21	112	No Sudden Increase
	MW-1	Trichloroethene	5	Y	06/20/96	06/06/18	6.2	15	830	6.2	Less than	0.1685	No Trend	12	3.4	22	No Sudden Increase
	MW-3	cis-1,2-Dichloroethene	5	Y	08/22/96	06/07/18	8.5	24	510	8.5	Less than	0.3170	No Trend	16	5.0	31	No Sudden Increase
	MW-3	Tetrachloroethene	5	Y	08/22/96	06/07/18	2.5	24	73	2.5	Less than	0.0116	Decreasing Trend	11	8.1	36	No Sudden Increase
	MW-3	Trichloroethene	5	Y	05/19/98	06/07/18	4.2	15	430	5.9	Less than	0.0890	No Trend	8.9	3.6	20	No Sudden Increase
	MW-3	Vinyl Chloride	2	Y	08/22/96	06/07/18	1.5	3.4	94	2.5	Less than	0.4770	No Trend	2.6	0.8	4.9	No Sudden Increase
	MW-20	Vinyl Chloride	2	Y	04/11/12	06/07/18	1.10	5.8	680	5.8	Less than	0.4520	No Trend	3.7	1.6	8.7	No Sudden Increase
	PZ-5	cis-1,2-Dichloroethene	5	Y	06/20/96	06/06/18	13.4	57	500	13.4	Less than	0.0310	Decreasing Trend	34	13	74	No Sudden Increase
	PZ-5	Tetrachloroethene	5	Y	06/20/96	06/06/18	11	240	350	67.4	Less than	0.0715	No Trend	136	71	348	No Sudden Increase
	PZ-5	Trichloroethene	5	Y	06/20/96	06/06/18	18.5	86	330	18.5	Less than	0.0160	Decreasing Trend	49	25	125	No Sudden Increase
	PZ-6	cis-1,2-Dichloroethene	5	Y	02/09/95	06/06/18	5.8	22	97	6.6	Less than	0.4770	No Trend	12	6.6	32	No Sudden Increase
	PZ-6	Tetrachloroethene	5	Y	02/09/95	06/06/18	1.8	50	350	1.0 U	ND	0.0310	Decreasing Trend	18	19	76	No Sudden Increase
	PZ-6	Trichloroethene	5	Y	02/09/95	06/06/18	4.6	19	140	4.6	Less than	0.1685	No Trend	11	5	26	No Sudden Increase
	A1-PZ-2	Vinyl Chloride	2	Y	06/28/10	06/06/18	0.90	1.4	27	1.4	Less than	0.2365	No Trend	1.0	0.2	1.5	No Sudden Increase
Objective 2	MW-21	Vinyl Chloride	2	Y	04/11/12	06/06/18	1.4	3.4	13	1.0 U	ND	0.4770	No Trend	2.0	0.64	3.9	No Sudden Increase
Objective 3	MW-2	1,1-Dichloroethane	5	Y	08/22/96	06/07/18	0.9	5.9	87	2.9	Less than	0.0006	Decreasing Trend	4.0	1.5	8.5	No Sudden Increase
	MW-2	cis-1,2-Dichloroethene	5	Y	08/22/96	06/07/18	6.4	14	390	6.9	Less than	0.0050	Decreasing Trend	10	3.2	19	No Sudden Increase
	MW-2	Vinyl Chloride	2	Y	08/22/96	06/07/18	10.7	38	78	10.7	Less than	0.0116	Decreasing Trend	21	10	51	No Sudden Increase
	MW-4	cis-1,2-Dichloroethene	5	Y	08/22/96	06/06/18	1.3	5	7.4	2.5	Less than	0.2365	No Trend	3.7	1.2	7.4	No Sudden Increase
	MW-4	Vinyl Chloride	2	Y	08/22/96	06/06/18	0.9	4.8	6.4	1.1	Less than	0.1380	No Trend	2.8	1.4	6.9	No Sudden Increase
	MW-10	1,1-Dichloroethane	5	Y	06/20/96	06/07/18	1.7	3.5	280	1.7	Less than	0.0715	No Trend	2.6	0.6	4.4	No Sudden Increase
	MW-10	1,1-Dichloroethene	5	Y	06/20/96	06/07/18	0	0	4	1.0 U	Less than	0.5480	No Trend	0.9	1.2E-16	0.9	No Sudden Increase
	MW-10	cis-1,2-Dichloroethene	5	Y	06/20/96	06/07/18	23.7	53	1700	23.7	Less than	0.0002	Decreasing Trend	34	10.0	64	No Sudden Increase
	MW-10	Vinyl Chloride	2	Y	06/20/96	06/07/18	7.9	38	320	7.9	Less than	0.0116	Decreasing Trend	20	8.6	46	No Sudden Increase

Notes:

[A] Locations were excluded if: more than half of the last eight rounds were non-detect or if there were no exceedances in the last eight rounds.

[B] Indicates a calculation based on the eight most recent rounds of data.

[C] Historical maximum provided is based on all available data (excluding the most recent round).

[D] For non-detect results, 90% of the reportling limit (RL) is used for calculations. However, the "greater than" distinction for the Historic Maximum comparison is only applied if the most recent result is above the reporting limit (i.e. a "non-detect" with higher reporting limit will not trigger a "greater than" result as the value is not representative of a detected contaminant concentration). Similarly, a statistically-significant increasing or decreasing trend is only shown if detections (not modified reporting limits) contribute to the trend's statistical significance (i.e. an "increasing trend" is not representative of groundwater conditions if the trend is caused by non-detect results with elevated reporting limits).

Abbreviations:

J	Indicates an estimated value.
ND	Indicates a non-detect result with an elevated reporting limit for the most recent sampling event that would cause mis-identification of new Historical Maxima and/or statistically-significant trends. See Note[D] above.
NJ	The analysis indicates the presence of a compound that has been "tentatively identified"; the associated numerical value represents its approximate concentration.
U	The compound was analyzed for but not detected. The associated value is the compound Reporting Limit.

Table 4-5
Groundwater Monitoring Data -
Per- and Polyfluoroalkyl Substances (PFAS)
Former Lockheed Martin French Road Facility
Utica, New York

			Per- and polyfluoroalkyl substances (PFAS)																						
Well ID	Date	Initial Depth To Water (feet)	1,4-Dioxane	6:2 FTS	8:2 FTS	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorononanoic acid (PFNA)	Perfluorooctane Sulfonamide (FOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluorooctanoic acid (PFOA)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeA)	Perfluorotridecanoic Acid (PFTriA)	Perfluoroundecanoic acid (PFUnA)
MW-F	6/6/2018	7.83	2.0 U	20 U	20 U	20 U	20 U	2.0 U	**3.9**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.92 J**	2.0 U	**0.89 J**	2.0 U	2.0 U	2.0 U
MW-23	6/6/2018	6.86	2.0 U	20 U	20 U	20 U	20 U	**0.31 J**	**4.5**	2.0 U	2.0 U	2.0 U	2.0 U	**0.92 J**	2.0 U	**3.5**	2.0 U	2.0 U	2.0 U	2.0 U	**5.1**	2.0 U	2.0 U	2.0 U
MW-5	6/5/2018	7.58	2.0 U	20 U	20 U	20 U	20 U	**0.45 J**	**4.1**	2.0 U	2.0 U	2.0 U	2.0 U	**0.60 J**	2.0 U	**1.2 J**	2.0 U	2.0 U	**0.68 J**	**0.98 J**	**1.8 J**	2.0 U	2.0 U	2.0 U
MW-1	6/6/2018	8.17	**0.36**	21 U	21 U	21 U	21 U	**0.54 J**	**6.9**	2.1 U	2.1 U	2.1 U	2.1 U	**2.2**	2.1 U	**3.5**	**0.79 J**	2.1 U	**4.8**	**6.1**	**6.4**	2.1 U	2.1 U	2.1 U
PZ-11R	6/6/2018	8.71	4.0 U	**2.5 J**	21 U	21 U	21 U	**0.34 J**	**5.8**	2.1 U	**1.0 J**	2.1 U	2.1 U	**2.6**	2.1 U	**3.1**	**1.3 J**	2.1 U	**14**	**4.6**	**3.9**	2.1 U	2.1 U	2.1 U
OW-1	6/5/2018	6.31	2.0 U	20 U	20 U	20 U	20 U	**0.44 J**	**4.4**	2.0 U	2.0 U	2.0 U	2.0 U	**0.70 J**	2.0 U	**1.1 J**	2.0 U	2.0 U	**2.9**	**1.4 J**	**1.5 J**	2.0 U	2.0 U	2.0 U
A1-PZ-2	6/6/2018	1.80	2.0 U	20 U	20 U	20 U	20 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
MW-13BR	6/6/2018	15.05	2.0 U	19 U	19 U	19 U	19 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
MW-21	6/7/2018	2.22	**2.2**	20 U	20 U	20 U	20 U	**0.34 J**	**14**	2.0 U	**1.3 J**	**0.88 J**	**0.21 J**	**7.5**	2.0 U	**41**	**1.4 J**	**0.60 J**	**26 J**	**7.7**	**46 J**	2.0 U	2.0 U	2.0 U
MW-21 DUP	6/7/2018	NA	**2**	20 U	20 U	**2.4 J**	20 U	**0.51 J**	**12**	2.0 U	**1.4 J**	**0.90 J**	2.0 U	**6.6**	2.0 U	**33**	**1.2 J**	**0.57 J**	**20 J**	**6.3**	**32 J**	2.0 U	2.0 U	2.0 U
PZ-2	6/6/2018	8.05	NA	4.5 J	22 U	22 U	22 U	2.2 U	**2.9**	2.2 U	2.2 U	2.2 U	2.2 U	**0.85 J**	2.2 U	**0.85 J**	**0.52 J**	2.2 U	**23**	**1.3 J**	**0.77 J**	2.2 U	2.2 U	2.2 U
EQUIPMENT BLANK	6/6/2018	NA	0.20 U	20 U	20 U	20 U	20 U	2.0 U	**1.5 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.25 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
TRIP BLANK	6/7/2018	NA	0.20 U	20 U	20 U	20 U	20 U	2.0 U	**1.6 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**0.25 J**	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U

Notes:
all results are reported in ng/L
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
DUP - Duplicate sample
U - Indicates the compound was analyzed for but not detected
NA - Not analyzed
Bold - Concentration detected above reporting limit

DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT
PROJECT: LOCKHEED MARTIN CORPORATION (LMC) UTICA NEW YORK
DATE SAMPLES COLLECTED: JUNE 5-7, 2018

LAB REPORT No. 7054419

1.0 INTRODUCTION

Twenty-seven aqueous samples including a field duplicate pair, two equipment blanks, and two trip blanks were collected by Tetra Tech, Inc., at the Lockheed Martin Utica site on June 5-7, 2018. The samples were sent to Pace Analytical Services, LLC, in Melville, New York. All analyses were conducted in accordance with USEPA SW846 8260C, 8270D SIM and EPA Method 537 modified analytical and reporting protocols.

The data package deliverables provided by the laboratory included a Category B deliverable as outlined in the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocols.

Data validation was performed on the aforementioned samples in accordance with EPA Region II data validation guidelines. Data validation review requirements were applied with specifications of the methods and as outlined in the USEPA Region II Standard Operating Procedures (SOPs) Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 8260B & 8260C (September 2014) and Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 8270D (December 2010).

The Data Usability Summary Report (DUSR) was prepared after the process of data validation was completed and summarizes the overall data quality and usability in accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation (NYSDEC 2010).

The DUSR review is based on the following parameters:

* ● Data completeness
* ● Hold times/Sample Preservation
* ● GC/MS System Tuning and Performance
* ● Mass Calibration
* ● LC/MS/MS System Tuning and Performance
* ● Mass Spectral Acquisition Rate
* ● Ion Transition Check
* ● Instrument Sensitivity Check
● Initial/Continuing calibrations
● Laboratory Preparation/Method and Trip Blank Results
● Surrogate Spike Recoveries
* ● Internal Standard Results
* ● Injection Internal Standard Recoveries
● Laboratory Control Sample Results
● Matrix Spike/Matrix Spike Duplicate Results
● Field Duplicate Precision
* ● Laboratory Duplicate Precision
* ● Compound Identification/Quantitation
* ● Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter.

This report was prepared to provide a critical review of the laboratory analysis and reported chemical results. Overall, the data quality is acceptable. The results of the Quality Assurance Review are presented in Section 3.0. Summary tables are provided. Attachments 1, 2, and 3 are provided so that the data user can review the qualified analytical results, results reported by the laboratory, and the supporting documentation associated with data findings and data quality.

2.0 SAMPLES INCLUDED IN REVIEW

Lab Report No. 7054419

Sample ID	Lab ID	Date Collected	Test Requested
A1PZ2060618VOC	7054419003	6/6/2018	VOCs
EQUIPBLANK060618	7054419009	6/6/2018	VOCs
MW10060718VOC	7054419008	6/7/2018	VOCs
MW1060618VOC	7054419004	6/6/2018	VOCs
MW20060718VOC	7054419011	6/7/2018	VOCs
MW2060718VOC	7054419012	6/7/2018	VOCs
MW21060618VOC	7054419010	6/6/2018	VOCs
MW3060718VOC	7054419028	6/7/2018	VOCs
MW4060718VOC	7054419005	6/7/2018	VOCs
MW4060718VOC DUP	7054419006	6/7/2018	VOCs
PZ13R060718VOC	7054419002	6/7/2018	VOCs
PZ5060618VOC	7054419001	6/6/2018	VOCs
PZ6060618VOC	7054419007	6/6/2018	VOCs
TRIP BLANK	7054419013	6/7/2018	VOCs
A1PZ2060618	480-137275-7	6/6/2018	PFAS, 1,4-Dioxane
EQUIPBLANK060618	480-137275-11	6/6/2018	PFAS, 1,4-Dioxane
MW1060618	480-137275-4	6/6/2018	PFAS, 1,4-Dioxane
MW13BR060618	480-137275-8	6/6/2018	PFAS, 1,4-Dioxane
MW21060718	480-137275-9	6/7/2018	PFAS, 1,4-Dioxane
MW21060718 DUP	480-137275-10	6/7/2018	PFAS, 1,4-Dioxane
MW23060618	480-137275-2	6/6/2018	PFAS, 1,4-Dioxane
MW5060518	480-137275-3	6/5/2018	PFAS, 1,4-Dioxane
MWF060618	480-137275-1	6/6/2018	PFAS, 1,4-Dioxane
OW1060518	480-137275-6	6/5/2018	PFAS, 1,4-Dioxane
PZ11R060618	480-137275-5	6/6/2018	PFAS, 1,4-Dioxane
PZ2060618	480-137275-14	6/6/2018	PFAS
TRIP BLANK_2	480-137275-12	6/7/2018	PFAS, 1,4-Dioxane

Legend:
VOCs = Volatile Organic Compounds in accordance with SW846 8260C.
PFAS = Polyfluoroalkyl Substances in accordance with EPA Method 537 modified.
1,4-Dioxane = 1,4-Dioxane in accordance with SW846 28270D SIM

3.0 RESULTS

3.1 DATA COMPLETENESS

With regard to the data package deliverables, the contents of the data package were complete and contained all necessary summary forms and raw instrument data.

- Sample PZ8060618 was not analyzed for PFAS as indicated on the sample Chain of Custody (COC) because the laboratory was provided insufficient volume for analysis.

- Field Reagent Blanks (FRBs) were not collected with the PFAS samples.

3.2 QUALITY CONTROL PARAMETERS

Hold Times/Sample Preservation: Technical hold times and preservation were assessed by comparing the sample dates and preservation code on the sample COC with that of the analysis dates.

- All project samples were properly preserved and analyzed within the required hold time for all analyses.

GC/MS Performance Check (Tuning) Summary: Gas chromatograph/mass spectrometer (GC/MS) instrument tuning and performance checks are performed to ensure the instrument's ability to provide appropriate mass-resolution, identification and sensitivity.

- The BFB tuning compound mass-ion abundance criteria for the LL VOC analyses were reported within control limits.

Mass Calibration & LC/MS/MS System Tuning and Performance

- The mass calibration and LC/MS/MS tuning criteria were acceptable.

Mass Spectral Acquisition Rate

- The mass spectral acquisition rate of a minimum of 10 spectra scans across each chromatographic peak was met by the laboratory.

Ion Transition Check

- The correct ion transition ratios were used by the laboratory for each PFAS compound.

Instrument Sensitivity Check (ISC)

- The ISC was analyzed prior to sample analyses and at the proper frequency during analyses. All criteria were acceptable.

Initial and Continuing Calibration Results: Control limits for initial and continuing instrument calibrations are established to ensure that the instrument is capable of producing accurate quantitative data. The following issues were noted:

- The VOC continuing calibrations performed on 6/12/2018 @ 11:49 and 6/13/2018 @ 13:19 had Percent Differences (%Ds) for dichlorodifluoromethane which exceeded the 20% quality control limit. All samples were affected. The detected and non-detected results reported for these compounds were qualified as estimated, (J) and (UJ), respectively.

- All VOC initial calibration Percent Relative Standard Deviations (%RSDs) and initial and continuing calibration response factors were within the quality control limits.

- All 1,4-dioxane and PFAS initial/continuing calibration %RSDs, %Ds, and response factors were within the quality control limits.

Laboratory Preparation/Method and Trip Blank Contamination:

- The following compounds were detected in the laboratory preparation/method and/or trip blanks:

Compound	Maximum Concentration (ng/L)	Action Level > or < Reporting Limit (RL)
PFBA [(1)]	1.57	<
PFHxS [(1)]	0.302	<
PFTeA [(2)]	0.00962 ng/ml	<
PFDS [(3)]	0.00963 ng/ml	<

PFBA = Perfluorobutanoic acid
PFHxS = Perfluorohexanesulfonic acid
PFTeA = Perfluorotetradecanoic acid
PFDS = Perfluorodecanesulfonic acid

[(1)] – Maximum concentration detected in the PFAS laboratory method blank affecting all samples.
[(2)] – Maximum concentration detected in the PFAS Initial Calibration Blank (ICB) affecting all samples.
[(3)] – Maximum concentration detected in the PFAS Continuing Calibration Blank (CCB) affecting all samples.

The detected results reported for these compounds below the RL in the affected samples were qualified as non-detected, (U). Field quality control blanks are not qualified for laboratory preparation/method blank contamination.

- No target compound contaminants were detected in the VOC and 1,4-dioxane laboratory method or trip blanks associated with the reviewed parameters in this data set.

System Monitoring Compound (Surrogate) Recoveries:

- The Percent Recoveries (%Rs) for M2-6:2 Fluorotelomer Sulfonate (M2-6:2FTS) and M2-8:2 Fluorotelomer Sulfonate (M2-8:2FTS) were above the 150% quality control limit

in samples MW21060718 and MW21060718 DUP. No validation action was necessary because the associated PFAS compounds were not detected in the samples.

- All surrogate recoveries fell within control limits for the project samples received for VOC and 1,4-dioxane reviewed.

Internal Standards Area Performance:

- The VOC and 1,4-dioxane internal standard area counts and retention times fell within control limits for the project samples received and reviewed.

Injectable Internal Standards Recoveries:

- The PFAS injectable internal standard areas counts and retention times fell within control limits for the project samples received and reviewed.

Laboratory Control Spike (LCS) Results:

- The LCS target compound Percent Recoveries (%Rs) were within the quality control limits with the exception of two high recoveries for ethylbenzene and tetrachloroethene in the LCS 327091LCS analyzed on 6/12/18. No action was required for ethylbenzene and because all results were nondetected. One sample result for tetrachloroethene was detected and was qualified as estimated (J). No action was required on the remaining nondetected tetrachloroethene results.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results:

- The PFAS MS/MSD analyses performed on sample MW21060718 had %Rs for perfluorooctanesulfonic acid (PFOS) and perfluoropentanoic acid (PFPEA) below the lower quality control limits. The detected results reported for these compounds in the parent sample and its field duplicate were qualified as estimated, (J).

- The VOC MS analyses and the 1,4-dioxane MS/MSD analyses had acceptable %Rs for all target compounds.

Field Duplicate Precision: Field duplicates are collected to provide information on sampling precision and homogeneity.

- MW4060718VOC DUP was collected as a field duplicate sample of MW4060718VOC. The results associated with these two samples fell within quality control limits, thereby satisfying precision.

- MW21060718 DUP was collected as a field duplicate sample of MW21060718. The Relative Percent Difference (RPD) for PFPEA exceeded the 30% quality control criterion. The detected results reported for this compound in the field duplicate pair were qualified as estimated, (J). The remaining results associated with these two samples fell within quality control limits, thereby satisfying precision.

Laboratory Duplicate Precision:

- Samples MW21060618VOC and MW3060718VOC were analyzed for laboratory duplicate precision. The results associated with these duplicate analyses had acceptable Relative Percent Differences (RPDs), thereby satisfying laboratory precision.

Target Compound Identification and Quantitation: The laboratory calculations are verified and compound identifications are reviewed and assessed by the data reviewer.

- The GC/MS raw data (quantitation reports and chromatograms) were provided for review. No laboratory calculation errors were noted for the sample selected for verification during data validation.

Detection Limits: Non-detected results were reported to the Reporting Limit (RL). Samples MW21060718 and MW21060718 DUP were analyzed at 5X dilutions for 1,4-dioxane.

4.0 CONCLUSIONS

Overall, based on the outcome of data validation and as summarized in the DUSR, the data quality is acceptable for all samples and analytical fractions noted in this report.

Michelle L. Woeber

Tetra Tech, Inc.
Michelle L. Woeber
Chemist/Data Validator

Joseph A. Samchuck

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

September 27, 2018

Attachments:
Attachment 1 – Qualified Analytical Results
Attachment 2 – Results as Reported by the Laboratory
Attachment 3 – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted detection limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team, but exclusion of the data is recommended.

Attachment 1

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08218	NSAMPLE	A1PZ2060618VOC			EQUIPBLANK060618			MW10060718VOC			MW1060618VOC		
SDG: 7054419	LAB_ID	7054419003			7054419009			7054419008			7054419004		
FRACTION: OV	SAMP_DATE	6/6/2018			6/6/2018			6/7/2018			6/6/2018		
MEDIA: WATER	QC_TYPE	NM			EB			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1.7			2.2		
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
ACETONE		5	U		5	U		5	U		5	U	
BENZENE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLOROETHANE		1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE		1.2			1	U		23.7			11.1		
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYLENE CHLORIDE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		22.6	J	E
TOLUENE		1	U		1	U		1	U		1	U	
TOTAL XYLENES		3	U		3	U		3	U		3	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		2.2			1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1	U		6.2		
VINYL CHLORIDE		1.4			1	U		7.9			1	U	

PROJ_NO: 08218	NSAMPLE	MW20060718VOC			MW2060718VOC			MW21060618VOC			MW3060718VOC		
SDG: 7054419	LAB_ID	7054419011			7054419012			7054419010			7054419028		
FRACTION: OV	SAMP_DATE	6/7/2018			6/7/2018			6/6/2018			6/7/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE	1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE	1	U		2.9			1	U		2.3		
1,1-DICHLOROETHENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE	1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE	1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE	1	U		1	U		1	U		1	U	
ACETONE	5	U		5	U		5	U		5	U	
BENZENE	1	U		1	U		1	U		1	U	
CHLOROBENZENE	1	U		1	U		1	U		1	U	
CHLOROETHANE	1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE	1.6			6.9			1	U		8.5		
CIS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE	1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYLBENZENE	1	U		1	U		1	U		1	U	
M+P-XYLENES	2	U		2	U		2	U		2	U	
METHYLENE CHLORIDE	1	U		1	U		1	U		1	U	
O-XYLENE	1	U		1	U		1	U		1	U	
TETRACHLOROETHENE	1	U		1	U		1	U		2.5		
TOLUENE	1	U		1	U		1	U		1	U	
TOTAL XYLENES	3	U		3	U		3	U		3	U	
TRANS-1,2-DICHLOROETHENE	1.3			1.3			1	U		1	U	
TRANS-1,3-DICHLOROPROPENE	1	U		1	U		1	U		1	U	
TRICHLOROETHENE	1	U		1	U		1	U		5.9		
VINYL CHLORIDE	5.8			10.7			1	U		2.5		

PROJ_NO: 08218	NSAMPLE	MW4060718VOC			MW4060718VOC DUP			PZ13R060718VOC			PZ5060618VOC		
SDG: 7054419	LAB_ID	7054419005			7054419006			7054419002			7054419001		
FRACTION: OV	SAMP_DATE	6/7/2018			6/7/2018			6/7/2018			6/6/2018		
MEDIA: WATER	QC_TYPE	NM			FD			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF				MW4060718VOC								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U		1	U		1	U	
ACETONE		5	U		5	U		5	U		40.5		
BENZENE		1	U		1	U		1	U		1	U	
CHLOROBENZENE		1	U		1	U		1	U		1	U	
CHLOROETHANE		1	U		1	U		1	U		1	U	
CIS-1,2-DICHLOROETHENE		2.5			2.3			1	U		13.4		
CIS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
DICHLORODIFLUOROMETHANE		1	UJ	C	1	UJ	C	1	UJ	C	1	UJ	C
ETHYLBENZENE		1	U		1	U		1	U		1	U	
M+P-XYLENES		2	U		2	U		2	U		2	U	
METHYLENE CHLORIDE		1	U		1	U		1	U		1	U	
O-XYLENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U		1	U		67.4		
TOLUENE		1	U		1	U		1	U		1	U	
TOTAL XYLENES		3	U		3	U		3	U		3	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U		1	U		1	U	
TRICHLOROETHENE		1	U		1	U		1.5			18.5		
VINYL CHLORIDE		1.1			2.1			1	U		1	U	

PROJ_NO: 08218	NSAMPLE	PZ6060618VOC			TRIP BLANK		
SDG: 7054419	LAB_ID	7054419007			7054419013		
FRACTION: OV	SAMP_DATE	6/6/2018			6/7/2018		
MEDIA: WATER	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		1	U		1	U	
1,1,2-TRICHLOROETHANE		1	U		1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		1	U		1	U	
1,1-DICHLOROETHANE		1	U		1	U	
1,1-DICHLOROETHENE		1	U		1	U	
1,2-DICHLOROBENZENE		1	U		1	U	
1,2-DICHLOROETHANE		1	U		1	U	
1,3-DICHLOROBENZENE		1	U		1	U	
1,3-DICHLOROPROPANE		1	U		1	U	
1,4-DICHLOROBENZENE		1	U		1	U	
ACETONE		39.1			5	U	
BENZENE		1	U		1	U	
CHLOROBENZENE		1	U		1	U	
CHLOROETHANE		1	U		1	U	
CIS-1,2-DICHLOROETHENE		6.6			1	U	
CIS-1,3-DICHLOROPROPENE		1	U		1	U	
DICHLORODIFLUOROMETHANE		1	UJ	C	1	UJ	C
ETHYLBENZENE		1	U		1	U	
M+P-XYLENES		2	U		2	U	
METHYLENE CHLORIDE		1	U		1	U	
O-XYLENE		1	U		1	U	
TETRACHLOROETHENE		1	U		1	U	
TOLUENE		1	U		1	U	
TOTAL XYLENES		3	U		3	U	
TRANS-1,2-DICHLOROETHENE		1	U		1	U	
TRANS-1,3-DICHLOROPROPENE		1	U		1	U	
TRICHLOROETHENE		4.6			1	U	
VINYL CHLORIDE		1	U		1	U	

PROJ_NO: 08218	NSAMPLE	A1PZ2060618			EQUIPBLANK060618			MW1060618			MW13BR060618		
SDG: 7054419	LAB_ID	480-137275-7			480-137275-11			480-137275-4			480-137275-8		
FRACTION: OSSIM	SAMP_DATE	6/6/2018			6/6/2018			6/6/2018			6/6/2018		
MEDIA: WATER	QC_TYPE	NM			EB			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		2	U		0.2	U		0.36			2	U	

PROJ_NO: 08218	NSAMPLE	MW21060718			MW21060718 DUP			MW23060618			MW5060518		
SDG: 7054419	LAB_ID	480-137275-9			480-137275-10			480-137275-2			480-137275-3		
FRACTION: OSSIM	SAMP_DATE	6/7/2018			6/7/2018			6/6/2018			6/5/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF				MW21060718								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		2.2			2			2	U		2	U	

PROJ_NO: 08218	NSAMPLE	MWF060618			OW1060518			PZ11R060618			TRIP BLANK		
SDG: 7054419	LAB_ID	480-137275-1			480-137275-6			480-137275-5			480-137275-12		
FRACTION: OSSIM	SAMP_DATE	6/6/2018			6/5/2018			6/6/2018			6/7/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		2	U		2	U		4	U		0.2	U	

PROJ_NO: 08218	NSAMPLE	A1PZ2060618			EQUIPBLANK060618			MW1060618			MW13BR060618		
SDG: 7054419	LAB_ID	480-137275-7			480-137275-11			480-137275-4			480-137275-8		
FRACTION: PFAS	SAMP_DATE	6/6/2018			6/6/2018			6/6/2018			6/6/2018		
MEDIA: WATER	QC_TYPE	NM			EB			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
6:2 FLUOROTELOMER SULFONATE (6:2FTS)		20	U		20	U		21	U		19	U	
8:2 FLUOROTELOMER SULFONATE (8:2FTS)		20	U		20	U		21	U		19	U	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		20	U		20	U		21	U		19	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		20	U		20	U		21	U		19	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		2	U		2	U		6.1			1.9	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		2	U		2	U		0.54	J	P	1.9	U	
PERFLUOROBUTANOIC ACID (PFBA)		2	U	A	1.5	J	P	6.9			1.9	U	A
PERFLUORODECANESULFONIC ACID (PFDS)		2	U		2	U		2.1	U		1.9	U	
PERFLUORODECANOIC ACID (PFDA)		2	U		2	U		2.1	U		1.9	U	
PERFLUORODODECANOIC ACID (PFDOA)		2	U		2	U		2.1	U		1.9	U	
PERFLUOROHEPTANESULFONIC ACID		2	U		2	U		2.1	U		1.9	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		2	U		2	U		2.2			1.9	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		2	U	A	0.25	J	P	2.1	U	A	1.9	U	A
PERFLUOROHEXANOIC ACID (PFHXA)		2	U		2	U		3.5			1.9	U	
PERFLUORONONANOIC ACID (PFNA)		2	U		2	U		0.79	J	P	1.9	U	
PERFLUOROOCTANE SULFONAMIDE (FOSA)		2	U		2	U		2.1	U		1.9	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		2	U		2	U		4.8			1.9	U	
PERFLUOROPENTANOIC ACID (PFPEA)		2	U		2	U		6.4			1.9	U	
PERFLUOROTETRADECANOIC ACID (PFTEA)		2	U		2	U		2.1	U		1.9	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		2	U		2	U		2.1	U		1.9	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		2	U		2	U		2.1	U		1.9	U	

PROJ_NO: 08218	NSAMPLE	MW21060718			MW21060718 DUP			MW23060618			MW5060518		
SDG: 7054419	LAB_ID	480-137275-9			480-137275-10			480-137275-2			480-137275-3		
FRACTION: PFAS	SAMP_DATE	6/7/2018			6/7/2018			6/6/2018			6/5/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS				0.0			0.0			0.0		
	DUP_OF				MW21060718								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
6:2 FLUOROTELOMER SULFONATE (6:2FTS)		20	U		20	U		20	U		20	U	
8:2 FLUOROTELOMER SULFONATE (8:2FTS)		20	U		20	U		20	U		20	U	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		20	U		2.4	J	P	20	U		20	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		20	U		20	U		20	U		20	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		7.7			6.3			2	U		0.98	J	P
PERFLUOROBUTANESULFONIC ACID (PFBS)		0.34	J	P	0.51	J	P	0.31	J	P	0.45	J	P
PERFLUOROBUTANOIC ACID (PFBA)		14			12			4.5			4.1		
PERFLUORODECANESULFONIC ACID (PFDS)		2	U	A	2	U	A	2	U		2	U	
PERFLUORODECANOIC ACID (PFDA)		1.3	J	P	1.4	J	P	2	U		2	U	
PERFLUORODODECANOIC ACID (PFDOA)		0.88	J	P	0.9	J	P	2	U		2	U	
PERFLUOROHEPTANESULFONIC ACID		0.21	J	P	2	U		2	U		2	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		7.5			6.6			0.92	J	P	0.6	J	P
PERFLUOROHEXANESULFONIC ACID (PFHXS)		2	U	A	2	U	A	2	U	A	2	U	A
PERFLUOROHEXANOIC ACID (PFHXA)		41			33			3.5			1.2	J	P
PERFLUORONONANOIC ACID (PFNA)		1.4	J	P	1.2	J	P	2	U		2	U	
PERFLUOROOCTANE SULFONAMIDE (FOSA)		0.6	J	P	0.57	J	P	2	U		2	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		26	J	D	20	J	D	2	U		0.68	J	P
PERFLUOROPENTANOIC ACID (PFPEA)		46	J	DG	32	J	DG	5.1			1.8	J	P
PERFLUOROTETRADECANOIC ACID (PFTEA)		2	U	A	2	U	A	2	U		2	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		2	U		2	U		2	U		2	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		2	U		2	U		2	U		2	U	

PROJ_NO: 08218	NSAMPLE	MWF060618			OW1060518			PZ11R060618			PZ2060618		
SDG: 7054419	LAB_ID	480-137275-1			480-137275-6			480-137275-5			480-137275-14		
FRACTION: PFAS	SAMP_DATE	6/6/2018			6/5/2018			6/6/2018			6/6/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
6:2 FLUOROTELOMER SULFONATE (6:2FTS)		20	U		20	U		2.5	J	P	4.5	J	P
8:2 FLUOROTELOMER SULFONATE (8:2FTS)		20	U		20	U		21	U		22	U	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		20	U		20	U		21	U		22	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		20	U		20	U		21	U		22	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		2	U		1.4	J	P	4.6			1.3	J	P
PERFLUOROBUTANESULFONIC ACID (PFBS)		2	U		0.44	J	P	0.34	J	P	2.2	U	
PERFLUOROBUTANOIC ACID (PFBA)		3.9			4.4			5.8			2.9		
PERFLUORODECANESULFONIC ACID (PFDS)		2	U		2	U		2.1	U		2.2	U	
PERFLUORODECANOIC ACID (PFDA)		2	U		2	U		1	J	P	2.2	U	
PERFLUORODODECANOIC ACID (PFDOA)		2	U		2	U		2.1	U		2.2	U	
PERFLUOROHEPTANESULFONIC ACID		2	U		2	U		2.1	U		2.2	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		2	U		0.7	J	P	2.6			0.85	J	P
PERFLUOROHEXANESULFONIC ACID (PFHXS)		2	U	A	2	U	A	2.1	U	A	2.2	U	A
PERFLUOROHEXANOIC ACID (PFHXA)		2	U		1.1	J	P	3.1			0.85	J	P
PERFLUORONONANOIC ACID (PFNA)		2	U		2	U		1.3	J	P	0.52	J	P
PERFLUOROOCTANE SULFONAMIDE (FOSA)		2	U		2	U		2.1	U		2.2	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		0.92	J	P	2.9			14			23		
PERFLUOROPENTANOIC ACID (PFPEA)		0.89	J	P	1.5	J	P	3.9			0.77	J	P
PERFLUOROTETRADECANOIC ACID (PFTEA)		2	U		2	U		2.1	U		2.2	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		2	U		2	U		2.1	U		2.2	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		2	U		2	U		2.1	U		2.2	U	

PROJ_NO: 08218	NSAMPLE	TRIP BLANK		
SDG: 7054419	LAB_ID	480-137275-12		
FRACTION: PFAS	SAMP_DATE	6/7/2018		
MEDIA: WATER	QC_TYPE	TB		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
6:2 FLUOROTELOMER SULFONATE (6:2FTS)		20	U	
8:2 FLUOROTELOMER SULFONATE (8:2FTS)		20	U	
N-ETHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NEFOSA)		20	U	
N-METHYLPERFLUOROOCTANE SULFONAMIDOACETATE(NMFOSA)		20	U	
PENTADECAFLUOROOCTANOIC ACID (PFOA)		2	U	
PERFLUOROBUTANESULFONIC ACID (PFBS)		2	U	
PERFLUOROBUTANOIC ACID (PFBA)		1.6	J	P
PERFLUORODECANESULFONIC ACID (PFDS)		2	U	
PERFLUORODECANOIC ACID (PFDA)		2	U	
PERFLUORODODECANOIC ACID (PFDOA)		2	U	
PERFLUOROHEPTANESULFONIC ACID		2	U	
PERFLUOROHEPTANOIC ACID (PFHPA)		2	U	
PERFLUOROHEXANESULFONIC ACID (PFHXS)		0.25	J	P
PERFLUOROHEXANOIC ACID (PFHXA)		2	U	
PERFLUORONONANOIC ACID (PFNA)		2	U	
PERFLUOROOCTANE SULFONAMIDE (FOSA)		2	U	
PERFLUOROOCTANESULFONIC ACID (PFOS)		2	U	
PERFLUOROPENTANOIC ACID (PFPEA)		2	U	
PERFLUOROTETRADECANOIC ACID (PFTEA)		2	U	
PERFLUOROTRIDECANOIC ACID (PFTRIA)		2	U	
PERFLUOROUNDECANOIC ACID (PFUNA)		2	U	

Attachment 2

Results as Reported by the Laboratory

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: PZ5060618VOC **Lab ID: 7054419001** Collected: 06/06/18 17:40 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**40.5**	ug/L	5.0	1		06/13/18 15:39	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-35-4	
cis-1,2-Dichloroethene	**13.4**	ug/L	1.0	1		06/13/18 15:39	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-09-2	
Tetrachloroethene	**67.4**	ug/L	1.0	1		06/13/18 15:39	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	79-00-5	
Trichloroethene	**18.5**	ug/L	1.0	1		06/13/18 15:39	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:39	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/13/18 15:39	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 15:39	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 15:39	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 15:39	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	68-153	1		06/13/18 15:39	17060-07-0	
4-Bromofluorobenzene (S)	103	%	79-124	1		06/13/18 15:39	460-00-4	
Toluene-d8 (S)	104	%	69-124	1		06/13/18 15:39	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: PZ13R060718VOC **Lab ID: 7054419002** Collected: 06/07/18 12:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 20:07	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	79-00-5	
Trichloroethene	**1.5**	ug/L	1.0	1		06/12/18 20:07	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 20:07	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/12/18 20:07	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 20:07	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 20:07	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 20:07	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	92	%	68-153	1		06/12/18 20:07	17060-07-0	
4-Bromofluorobenzene (S)	100	%	79-124	1		06/12/18 20:07	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		06/12/18 20:07	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: A1PZ2060618VOC **Lab ID: 7054419003** Collected: 06/06/18 19:20 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 19:46	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	75-35-4	
cis-1,2-Dichloroethene	**1.2**	ug/L	1.0	1		06/12/18 19:46	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 19:46	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:46	76-13-1	
Vinyl chloride	**1.4**	ug/L	1.0	1		06/12/18 19:46	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 19:46	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 19:46	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 19:46	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	68-153	1		06/12/18 19:46	17060-07-0	
4-Bromofluorobenzene (S)	104	%	79-124	1		06/12/18 19:46	460-00-4	
Toluene-d8 (S)	102	%	69-124	1		06/12/18 19:46	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW1060618VOC **Lab ID: 7054419004** Collected: 06/06/18 18:30 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 19:25	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	75-71-8	CL
1,1-Dichloroethane	**2.2**	ug/L	1.0	1		06/12/18 19:25	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	75-35-4	
cis-1,2-Dichloroethene	**11.1**	ug/L	1.0	1		06/12/18 19:25	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 19:25	75-09-2	
Tetrachloroethene	**22.6**	ug/L	1.0	1		06/12/18 19:25	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	79-00-5	
Trichloroethene	**6.2**	ug/L	1.0	1		06/12/18 19:25	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:25	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/12/18 19:25	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 19:25	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 19:25	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 19:25	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	93	%	68-153	1		06/12/18 19:25	17060-07-0	
4-Bromofluorobenzene (S)	102	%	79-124	1		06/12/18 19:25	460-00-4	
Toluene-d8 (S)	101	%	69-124	1		06/12/18 19:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW4060718VOC **Lab ID: 7054419005** Collected: 06/07/18 11:15 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 19:04	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	75-35-4	
cis-1,2-Dichloroethene	**2.5**	ug/L	1.0	1		06/12/18 19:04	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 19:04	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 19:04	76-13-1	
Vinyl chloride	**1.1**	ug/L	1.0	1		06/12/18 19:04	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 19:04	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 19:04	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 19:04	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	68-153	1		06/12/18 19:04	17060-07-0	
4-Bromofluorobenzene (S)	98	%	79-124	1		06/12/18 19:04	460-00-4	
Toluene-d8 (S)	96	%	69-124	1		06/12/18 19:04	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW4060718VOC DUP **Lab ID: 7054419006** Collected: 06/07/18 11:20 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 18:43	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	75-35-4	
cis-1,2-Dichloroethene	**2.3**	ug/L	1.0	1		06/12/18 18:43	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 18:43	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:43	76-13-1	
Vinyl chloride	**2.1**	ug/L	1.0	1		06/12/18 18:43	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 18:43	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 18:43	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 18:43	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	68-153	1		06/12/18 18:43	17060-07-0	
4-Bromofluorobenzene (S)	98	%	79-124	1		06/12/18 18:43	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		06/12/18 18:43	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: PZ6060618VOC **Lab ID: 7054419007** Collected: 06/06/18 17:50 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**39.1**	ug/L	5.0	1		06/13/18 15:58	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-35-4	
cis-1,2-Dichloroethene	**6.6**	ug/L	1.0	1		06/13/18 15:58	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	79-00-5	
Trichloroethene	**4.6**	ug/L	1.0	1		06/13/18 15:58	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 15:58	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/13/18 15:58	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 15:58	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 15:58	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 15:58	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%	68-153	1		06/13/18 15:58	17060-07-0	
4-Bromofluorobenzene (S)	104	%	79-124	1		06/13/18 15:58	460-00-4	
Toluene-d8 (S)	107	%	69-124	1		06/13/18 15:58	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW10060718VOC **Lab ID: 7054419008** Collected: 06/07/18 11:45 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 18:23	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	75-71-8	CL
1,1-Dichloroethane	**1.7**	ug/L	1.0	1		06/12/18 18:23	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	75-35-4	
cis-1,2-Dichloroethene	**23.7**	ug/L	1.0	1		06/12/18 18:23	156-59-2	
trans-1,2-Dichloroethene	**2.2**	ug/L	1.0	1		06/12/18 18:23	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 18:23	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:23	76-13-1	
Vinyl chloride	**7.9**	ug/L	1.0	1		06/12/18 18:23	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 18:23	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 18:23	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 18:23	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		06/12/18 18:23	17060-07-0	
4-Bromofluorobenzene (S)	98	%	79-124	1		06/12/18 18:23	460-00-4	
Toluene-d8 (S)	103	%	69-124	1		06/12/18 18:23	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: EQUIPBLANK060618 **Lab ID: 7054419009** Collected: 06/06/18 17:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 18:02	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 18:02	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/12/18 18:02	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 18:02	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 18:02	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 18:02	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		06/12/18 18:02	17060-07-0	
4-Bromofluorobenzene (S)	97	%	79-124	1		06/12/18 18:02	460-00-4	
Toluene-d8 (S)	92	%	69-124	1		06/12/18 18:02	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW21060618VOC **Lab ID: 7054419010** Collected: 06/06/18 19:10 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/12/18 17:41	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	100-41-4	L1
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	127-18-4	L1
Toluene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/12/18 17:41	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/12/18 17:41	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/12/18 17:41	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/12/18 17:41	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/12/18 17:41	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	68-153	1		06/12/18 17:41	17060-07-0	
4-Bromofluorobenzene (S)	103	%	79-124	1		06/12/18 17:41	460-00-4	
Toluene-d8 (S)	101	%	69-124	1		06/12/18 17:41	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW20060718VOC **Lab ID: 7054419011** Collected: 06/07/18 08:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/13/18 16:17	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	75-35-4	
cis-1,2-Dichloroethene	**1.6**	ug/L	1.0	1		06/13/18 16:17	156-59-2	
trans-1,2-Dichloroethene	**1.3**	ug/L	1.0	1		06/13/18 16:17	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 16:17	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:17	76-13-1	
Vinyl chloride	**5.8**	ug/L	1.0	1		06/13/18 16:17	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 16:17	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 16:17	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 16:17	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	89	%	68-153	1		06/13/18 16:17	17060-07-0	
4-Bromofluorobenzene (S)	103	%	79-124	1		06/13/18 16:17	460-00-4	
Toluene-d8 (S)	98	%	69-124	1		06/13/18 16:17	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW2060718VOC **Lab ID: 7054419012** Collected: 06/07/18 10:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/13/18 16:38	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	75-71-8	CL
1,1-Dichloroethane	**2.9**	ug/L	1.0	1		06/13/18 16:38	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	75-35-4	
cis-1,2-Dichloroethene	**6.9**	ug/L	1.0	1		06/13/18 16:38	156-59-2	
trans-1,2-Dichloroethene	**1.3**	ug/L	1.0	1		06/13/18 16:38	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 16:38	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 16:38	76-13-1	
Vinyl chloride	**10.7**	ug/L	1.0	1		06/13/18 16:38	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 16:38	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 16:38	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 16:38	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	86	%	68-153	1		06/13/18 16:38	17060-07-0	
4-Bromofluorobenzene (S)	95	%	79-124	1		06/13/18 16:38	460-00-4	
Toluene-d8 (S)	99	%	69-124	1		06/13/18 16:38	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: TRIP BLANK **Lab ID: 7054419013** Collected: 06/07/18 00:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/13/18 17:24	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-71-8	CL
1,1-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-09-2	
Tetrachloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	79-00-5	
Trichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:24	76-13-1	
Vinyl chloride	**<1.0**	ug/L	1.0	1		06/13/18 17:24	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 17:24	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 17:24	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 17:24	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	87	%	68-153	1		06/13/18 17:24	17060-07-0	
4-Bromofluorobenzene (S)	93	%	79-124	1		06/13/18 17:24	460-00-4	
Toluene-d8 (S)	95	%	69-124	1		06/13/18 17:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

ANALYTICAL RESULTS

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Sample: MW3060718VOC **Lab ID: 7054419028** Collected: 06/07/18 11:00 Received: 06/09/18 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260C Volatile Organics	Analytical Method: EPA 8260C/5030C							
Acetone	**<5.0**	ug/L	5.0	1		06/13/18 17:45	67-64-1	
Benzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	71-43-2	
Chlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	108-90-7	
Chloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	75-00-3	
1,2-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	95-50-1	
1,3-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	106-46-7	
Dichlorodifluoromethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	75-71-8	CL
1,1-Dichloroethane	**2.3**	ug/L	1.0	1		06/13/18 17:45	75-34-3	
1,2-Dichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	107-06-2	
1,1-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	75-35-4	
cis-1,2-Dichloroethene	**8.5**	ug/L	1.0	1		06/13/18 17:45	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	156-60-5	
1,3-Dichloropropane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	142-28-9	
cis-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	10061-01-5	
trans-1,3-Dichloropropene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	10061-02-6	
Ethylbenzene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	100-41-4	
Methylene Chloride	**<1.0**	ug/L	1.0	1		06/13/18 17:45	75-09-2	
Tetrachloroethene	**2.5**	ug/L	1.0	1		06/13/18 17:45	127-18-4	
Toluene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	108-88-3	
1,1,1-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	79-00-5	
Trichloroethene	**5.9**	ug/L	1.0	1		06/13/18 17:45	79-01-6	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/L	1.0	1		06/13/18 17:45	76-13-1	
Vinyl chloride	**2.5**	ug/L	1.0	1		06/13/18 17:45	75-01-4	
Xylene (Total)	**<3.0**	ug/L	3.0	1		06/13/18 17:45	1330-20-7	
m&p-Xylene	**<2.0**	ug/L	2.0	1		06/13/18 17:45	179601-23-1	
o-Xylene	**<1.0**	ug/L	1.0	1		06/13/18 17:45	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	68-153	1		06/13/18 17:45	17060-07-0	
4-Bromofluorobenzene (S)	99	%	79-124	1		06/13/18 17:45	460-00-4	
Toluene-d8 (S)	97	%	69-124	1		06/13/18 17:45	2037-26-5	

REPORT OF LABORATORY ANALYSIS

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MWF060618 | Lab Sample ID: 480-137275-1

Matrix: Water | Lab File ID: U3308620.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 09:15

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 21:06

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	50		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW23060618 | Lab Sample ID: 480-137275-2

Matrix: Water | Lab File ID: U3308621.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 08:30

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 21:30

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	54		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW5060518 | Lab Sample ID: 480-137275-3

Matrix: Water | Lab File ID: U3308622.D

Analysis Method: 8270D SIM ID | Date Collected: 06/05/2018 16:45

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 21:54

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	50		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW1060618 | Lab Sample ID: 480-137275-4

Matrix: Water | Lab File ID: U3308623.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 11:40

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 1000(mL) | Date Analyzed: 06/13/2018 22:18

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.36		0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	45		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: PZ11R060618 | Lab Sample ID: 480-137275-5

Matrix: Water | Lab File ID: U3308624.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 11:00

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 50(mL) | Date Analyzed: 06/13/2018 22:42

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	4.0	U	4.0	2.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	50		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: OW1060518 | Lab Sample ID: 480-137275-6

Matrix: Water | Lab File ID: U3308625.D

Analysis Method: 8270D SIM ID | Date Collected: 06/05/2018 15:30

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 23:06

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	53		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: A1PZ2060618 | Lab Sample ID: 480-137275-7

Matrix: Water | Lab File ID: U3308626.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 14:40

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 23:30

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	57		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW13BR060618 | Lab Sample ID: 480-137275-8

Matrix: Water | Lab File ID: U3308627.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 12:30

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 100(mL) | Date Analyzed: 06/13/2018 23:54

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0	U	2.0	1.0

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	55		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 | Lab Sample ID: 480-137275-9

Matrix: Water | Lab File ID: U3308628.D

Analysis Method: 8270D SIM ID | Date Collected: 06/07/2018 09:20

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 1000(mL) | Date Analyzed: 06/14/2018 00:18

Con. Extract Vol.: 1(mL) | Dilution Factor: 5

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.2		1.0	0.50

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	37		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 DUP | Lab Sample ID: 480-137275-10

Matrix: Water | Lab File ID: U3308631.D

Analysis Method: 8270D SIM ID | Date Collected: 06/07/2018 09:10

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 1000(mL) | Date Analyzed: 06/14/2018 01:29

Con. Extract Vol.: 1(mL) | Dilution Factor: 5

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	2.0		1.0	0.50

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	45		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: EQUIPBLANK060618 | Lab Sample ID: 480-137275-11

Matrix: Water | Lab File ID: U3308632.D

Analysis Method: 8270D SIM ID | Date Collected: 06/06/2018 17:00

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 1000(mL) | Date Analyzed: 06/14/2018 01:53

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.20	U	0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	44		15-110

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: TRIP BLANK | Lab Sample ID: 480-137275-12

Matrix: Water | Lab File ID: U3308633.D

Analysis Method: 8270D SIM ID | Date Collected: 06/07/2018 00:00

Extract. Method: 3510C | Date Extracted: 06/12/2018 15:47

Sample wt/vol: 1000(mL) | Date Analyzed: 06/14/2018 02:17

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.20	U	0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	38		15-110

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MWF060618 | Lab Sample ID: 480-137275-1

Matrix: Water | Lab File ID: 2018.07.01LLA_047.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 09:15

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 253.4(mL) | Date Analyzed: 07/01/2018 12:11

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	3.9	B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.32	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.57
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.92	J	2.0	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.84
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.89	J	2.0	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MWF060618 | Lab Sample ID: 480-137275-1

Matrix: Water | Lab File ID: 2018.07.01LLA_047.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 09:15

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 253.4(mL) | Date Analyzed: 07/01/2018 12:11

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	89		25-150
STL00998	13C2 PFDoA	89		25-150
STL00993	13C2 PFHxA	86		25-150
STL00997	13C2 PFUnA	91		25-150
STL02116	13C2-PFTeDA	91		25-150
STL02337	13C3-PFBS	86		25-150
STL00992	13C4 PFBA	77		25-150
STL00990	13C4 PFOA	87		25-150
STL00991	13C4 PFOS	90		25-150
STL01892	13C4-PFHpA	85		25-150
STL00995	13C5 PFNA	88		25-150
STL01893	13C5 PFPeA	82		25-150
STL01056	13C8 FOSA	86		25-150
STL00994	18O2 PFHxS	92		25-150
STL02118	d3-NMeFOSAA	95		25-150
STL02117	d5-NEtFOSAA	94		25-150
STL02279	M2-6:2FTS	93		25-150
STL02280	M2-8:2FTS	91		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW23060618 | Lab Sample ID: 480-137275-2

Matrix: Water | Lab File ID: 2018.07.01LLA_048.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 08:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 255.2(mL) | Date Analyzed: 07/01/2018 12:19

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.31	J	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	4.5	B	2.0	0.34
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.31
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.30
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.92	J	2.0	0.24
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.38	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	3.5		2.0	0.57
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.26
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.34
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.83
2706-90-3	Perfluoropentanoic acid (PFPeA)	5.1		2.0	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.28
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW23060618 | Lab Sample ID: 480-137275-2

Matrix: Water | Lab File ID: 2018.07.01LLA_048.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 08:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 255.2(mL) | Date Analyzed: 07/01/2018 12:19

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	89		25-150
STL00998	13C2 PFDoA	84		25-150
STL00993	13C2 PFHxA	85		25-150
STL00997	13C2 PFUnA	87		25-150
STL02116	13C2-PFTeDA	89		25-150
STL02337	13C3-PFBS	84		25-150
STL00992	13C4 PFBA	80		25-150
STL00990	13C4 PFOA	90		25-150
STL00991	13C4 PFOS	88		25-150
STL01892	13C4-PFHpA	85		25-150
STL00995	13C5 PFNA	87		25-150
STL01893	13C5 PFPeA	82		25-150
STL01056	13C8 FOSA	86		25-150
STL00994	18O2 PFHxS	92		25-150
STL02118	d3-NMeFOSAA	88		25-150
STL02117	d5-NEtFOSAA	88		25-150
STL02279	M2-6:2FTS	88		25-150
STL02280	M2-8:2FTS	92		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW5060518 | Lab Sample ID: 480-137275-3

Matrix: Water | Lab File ID: 2018.07.01LLA_049.d

Analysis Method: 537 (modified) | Date Collected: 06/05/2018 16:45

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 251.8(mL) | Date Analyzed: 07/01/2018 12:26

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.45	J	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	4.1	B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.60	J	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.32	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	1.2	J	2.0	0.58
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.68	J	2.0	0.54
335-67-1	Perfluorooctanoic acid (PFOA)	0.98	J	2.0	0.84
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.8	J	2.0	0.49
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW5060518 | Lab Sample ID: 480-137275-3

Matrix: Water | Lab File ID: 2018.07.01LLA_049.d

Analysis Method: 537 (modified) | Date Collected: 06/05/2018 16:45

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 251.8(mL) | Date Analyzed: 07/01/2018 12:26

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	84		25-150
STL00998	13C2 PFDoA	82		25-150
STL00993	13C2 PFHxA	77		25-150
STL00997	13C2 PFUnA	87		25-150
STL02116	13C2-PFTeDA	83		25-150
STL02337	13C3-PFBS	76		25-150
STL00992	13C4 PFBA	62		25-150
STL00990	13C4 PFOA	85		25-150
STL00991	13C4 PFOS	85		25-150
STL01892	13C4-PFHpA	85		25-150
STL00995	13C5 PFNA	84		25-150
STL01893	13C5 PFPeA	71		25-150
STL01056	13C8 FOSA	80		25-150
STL00994	18O2 PFHxS	86		25-150
STL02118	d3-NMeFOSAA	84		25-150
STL02117	d5-NEtFOSAA	86		25-150
STL02279	M2-6:2FTS	97		25-150
STL02280	M2-8:2FTS	84		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW1060618 | Lab Sample ID: 480-137275-4

Matrix: Water | Lab File ID: 2018.07.01LLA_050.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 11:40

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 240.2(mL) | Date Analyzed: 07/01/2018 12:34

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	21	U	21	2.1
39108-34-4	8:2 FTS	21	U	21	2.1
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	21	U	21	2.0
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	21	U	21	3.2
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.54	J	2.1	0.21
375-22-4	Perfluorobutanoic acid (PFBA)	6.9	B	2.1	0.36
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.1	U	2.1	0.33
335-76-2	Perfluorodecanoic acid (PFDA)	2.1	U	2.1	0.32
307-55-1	Perfluorododecanoic acid (PFDoA)	2.1	U	2.1	0.57
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.1	U	2.1	0.20
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.2		2.1	0.26
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.71	J B	2.1	0.18
307-24-4	Perfluorohexanoic acid (PFHxA)	3.5		2.1	0.60
375-95-1	Perfluorononanoic acid (PFNA)	0.79	J	2.1	0.28
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.1	U	2.1	0.36
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	4.8		2.1	0.56
335-67-1	Perfluorooctanoic acid (PFOA)	6.1		2.1	0.88
2706-90-3	Perfluoropentanoic acid (PFPeA)	6.4		2.1	0.51
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.1	U	2.1	0.30
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.1	U	2.1	1.4
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.1	U	2.1	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW1060618 | Lab Sample ID: 480-137275-4

Matrix: Water | Lab File ID: 2018.07.01LLA_050.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 11:40

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 240.2(mL) | Date Analyzed: 07/01/2018 12:34

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	90		25-150
STL00998	13C2 PFDoA	86		25-150
STL00993	13C2 PFHxA	83		25-150
STL00997	13C2 PFUnA	92		25-150
STL02116	13C2-PFTeDA	87		25-150
STL02337	13C3-PFBS	83		25-150
STL00992	13C4 PFBA	77		25-150
STL00990	13C4 PFOA	88		25-150
STL00991	13C4 PFOS	94		25-150
STL01892	13C4-PFHpA	91		25-150
STL00995	13C5 PFNA	90		25-150
STL01893	13C5 PFPeA	82		25-150
STL01056	13C8 FOSA	82		25-150
STL00994	18O2 PFHxS	91		25-150
STL02118	d3-NMeFOSAA	88		25-150
STL02117	d5-NEtFOSAA	89		25-150
STL02279	M2-6:2FTS	102		25-150
STL02280	M2-8:2FTS	87		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: PZ11R060618 | Lab Sample ID: 480-137275-5

Matrix: Water | Lab File ID: 2018.07.01LLA_051.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 11:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 236.8(mL) | Date Analyzed: 07/01/2018 12:42

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	2.5	J	21	2.1
39108-34-4	8:2 FTS	21	U	21	2.1
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	21	U	21	2.0
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	21	U	21	3.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	J	2.1	0.21
375-22-4	Perfluorobutanoic acid (PFBA)	5.8	B	2.1	0.37
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.1	U	2.1	0.34
335-76-2	Perfluorodecanoic acid (PFDA)	1.0	J	2.1	0.33
307-55-1	Perfluorododecanoic acid (PFDoA)	2.1	U	2.1	0.58
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.1	U	2.1	0.20
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.6		2.1	0.26
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.67	J B	2.1	0.18
307-24-4	Perfluorohexanoic acid (PFHxA)	3.1		2.1	0.61
375-95-1	Perfluorononanoic acid (PFNA)	1.3	J	2.1	0.29
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.1	U	2.1	0.37
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14		2.1	0.57
335-67-1	Perfluorooctanoic acid (PFOA)	4.6		2.1	0.90
2706-90-3	Perfluoropentanoic acid (PFPeA)	3.9		2.1	0.52
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.1	U	2.1	0.31
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.1	U	2.1	1.4
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.1	U	2.1	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: PZ11R060618 | Lab Sample ID: 480-137275-5

Matrix: Water | Lab File ID: 2018.07.01LLA_051.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 11:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 236.8(mL) | Date Analyzed: 07/01/2018 12:42

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	96		25-150
STL00998	13C2 PFDoA	86		25-150
STL00993	13C2 PFHxA	78		25-150
STL00997	13C2 PFUnA	96		25-150
STL02116	13C2-PFTeDA	82		25-150
STL02337	13C3-PFBS	76		25-150
STL00992	13C4 PFBA	62		25-150
STL00990	13C4 PFOA	86		25-150
STL00991	13C4 PFOS	88		25-150
STL01892	13C4-PFHpA	80		25-150
STL00995	13C5 PFNA	87		25-150
STL01893	13C5 PFPeA	72		25-150
STL01056	13C8 FOSA	82		25-150
STL00994	18O2 PFHxS	86		25-150
STL02118	d3-NMeFOSAA	78		25-150
STL02117	d5-NEtFOSAA	96		25-150
STL02279	M2-6:2FTS	139		25-150
STL02280	M2-8:2FTS	123		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: OW1060518 | Lab Sample ID: 480-137275-6

Matrix: Water | Lab File ID: 2018.07.01LLA_052.d

Analysis Method: 537 (modified) | Date Collected: 06/05/2018 15:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 249.8(mL) | Date Analyzed: 07/01/2018 12:50

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.44	J	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	4.4	B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.70	J	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.36	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	1.1	J	2.0	0.58
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.9		2.0	0.54
335-67-1	Perfluorooctanoic acid (PFOA)	1.4	J	2.0	0.85
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.5	J	2.0	0.49
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: OW1060518 | Lab Sample ID: 480-137275-6

Matrix: Water | Lab File ID: 2018.07.01LLA_052.d

Analysis Method: 537 (modified) | Date Collected: 06/05/2018 15:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 249.8(mL) | Date Analyzed: 07/01/2018 12:50

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	86		25-150
STL00998	13C2 PFDoA	86		25-150
STL00993	13C2 PFHxA	77		25-150
STL00997	13C2 PFUnA	96		25-150
STL02116	13C2-PFTeDA	86		25-150
STL02337	13C3-PFBS	81		25-150
STL00992	13C4 PFBA	61		25-150
STL00990	13C4 PFOA	90		25-150
STL00991	13C4 PFOS	94		25-150
STL01892	13C4-PFHpA	79		25-150
STL00995	13C5 PFNA	88		25-150
STL01893	13C5 PFPeA	74		25-150
STL01056	13C8 FOSA	82		25-150
STL00994	18O2 PFHxS	89		25-150
STL02118	d3-NMeFOSAA	93		25-150
STL02117	d5-NEtFOSAA	95		25-150
STL02279	M2-6:2FTS	124		25-150
STL02280	M2-8:2FTS	96		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: A1PZ2060618 | Lab Sample ID: 480-137275-7

Matrix: Water | Lab File ID: 2018.07.01LLA_053.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 14:40

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 246.8(mL) | Date Analyzed: 07/01/2018 12:58

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	1.3	J B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.56
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.27	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.59
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.55
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.86
2706-90-3	Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.50
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: A1PZ2060618 | Lab Sample ID: 480-137275-7

Matrix: Water | Lab File ID: 2018.07.01LLA_053.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 14:40

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 246.8(mL) | Date Analyzed: 07/01/2018 12:58

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	91		25-150
STL00998	13C2 PFDoA	86		25-150
STL00993	13C2 PFHxA	90		25-150
STL00997	13C2 PFUnA	97		25-150
STL02116	13C2-PFTeDA	83		25-150
STL02337	13C3-PFBS	91		25-150
STL00992	13C4 PFBA	95		25-150
STL00990	13C4 PFOA	90		25-150
STL00991	13C4 PFOS	93		25-150
STL01892	13C4-PFHpA	92		25-150
STL00995	13C5 PFNA	92		25-150
STL01893	13C5 PFPeA	90		25-150
STL01056	13C8 FOSA	92		25-150
STL00994	18O2 PFHxS	95		25-150
STL02118	d3-NMeFOSAA	87		25-150
STL02117	d5-NEtFOSAA	93		25-150
STL02279	M2-6:2FTS	93		25-150
STL02280	M2-8:2FTS	100		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW13BR060618 | Lab Sample ID: 480-137275-8

Matrix: Water | Lab File ID: 2018.07.01LLA_054.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 12:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 256.9(mL) | Date Analyzed: 07/01/2018 13:06

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	19	U	19	1.9
39108-34-4	8:2 FTS	19	U	19	1.9
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	19	U	19	3.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	1.9	U	1.9	0.19
375-22-4	Perfluorobutanoic acid (PFBA)	1.1	J B	1.9	0.34
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.31
335-76-2	Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.30
307-55-1	Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	1.9	U	1.9	0.18
375-85-9	Perfluoroheptanoic acid (PFHpA)	1.9	U	1.9	0.24
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.29	J B	1.9	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	1.9	U	1.9	0.56
375-95-1	Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.26
754-91-6	Perfluorooctane Sulfonamide (FOSA)	1.9	U	1.9	0.34
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	1.9	U	1.9	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	1.9	U	1.9	0.83
2706-90-3	Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	1.9	U	1.9	0.28
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	1.9	U	1.9	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW13BR060618 | Lab Sample ID: 480-137275-8

Matrix: Water | Lab File ID: 2018.07.01LLA_054.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 12:30

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 256.9(mL) | Date Analyzed: 07/01/2018 13:06

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	97		25-150
STL00998	13C2 PFDoA	84		25-150
STL00993	13C2 PFHxA	89		25-150
STL00997	13C2 PFUnA	86		25-150
STL02116	13C2-PFTeDA	67		25-150
STL02337	13C3-PFBS	86		25-150
STL00992	13C4 PFBA	96		25-150
STL00990	13C4 PFOA	93		25-150
STL00991	13C4 PFOS	92		25-150
STL01892	13C4-PFHpA	93		25-150
STL00995	13C5 PFNA	89		25-150
STL01893	13C5 PFPeA	87		25-150
STL01056	13C8 FOSA	86		25-150
STL00994	18O2 PFHxS	96		25-150
STL02118	d3-NMeFOSAA	86		25-150
STL02117	d5-NEtFOSAA	95		25-150
STL02279	M2-6:2FTS	90		25-150
STL02280	M2-8:2FTS	96		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 | Lab Sample ID: 480-137275-9

Matrix: Water | Lab File ID: 2018.07.01LLA_056.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 09:20

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 253.5(mL) | Date Analyzed: 07/01/2018 13:21

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.34	J	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	14	B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.1	J	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	1.3	J	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	0.88	J	2.0	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.21	J	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.5		2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.7	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	41		2.0	0.57
375-95-1	Perfluorononanoic acid (PFNA)	1.4	J	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	0.60	J	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	F1	2.0	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	7.7		2.0	0.84
2706-90-3	Perfluoropentanoic acid (PFPeA)	46	F1	2.0	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.29	J	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 | Lab Sample ID: 480-137275-9

Matrix: Water | Lab File ID: 2018.07.01LLA_056.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 09:20

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 253.5(mL) | Date Analyzed: 07/01/2018 13:21

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	88		25-150
STL00998	13C2 PFDoA	85		25-150
STL00993	13C2 PFHxA	67		25-150
STL00997	13C2 PFUnA	84		25-150
STL02116	13C2-PFTeDA	77		25-150
STL02337	13C3-PFBS	71		25-150
STL00992	13C4 PFBA	48		25-150
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	82		25-150
STL01892	13C4-PFHpA	72		25-150
STL00995	13C5 PFNA	81		25-150
STL01893	13C5 PFPeA	61		25-150
STL01056	13C8 FOSA	76		25-150
STL00994	18O2 PFHxS	80		25-150
STL02118	d3-NMeFOSAA	85		25-150
STL02117	d5-NEtFOSAA	92		25-150
STL02279	M2-6:2FTS	179	*	25-150
STL02280	M2-8:2FTS	172	*	25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 DUP | Lab Sample ID: 480-137275-10

Matrix: Water | Lab File ID: 2018.07.01LLA_059.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 09:10

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 247.3(mL) | Date Analyzed: 07/01/2018 13:45

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	2.4	J	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.51	J	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	12	B	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	1.2	J	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	1.4	J	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	0.90	J	2.0	0.56
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6		2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	1.6	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	33		2.0	0.59
375-95-1	Perfluorononanoic acid (PFNA)	1.2	J	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	0.57	J	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20		2.0	0.55
335-67-1	Perfluorooctanoic acid (PFOA)	6.3		2.0	0.86
2706-90-3	Perfluoropentanoic acid (PFPeA)	32		2.0	0.50
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.49	J	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: MW21060718 DUP | Lab Sample ID: 480-137275-10

Matrix: Water | Lab File ID: 2018.07.01LLA_059.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 09:10

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 247.3(mL) | Date Analyzed: 07/01/2018 13:45

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	102		25-150
STL00998	13C2 PFDoA	93		25-150
STL00993	13C2 PFHxA	76		25-150
STL00997	13C2 PFUnA	107		25-150
STL02116	13C2-PFTeDA	87		25-150
STL02337	13C3-PFBS	78		25-150
STL00992	13C4 PFBA	56		25-150
STL00990	13C4 PFOA	88		25-150
STL00991	13C4 PFOS	95		25-150
STL01892	13C4-PFHpA	81		25-150
STL00995	13C5 PFNA	100		25-150
STL01893	13C5 PFPeA	68		25-150
STL01056	13C8 FOSA	88		25-150
STL00994	18O2 PFHxS	89		25-150
STL02118	d3-NMeFOSAA	98		25-150
STL02117	d5-NEtFOSAA	103		25-150
STL02279	M2-6:2FTS	196	*	25-150
STL02280	M2-8:2FTS	187	*	25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: EQUIPBLANK060618 | Lab Sample ID: 480-137275-11

Matrix: Water | Lab File ID: 2018.07.01LLA_060.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 17:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 254.7(mL) | Date Analyzed: 07/01/2018 13:52

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	1.5	J B	2.0	0.34
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.31
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.30
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.25	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.57
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.34
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.83
2706-90-3	Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.28
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: EQUIPBLANK060618 | Lab Sample ID: 480-137275-11

Matrix: Water | Lab File ID: 2018.07.01LLA_060.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 17:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 254.7(mL) | Date Analyzed: 07/01/2018 13:52

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	88		25-150
STL00998	13C2 PFDoA	87		25-150
STL00993	13C2 PFHxA	82		25-150
STL00997	13C2 PFUnA	92		25-150
STL02116	13C2-PFTeDA	89		25-150
STL02337	13C3-PFBS	79		25-150
STL00992	13C4 PFBA	84		25-150
STL00990	13C4 PFOA	81		25-150
STL00991	13C4 PFOS	84		25-150
STL01892	13C4-PFHpA	85		25-150
STL00995	13C5 PFNA	81		25-150
STL01893	13C5 PFPeA	81		25-150
STL01056	13C8 FOSA	81		25-150
STL00994	18O2 PFHxS	87		25-150
STL02118	d3-NMeFOSAA	90		25-150
STL02117	d5-NEtFOSAA	95		25-150
STL02279	M2-6:2FTS	86		25-150
STL02280	M2-8:2FTS	86		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: TRIP BLANK | Lab Sample ID: 480-137275-12

Matrix: Water | Lab File ID: 2018.07.04LLA_020.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 00:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 256.3(mL) | Date Analyzed: 07/04/2018 06:04

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232416 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	1.6	J B	2.0	0.34
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.31
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.30
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.54
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.24
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.25	J B	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.57
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.26
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.34
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.53
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.83
2706-90-3	Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.48
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.28
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: TRIP BLANK | Lab Sample ID: 480-137275-12

Matrix: Water | Lab File ID: 2018.07.04LLA_020.d

Analysis Method: 537 (modified) | Date Collected: 06/07/2018 00:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 256.3(mL) | Date Analyzed: 07/04/2018 06:04

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232416 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	105		25-150
STL00998	13C2 PFDoA	101		25-150
STL00993	13C2 PFHxA	100		25-150
STL00997	13C2 PFUnA	113		25-150
STL02116	13C2-PFTeDA	92		25-150
STL02337	13C3-PFBS	105		25-150
STL00992	13C4 PFBA	99		25-150
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	103		25-150
STL01892	13C4-PFHpA	98		25-150
STL00995	13C5 PFNA	102		25-150
STL01893	13C5 PFPeA	103		25-150
STL01056	13C8 FOSA	104		25-150
STL00994	18O2 PFHxS	101		25-150
STL02118	d3-NMeFOSAA	108		25-150
STL02117	d5-NEtFOSAA	100		25-150
STL02279	M2-6:2FTS	96		25-150
STL02280	M2-8:2FTS	113		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: PZ2060618 | Lab Sample ID: 480-137275-14

Matrix: Water | Lab File ID: 2018.07.04LLA_021.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 10:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 231.8(mL) | Date Analyzed: 07/04/2018 06:12

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232416 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	4.5	J	22	2.2
39108-34-4	8:2 FTS	22	U	22	2.2
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	22	U	22	2.0
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	22	U	22	3.3
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.2	U	2.2	0.22
375-22-4	Perfluorobutanoic acid (PFBA)	2.9	B	2.2	0.38
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.2	U	2.2	0.35
335-76-2	Perfluorodecanoic acid (PFDA)	2.2	U	2.2	0.33
307-55-1	Perfluorododecanoic acid (PFDoA)	2.2	U	2.2	0.59
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.2	U	2.2	0.20
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.85	J	2.2	0.27
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.42	J B	2.2	0.18
307-24-4	Perfluorohexanoic acid (PFHxA)	0.85	J	2.2	0.63
375-95-1	Perfluorononanoic acid (PFNA)	0.52	J	2.2	0.29
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.2	U	2.2	0.38
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23		2.2	0.58
335-67-1	Perfluorooctanoic acid (PFOA)	1.3	J	2.2	0.92
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.77	J	2.2	0.53
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.2	U	2.2	0.31
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.2	U	2.2	1.4
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.2	U	2.2	1.2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: PZ2060618 | Lab Sample ID: 480-137275-14

Matrix: Water | Lab File ID: 2018.07.04LLA_021.d

Analysis Method: 537 (modified) | Date Collected: 06/06/2018 10:00

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 231.8(mL) | Date Analyzed: 07/04/2018 06:12

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232416 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	114		25-150
STL00998	13C2 PFDoA	107		25-150
STL00993	13C2 PFHxA	97		25-150
STL00997	13C2 PFUnA	112		25-150
STL02116	13C2-PFTeDA	84		25-150
STL02337	13C3-PFBS	100		25-150
STL00992	13C4 PFBA	78		25-150
STL00990	13C4 PFOA	95		25-150
STL00991	13C4 PFOS	99		25-150
STL01892	13C4-PFHpA	97		25-150
STL00995	13C5 PFNA	101		25-150
STL01893	13C5 PFPeA	90		25-150
STL01056	13C8 FOSA	104		25-150
STL00994	18O2 PFHxS	101		25-150
STL02118	d3-NMeFOSAA	93		25-150
STL02117	d5-NEtFOSAA	124		25-150
STL02279	M2-6:2FTS	143		25-150
STL02280	M2-8:2FTS	131		25-150

Attachment 3

Support Documentation

LMC UTICA
SDG 7054419

SAMPLE IDENTIFICATION	PZ5060618VOC
COMPOUND	ACETONE
COMPOUND AREA	53297
INTERNAL STANDARD AMOUNT (ng)	250
VOLUME WATER PURGED (ml)	5
DILUTION FACTOR	1
INTERNAL STANDARD AREA	378958
CONTINUING CALIBRATION RRF	0.17346
ml to µl	1000
ng to µg	1000

40.5 µg/L

(53297 x 250ng x 1 x 1000ml X 1µg /378958 x 0.17346 x 5ml x 1L x 1000ng)

Data File: \\v70wintarget\chem\70msv1.i\061318.B\A03163.D
Report Date: 19-Jun-2018 11:10

Pace Analytical Services, Inc.

SW846-8260C/EPA 624.1

Data file : \\v70wintarget\chem\70msv1.i\061318.B\A03163.D
Lab Smp Id: 7054419001
Inj Date : 13-JUN-2018 15:39 MS Autotune Date: 01-JUN-2018 21:1
Operator : MJF Inst ID: 70msv1.i
Smp Info : 7054419001
Misc Info : 4353
Comment : SW846-8260C/EPA 624.1
Method : \\v70wintarget\chem\70msv1.i\061318.B\8260W_060518.m
Meth Date : 13-Jun-2018 17:18 70msv1.i Quant Type: ISTD
Cal Date : 05-JUN-2018 17:54 Cal File: A03073.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: calabove1.sub
Target Version: RC10A
Processing Host: 70MSV5WS10B6

Concentration Formula: Amt * DF * Uf * 1/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	Sample Volume purged (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)	REVIEW C
3 Dichlorodifluoromethane	85	Compound Not Detected.						
1 Chlorodifluoromethane	51	Compound Not Detected.						
2 Dichlorotetrafluoroethane	135	Compound Not Detected.						(D)
4 Chloromethane	50	Compound Not Detected.						(D)
5 Vinyl chloride	62	Compound Not Detected.						
6 1,3-Butadiene	54	Compound Not Detected.						
7 Acetaldehyde	44	Compound Not Detected.						(D)
8 Bromomethane	94	Compound Not Detected.						(D)
9 Chloroethane	64	Compound Not Detected.						(D)
10 Dichlorofluoromethane	67	Compound Not Detected.						
11 Trichlorofluoromethane	101	Compound Not Detected.						
12 Ethanol	45	Compound Not Detected.						(D)
13 Diethyl ether (Ethyl ether)	59	Compound Not Detected.						(D)
19 2-Propanol	45	Compound Not Detected.						(D)
16 1,1,2-Trichlorotrifluoroethane	101	Compound Not Detected.						
14 Acrolein	56	Compound Not Detected.						
15 1,1-Dichloroethene	96	Compound Not Detected.						
17 Acetone	43	2.193	2.188	(0.635)	53297	40.5408	40.5(H)	
18 Iodomethane	142	Compound Not Detected.						(D)
20 Carbon disulfide	76	Compound Not Detected.						
21 Allyl chloride	76	Compound Not Detected.						
22 Acetonitrile	41	Compound Not Detected.						

Data File: \\v70wintarget\chem\70msv1.i\061318.B\A03163.D
Report Date: 19-Jun-2018 11:10

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	CONCENTRATIONS FINAL (ug/L)		REVIEW C
	23 Methyl acetate	43	Compound Not Detected.							(D)
	24 Methylene Chloride	84	Compound Not Detected.							
	25 tert-Butyl Alcohol	59	Compound Not Detected.							(D)
	28 Methyl-tert-butyl ether	73	Compound Not Detected.							
	27 trans-1,2-Dichloroethene	96	Compound Not Detected.							(D)
	26 Acrylonitrile	53	Compound Not Detected.							(D)
	30 n-Hexane	57	Compound Not Detected.							(D)
	29 Diisopropyl ether	45	Compound Not Detected.							
	31 1,1-Dichloroethane	63	Compound Not Detected.							
	32 Vinyl acetate	43	Compound Not Detected.							
	33 Chloroprene	53	Compound Not Detected.							
	34 Ethyl-tert-butyl ether	59	Compound Not Detected.							
	54 tert-Amyl ethyl ether	59	Compound Not Detected.							
	36 2,2-Dichloropropane	77	Compound Not Detected.							
	35 cis-1,2-Dichloroethene	96	3.166	3.167	(0.917)	72028	13.3578	13.4		
	37 2-Butanone (MEK)	43	Compound Not Detected.							(D)
	39 Ethyl acetate	43	Compound Not Detected.							(D)
	38 Propionitrile	54	Compound Not Detected.							(D)
	41 Bromochloromethane	128	Compound Not Detected.							(D)
	42 Tetrahydrofuran	42	Compound Not Detected.							
	40 Methacrylonitrile	67	Compound Not Detected.							(D)
	43 Chloroform	83	Compound Not Detected.							
	46 Cyclohexane	56	Compound Not Detected.							
	45 1,1,1-Trichloroethane	97	Compound Not Detected.							
*	44 Pentafluorobenzene (IS)	168	3.454	3.449	(1.000)	378958	50.0000		(Q)	
	48 Carbon tetrachloride	117	Compound Not Detected.							(D)
	47 1,1-Dichloropropene	75	Compound Not Detected.							(D)
	55 2,2,4-Trimethylpentane	57	Compound Not Detected.							
	51 Benzene	78	Compound Not Detected.							
$	50 1,2-Dichloroethane-d4 (S)	65	3.671	3.671	(0.939)	200204	45.0417	45.0		
	56 tert-Amylmethyl ether	73	Compound Not Detected.							
	52 1,2-Dichloroethane	62	Compound Not Detected.							
	57 n-Heptane	43	Compound Not Detected.							(D)
*	58 1,4-Difluorobenzene (IS)	114	3.911	3.905	(1.000)	603231	50.0000			
	59 Trichloroethene	95	4.067	4.056	(1.040)	77712	18.5147	18.5		
	60 Methylcyclohexane	83	Compound Not Detected.							(D)
	64 1,4-Dioxane (p-Dioxane)	88	Compound Not Detected.							(D)
	61 1,2-Dichloropropane	63	Compound Not Detected.							
	63 Methyl methacrylate	69	Compound Not Detected.							(D)
	62 Dibromomethane	93	Compound Not Detected.							
	65 Bromodichloromethane	83	Compound Not Detected.							
	67 2-Chloroethylvinyl ether	63	Compound Not Detected.							(D)
	49 Isobutanol	43	Compound Not Detected.							(D)
	66 2-Nitropropane	43	Compound Not Detected.							(D)
	68 cis-1,3-Dichloropropene	75	Compound Not Detected.							
	73 n-Octane	43	Compound Not Detected.							(D)
$	70 Toluene-d8 (S)	98	4.854	4.848	(0.821)	546156	52.0522	52.0		
	71 Toluene	91	Compound Not Detected.							
	72 Methyl isothiocyanate	73	Compound Not Detected.							(D)
	74 trans-1,3-Dichloropropene	75	Compound Not Detected.							
	75 Ethyl methacrylate	69	Compound Not Detected.							
	76 1,1,2-Trichloroethane	83	Compound Not Detected.							(D)
	77 Tetrachloroethene	166	5.262	5.263	(0.890)	290266	67.3812	67.4		
	78 1,3-Dichloropropane	76	Compound Not Detected.							

LMC UTICA
SDG 7054419

SAMPLE IDENTIFICATION	MW1060618
COMPOUND	1,4-DIOXANE
COMPOUND AREA	11202
INTERNAL STANDARD AMOUNT (ng/µl)	10
DILUTION FACTOR	1
INTERNAL STANDARD AREA	292852
AVERAGE RRF	1.0533
SAMPLE VOLUME (ml)	1000
VOLUME EXTRACT (µl)	1000
VOLUME INJECTED (µl)	1
CONCENTRATION =	0.3632 µg/L

11202 x 4 ng/µl x 1000µl x 1/(292852 x 1.0533 x 1000ml x 1µl)

TestAmerica Buffalo
Target Compound Quantitation Report

Data File: \\ChromNA\Buffalo\ChromData\HP5973U\20180613-72314.b\U3308623.D
Lims ID: 480-137275-B-4-A
Client ID: MW1060618
Sample Type: Client
Inject. Date: 13-Jun-2018 22:18:30 ALS Bottle#: 13 Worklist Smp#: 13
Injection Vol: 1.0 ul Dil. Factor: 1.0000
Sample Info: 480-0072314-013
Operator ID: DR Instrument ID: HP5973U

Method: \\ChromNA\Buffalo\ChromData\HP5973U\20180613-72314.b\1,4_Dx_SIM_HP5973U.m
Limit Group: MB - 8270D SIM ID ICAL
Last Update: 14-Jun-2018 11:32:05 Calib Date: 12-Jun-2018 18:16:30
Integrator: Picker ID Type: RT Order ID
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Buffalo\ChromData\HP5973U\20180611-72232.b\U3308558.D

Column 1 : Det: MS SCAN
Process Host: XAWRK004

First Level Reviewer: richardsd Date: 14-Jun-2018 11:30:48

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ng/ul	%Rec	Flags
D	1 1,4-Dioxane-d8	96	2.258	2.217	0.041	100	292852	4.49	44.9	
	3 1,4-Dioxane	88	2.295	2.246	0.049	95	11202	0.3632		
*	2 1,4-Dichlorobenzene-d4	152	5.603	5.603	0.000	98	602982	4.00		

Reagents:

MB_LLIS_WRK_00148 Amount Added: 20.00 Units: uL Run Reagent

LMC UTICA
SDG 7054419

SAMPLE IDENTIFICATION	MW21060718
COMPOUND	PERFLUOROHEXANOIC ACID (PFHXA)
COMPOUND AREA	1707615
INTERNAL STANDARD AMOUNT (ng/ml)	2.5
DILUTION FACTOR	1
INTERNAL STANDARD AREA	3994576
AVERAGE RRF	1.0344
SAMPLE VOLUME (ml)	253.5
VOLUME EXTRACT (ml)	10
ml to L	1000

CONCENTRATION = 41 ng/L

1707615 x 2.5ng/ml x 1000ml x 10ml x 1/(3994576 x 1.0344 x 253.5ml x 1L)

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180630-60513.b\2018.07.01LLA_056.d
Lims ID: 480-137275-C-9-A
Client ID: MW21060718
Sample Type: Client
Inject. Date: 01-Jul-2018 13:21:42 ALS Bottle#: 42 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 480-137275-c-9-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180630-60513.b\A8_N.m
Limit Group: LC PFC ICAL
Last Update: 02-Jul-2018 15:32:56 Calib Date: 29-Jun-2018 22:16:07
Integrator: Picker
Quant Method: Isotopic Dilution Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180630-60479.b\2018.06.29LLICALA_008.d

Column 1 : Det: EXP1
Process Host: XAWRK019

First Level Reviewer: ruangyotsakuld Date: 02-Jul-2018 15:32:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	%Rec	S/N	Flags
D 1 13C4 PFBA										M
217.00 > 172.00	1.424	1.422	0.002	0.537	3731239	1.21		48.3	14782	M
2 Perfluorobutyric acid										M
212.90 > 169.00	1.424	1.435	-0.011	1.000	553670	0.3646			13.8	M
D 3 13C5-PFPeA										
267.90 > 223.00	1.702	1.698	0.004	0.642	3304093	1.52		61.0	7693	
4 Perfluoropentanoic acid										M
262.90 > 219.00	1.702	1.711	-0.009	1.000	1825998	1.16			52.4	M
D 47 13C3-PFBS										
301.90 > 83.00	1.738	1.734	0.004	0.655	78511	1.64		70.7	157	
5 Perfluorobutanesulfonic acid										M
298.90 > 80.00	1.729	1.747	-0.018	0.995	22753	0.008732			0.3	M
298.90 > 99.00	1.738	1.747	-0.009	1.000	9505		2.39(1.25-3.74)		4.8	
D 7 13C2 PFHxA										
315.00 > 270.00	1.981	1.977	0.004	0.747	3994576	1.68		67.3	44642	
6 Perfluorohexanoic acid										M
313.00 > 269.00	1.981	1.991	-0.010	1.000	1707615	1.03			140	M
313.00 > 119.00	1.981	1.991	-0.010	1.000	160390		10.65(5.03-15.10)		316	
D 64 13C3 HFPO-DA										
332.10 > 287.00	2.071	2.067	0.004	0.781	180888	1.61		64.4	1278	
D 9 13C4-PFHpA										
367.00 > 322.00	2.306	2.290	0.016	0.870	3982436	1.81		72.4	37969	
D 11 18O2 PFHxS										
403.00 > 84.00	2.319	2.303	0.016	0.874	4871408	1.90		80.2	44171	
10 Perfluoroheptanoic acid										
363.00 > 319.00	2.306	2.306	0.0	1.000	336106	0.1902			62.6	
363.00 > 169.00	2.306	2.306	0.0	1.000	142896		2.35(1.13-3.40)		643	

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
CIS-1,2-DICHLOROETHENE	2.5	2.3	1	8.33	FALSE	TRUE	TRUE	FALSE
VINYL CHLORIDE	1.1	2.1	1	62.50	TRUE	FALSE	TRUE	FALSE

SDG 7054419

MW4060718VOC/MW4060718VOC DUP

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
1,4-DIOXANE	2.2	2	1	9.52	FALSE	TRUE	FALSE	FALSE
PENTADECAFLUOROOCTANOIC ACID (PFOA)	7.7	6.3	2	20.00	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEPTANOIC ACID (PFHPA)	7.5	6.6	2	12.77	FALSE	TRUE	TRUE	FALSE
PERFLUOROHEXANOIC ACID (PFHXA)	41	33	2	21.62	FALSE	TRUE	TRUE	TRUE
PERFLUOROOCTANESULFONIC ACID (PFOS)	26	20	2	26.09	FALSE	TRUE	TRUE	TRUE
PERFLUOROPENTANOIC ACID (PFPEA)	46	32	2	35.90	TRUE	TRUE	TRUE	TRUE

SDG 7054419

MW21060718/MW21060718 DUP

WO#: 7054419

7054419

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2203724

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Tetra Tech	Report To: Pat McGuire	Attention: Pat McGuire
Address: 1200 Scottsville Rd, Bldg C #181 Rochester, NY 14624	Copy To: Hanni.Haynes@tetratech.com Ali.Flake@tetratech.com	Company Name: Tetra Tech
Email To: Pat.McGuire2@tetratech.com	Purchase Order No.:	Address: Pat.McGuire2@tetratech.com
Phone: Fax:	Project Name: LMC Utica	Pace Quote Reference:
Requested Due Date/TAT: Standard	Project Number: 194-8898	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: VOCs-SW8260	PFAs	1,4-Dioxane	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PZ506060618VOC	WT	G	6/6/18	1740				1				X					X				001
2	PZ13R060718VOC			6/7/18	1200				2				X					X				002
3	AIPZ2060618VOC			060618	1920				2				X					X				003
4	MW1060618VOC			060618	1830				2				X					X				004
5	MW4060718VOC			060718	1115				2				X					X				005
6	MW4060718VOC DUP			060718	1120				2				X					X				006
7	PZ6060618VOC			060618	1750				1				X					X				007
8	MW10060718VOC			060718	1145				2				X					X				008
9	EquipBlankO60618			060618	1700				2				X					X				009
10	MW21060618VOC			060618	1910				2				X					X				010
11	MW20060718VOC			060718	800				2				X					X				011
12	MW2060718VOC	↓	↓	060718	1000				2				X					X				012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Hanni Haynes/TetraTech	6/7/18	810	PACE	6/7/18	18:10	
	PACE	6/8/18	17:00		6/9/18	10303	1 4 4 4
							42
							56

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Hanni Haynes

SIGNATURE of SAMPLER: Hanni Haynes DATE Signed (MM/DD/YY): 06/07/18

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

WO#:7054419

PM: JDS Due Date: 06/20/18

CLIENT: TETRA

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

2203728

Section A Required Client Information		Section B Required Project Information		Section C Invoice Information	
Company:	Tetra Tech	Report To:	Pat. McGuire	Attention:	Pat McGuire
Address:	1200 Scottsville Rd	Copy To:	Hanni.Haynes@tetratech.com	Company Name:	Tetra Tech
	Bldg C, #181 Rochester NY 14624		Ali.Flake@tetratech.com	Address:	Pat.McGuire2@tetratech.com
Email To:	Pat.McGuire2@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	Fax:	Project Name:	LMC Utica	Pace Project Manager:	
Requested Due Date/TAT:	standard	Project Number:	194-8898	Pace Profile #:	

REGULATORY AGENCY

- NPDES
- GROUND WATER
- DRINKING WATER
- UST
- RCRA
- OTHER ____________

Site Location STATE: ______

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N N N

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	VOCs-SW8260	PFAs	1,4-Dioxane	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Trip Blank	WT	QC	060718	—				2				X					X				013
2	MWF060618	↓	G	060618	0915				4	X									X	X		014
3	MW23060618		↓	060618	0830				4	X									X	X		015
4	MW5060518			060518	1645				4	X									X	X		016
5	MW1060618			060618	1140				4	X									X	X		017
6	PZ8060618 not analyzed			060618	1030				1	X									X			low volume 018
7	PZ11R060618			060618	1100				3	X									X	X		low volume 1,4-Dioxane 019
8	PZ2060618			060618	1000				2	X									X			low volume 020
9	MW21060618			060618	1510				4	X								DO NOT ANALYZE				REJECT
10	OW1060518			060518	1530				4	X									X	X		021
11	A1PZ2060618			060618	1440				4	X									X	X		022
12	MW13BR060618	↓	↓	060618	1230				4	X									X	X		023

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Hanni Haynes/Tetra Tech	6/7/18	1810	[signature] PACE	6/7/18	18:10				
	[signature] PACE	6/8/18	17:00	[signature] Pace	6/9/18	1030	3.1	Y	Y	✓
							4.2			
							5.6			
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Hanni Haynes

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/07/18

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 3

2203726

Section A
Required Client Information:

Company:	Tetra Tech
Address:	1200 Scottsville Rd, Bldg C #181 Rochester, NY 14624
Email To:	Pat.McGuire2@tetratech.com
Phone:	Fax:
Requested Due Date/TAT:	Standard

Section B
Required Project Information:

Report To:	Pat McGuire
Copy To:	Hanni.Haynes@tetratech.com Ali.Fiake@tetratech.com
Purchase Order No.:	
Project Name:	LMC Utica
Project Number:	194-8898

Section C
Invoice Information:

Attention:	Pat McGuire
Company Name:	Tetra Tech
Address:	Pat.McGuire2@tetratech.com
Pace Quote Reference:	
Pace Project Manager:	
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER ________

Site Location STATE: ________

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N N N

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	VOCs-SW8260	PFAs	1,4-Dioxane	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW21060718MSMSD	WT	G	060718	0920				8	X										X	X		024
2	MW21060718	|	|	060718	0900				4	X										X	X		↓
3	MW21060718DUP	|	|	060718	0910				4	X										X	X		025
4	EquipBlank060618	|	|	060618	1700				4	X										X	X		026
5	Trip Blank	|	QC	060718	—				4	X										X	X		VOC TB on page 2. 027
6																							PFOA dated May, 29 2018
7	MW3060718VOC added by laboratory, missing from COC																						
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Hanni Haynes / Tetra Tech	6/7/18	1810	[signature] PACE	6/7/18	18:10				
	[signature] PACE	6/8/18	17:00	[signature] / Pace	6/9/18	10:3[illegible]	3.1	Y	Y	Y
							4.2			
							5.6			
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Hanni Haynes

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/07/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: Tetra

Pro

WO#:7054419

PM: JDS Due Date: 06/20/18

CLIENT: TETRA

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking #: 7704 3450 3581

Custody Seal on Cooler/Box Present: ☐ Yes ☐ No Seals intact: ☑ Yes ☐ No

Temperature Blank Present: ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☑ Ziploc ☐ None ☐ Other

Type of Ice: Wet Blue None

Thermometer Used: TH091 Correction Factor: 0.0

☐ Samples on ice, cooling process has begun

Cooler Temperature (°C): 3.1 4.2 Cooler Temperature Corrected (°C): 3.1 4.2 Date/Time 5035A kits placed in freezer _____

Temp should be above freezing to 6.0°C 5.6 3.6

USDA Regulated Soil (☑ N/A, water sample) Date and Initials of person examining contents: JK 6/9/18

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA (check map)? ☐ YES ☐ NO

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-LI-C-010) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present:	☑Yes	☐No		1.
Chain of Custody Filled Out:	☑Yes	☐No		2.
Chain of Custody Relinquished:	☑Yes	☐No		3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No		5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No		6.
Rush Turn Around Time Requested:	☐Yes	☑No		7.
Sufficient Volume: (Triple volume provided for MS/MSD)	☑Yes	☐No		8.
Correct Containers Used:	☑Yes	☐No		9.
-Pace Containers Used:	☑Yes	☐No		
Containers Intact:	☑Yes	☐No		10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11. Note if sediment is visible in the dissolved container.
Sample Labels match COC:	☑Yes	☐No		12. Sample -028 was not on COC but received bottles, logged at end of work order AW 6/11
-Includes date/time/ID/Analysis Matrix: SL WT OIL				
All containers needing preservation have been checked	☐Yes	☐No	☑N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
pH paper Lot #				Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl, NaOH>9 Sulfide, NAOH>12 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil and Grease, DRO/8015 (water). Per Method, VOA pH is checked after analysis	☐Yes	☐No	☑N/A	Initial when completed: / Lot # of added preservative: / Date/Time preservative added
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
KI starch test strips Lot #				Positive for Res. Chlorine? Y N
Residual chlorine strips Lot #				
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A	15.
Trip Blank Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if applicable): _____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

* PM (Project Manager) review is documented electronically in LIMS.

F-LI-C-003-Rev.11

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 7054419 **Workorder Name:** LMC UTICA 6/6 **Results Requested By:** 6/20/2018

Report / Invoice To	Subcontract To
John D. Stanton Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: john.stanton@pacelabs.com	P.O. TA-Bnft

State of Sample Origin: NY

480-137275 COC

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Other					1,4 DIOXANE												LAB USE ONLY
1	MWF060618	6/6/2018 09:15	7054419014	Water							X												
2	MW23060618	6/6/2018 08:30	7054419015	Water							X												
3	MW5060518	6/5/2018 16:45	7054419016	Water							X												
4	MW1060618	6/6/2018 11:40	7054419017	Water							X												
5	PZ11R060618	6/6/2018 11:00	7054419019	Water							X												
6	OW1060518	6/5/2018 15:30	7054419021	Water							X												
7	A1PZ2060618	6/6/2018 14:40	7054419022	Water							X												
8	MW14BR060618	6/6/2018 12:30	7054419023	Water							X												
9	MW21060718	6/7/2018 09:20	7054419024	Water							X												
10	MW21060718 DUP	6/7/2018 09:10	7054419025	Water							X												
11	EQUIPBLANK060618	6/6/2018 17:00	7054419026	Water							X												
12	TRIP BLANK	6/7/2018 00:00	7054419027	Water							X												
13																							
14																							
15																							
16																							

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Ann Pitt	6/11/18 1800	Christov Cikolb TA	6/12/18 0945	
2					
3					

Cooler Temperature on Receipt ___ °C | Custody Seal Y or N | Received on Ice (Y) or N | Samples Intact (Y) or N

temp 3.2 4.0 3.3 2.7 2.4 #1 ICE

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 7054419 **Workorder Name:** LMC UTICA 6/6 **Results Requested By:** 6/20/2018

Report / Invoice To	Subcontract To
John D. Stanton Pace Analytical Melville 575 Broad Hollow Road Melville, NY 11747 Phone (631)694-3040 Email: john.stanton@pacelabs.com	P.O.________ TA-Buff

State of Sample Origin: NY

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Preserved Containers: Other	Requested Analysis: EPA 537 PFAs	LAB USE ONLY
1	MWF060618	6/6/2018 09:15	7054419014	Water			X	
2	MW23060618	6/6/2018 08:30	7054419015	Water			X	
3	MW5060518	6/5/2018 16:45	7054419016	Water			X	
4	MW1060618	6/6/2018 11:40	7054419017	Water			X	
5	PZ8060618	6/6/2018 10:30	7054419018	Water			X	
6	PZ11R060618	6/6/2018 11:00	7054419019	Water			X	
7	PZ2060618	6/6/2018 10:00	7054419020	Water			X	
8	OW1060518	6/5/2018 15:30	7054419021	Water			X	
9	A1PZ2060618	6/6/2018 14:40	7054419022	Water			X	
10	MW14BR060618	6/6/2018 12:30	7054419023	Water			X	
11	MW21060718	6/7/2018 09:20	7054419024	Water			X	
12	MW21060718 DUP	6/7/2018 09:10	7054419025	Water			X	

13	EQUIPBLANK060618	6/6/2018 17:00	7054419026	Water							X														
14	TRIP BLANK	6/7/2018 00:00	7054419027	Water							X														
15																									
16																									
17																									
18																									

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	[signature]	6/11/18 1800	[signature] TA	6/12/18	$945
2					
3					

Cooler Temperature on Receipt °C	Custody Seal (Y) or N	Received on Ice (Y) or N	Samples Intact (Y) or N

Temp 3.2 4.0 3.3 2.7 2.4 #1 ICE

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-42822.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	State of Origin: New York	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137275-1
Address: 880 Riverside Parkway,	Due Date Requested: 6/22/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Pace Analytical, Melville, NY	Project #: 48017701			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MWF060618 (480-137275-1)	6/6/18	09:15 Eastern		Water			X	2	
MW23060618 (480-137275-2)	6/6/18	08:30 Eastern		Water			X	2	
MW5060518 (480-137275-3)	6/5/18	16:45 Eastern		Water			X	2	
MW1060618 (480-137275-4)	6/6/18	11:40 Eastern		Water			X	2	
PZ11R060618 (480-137275-5)	6/6/18	11:00 Eastern		Water			X	2	
OW1060518 (480-137275-6)	6/5/18	15:30 Eastern		Water			X	2	
A1PZ2060618 (480-137275-7)	6/6/18	14:40 Eastern		Water			X	2	
MW14BR060518 (480-137275-8)	6/6/18	12:30 Eastern		Water			X	2	
MW21060718 (480-137275-9)	6/7/18	09:20 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		6/12/18 715			6/13/18 920	TA-Sac
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ yes ☐ no | Custody Seal No.: 010028 | Cooler Temperature(s) °C and Other Remarks: 0.5

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schove, John R	Carrier Tracking No(s):	COC No: 480-42822.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: john.schove@testamericainc.com	State of Origin: New York	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-137275-1
Address: 880 Riverside Parkway,	Due Date Requested: 6/22/2018			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Pace Analytical, Melville, NY	Project #: 48017701			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW21060718 (480-137275-9MS)	6/7/18	09:20 Eastern	MS	Water			X	2	
MW21060718 (480-137275-9MSD)	6/7/18	09:20 Eastern	MSD	Water			X	2	
MW21060718 DUP (480-137275-10)	6/7/18	09:10 Eastern		Water			X	2	
EQUIPBLANK060618 (480-137275-11)	6/6/18	17:00 Eastern		Water			X	2	
TRIP BLANK (480-137275-12)	6/7/18	Eastern		Water			X	2	
PZ2060618 (480-137275-14)	6/6/18	10:00 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	6/12/18 1715	[illegible]	[signature]	6/13/18 920	TA-Sac
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
☒ Yes ☐ No	010028	0.5

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 480-137275-1

Login Number: 137275
List Number: 1
Creator: Kolb, Chris M

List Source: TestAmerica Buffalo

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

Login Sample Receipt Checklist

Client: Pace Analytical Services, LLC

Job Number: 480-137275-1

Login Number: 137275
List Number: 2
Creator: Gooch, Mayce

List Source: TestAmerica Sacramento
List Creation: 06/13/18 01:35 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	010028
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.5c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	False	Received extra samples not listed on COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

September 04, 2018

Joseph Samchuck
Tetra Tech Inc.
661 Andersen Drive
Plaza 7
Pittsburgh, PA 15220

RE: Project: LMC UTICA 6/6
Pace Project No.: 7054419

Dear Joseph Samchuck:
Enclosed are the analytical results for sample(s) received by the laboratory on June 09, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses have been subcontracted outside of the Pace Network. The subcontracted laboratory report has been attached.

Report re-issued 7/24/18 for edited Sub-contractors report.

Report re-issued 8/20/18 to include analytes for Freon 113 and Freon 12 at client's request

Report re-issued 8/31/18 to include additional analytes at client's request

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

John D. Stanton
john.stanton@pacelabs.com
(631)694-3040
Project Manager

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

Enclosures

cc: Pat McGuire, Tetra Tech
Glenn Netuschil, Tetra Tech Inc.
Peter Rich, Tetra Tech Inc.
Ashley Weimer, Tetra Tech
Michelle Woeber, Tetra Tech Inc.

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Method: **EPA 8260C/5030C**
Description: 8260C Volatile Organics
Client: Tetra Tech Inc.
Date: September 04, 2018

General Information:
14 samples were analyzed for EPA 8260C/5030C. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: 71308

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- A1PZ2060618VOC (Lab ID: 7054419003)
  - Dichlorodifluoromethane
- BLANK (Lab ID: 327090)
  - Dichlorodifluoromethane
- DUP (Lab ID: 327092)
  - Dichlorodifluoromethane
- EQUIPBLANK060618 (Lab ID: 7054419009)
  - Dichlorodifluoromethane
- LCS (Lab ID: 327091)
  - Dichlorodifluoromethane
- MW10060718VOC (Lab ID: 7054419008)
  - Dichlorodifluoromethane
- MW1060618VOC (Lab ID: 7054419004)
  - Dichlorodifluoromethane
- MW21060618VOC (Lab ID: 7054419010)
  - Dichlorodifluoromethane
- MW4060718VOC (Lab ID: 7054419005)
  - Dichlorodifluoromethane
- MW4060718VOC DUP (Lab ID: 7054419006)
  - Dichlorodifluoromethane
- PZ13R060718VOC (Lab ID: 7054419002)
  - Dichlorodifluoromethane

QC Batch: 71514

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- BLANK (Lab ID: 327960)
  - Dichlorodifluoromethane
- DUP (Lab ID: 327963)
  - Dichlorodifluoromethane
- LCS (Lab ID: 327961)
  - Dichlorodifluoromethane

Pace Analytical Services, LLC
575 Broad Hollow Road
Melville, NY 11747
(631)694-3040

PROJECT NARRATIVE

Project: LMC UTICA 6/6
Pace Project No.: 7054419

Method: **EPA 8260C/5030C**
Description: 8260C Volatile Organics
Client: Tetra Tech Inc.
Date: September 04, 2018

QC Batch: 71514

CL: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

- MS (Lab ID: 327962)
  - Dichlorodifluoromethane
- MW20060718VOC (Lab ID: 7054419011)
  - Dichlorodifluoromethane
- MW2060718VOC (Lab ID: 7054419012)
  - Dichlorodifluoromethane
- MW3060718VOC (Lab ID: 7054419028)
  - Dichlorodifluoromethane
- PZ5060618VOC (Lab ID: 7054419001)
  - Dichlorodifluoromethane
- PZ6060618VOC (Lab ID: 7054419007)
  - Dichlorodifluoromethane
- TRIP BLANK (Lab ID: 7054419013)
  - Dichlorodifluoromethane

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 71308

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 327091)
  - Ethylbenzene
  - Tetrachloroethene

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

Job Narrative
480-137275-1

Revision
This report has been revised to correct a sample ID: MW14BR060618 (480-137275-8) to MW13BR060618 (480-137275-8).

Revision II
This report was revised to add the following comment to the case narrative: Due to system limitations, that graphics for sample "MW-13BR" are identified with "MW-14BR" on pages 566-568, 758, 760, 765-767 of this report.

Receipt
The samples were received on 6/12/2018 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.4º C, 2.7º C, 3.2º C, 3.3º C and 4.0º C.

Receipt Exceptions

Lab was provided additional volume for possible MS/MSD QC. QC was added and methods assigned: MW21060718 (480-137275-9), MW21060718 (480-137275-9[MS]) and MW21060718 (480-137275-9[MSD]).

Lab was provided insufficient volume for analysis. 1 250ml poly with less than 7ml of volume was received. Method was assigned and placed at cancel status: PZ8060618 (480-137275-13).

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): PZ8060618 (480-137275-13) and PZ2060618 (480-137275-14). The container label -B-14 (which no longer exists) was applied to -C-14; we replaced the label on the bottle with the -C-14 labels. Also, we received sample bottle -A-13 although it is not listed on the COC received from Buffalo.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The following samples were diluted due to color: MW21060718 (480-137275-9), MW21060718 (480-137275-9[MS]), MW21060718 (480-137275-9[MSD]) and MW21060718 DUP (480-137275-10). Elevated reporting limits (RL) are provided.

Method(s) 8270D SIM ID: The 1,4-Dioxane result reported for the laboratory control sample (LCS) associated with preparation batch 480-419185 and analytical batch 480-419458 has an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope.

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

LCMS
Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery for M2-6:2FTS and M2-8:2FTS are above the method recommended limit for the following samples: MW21060718 (480-137275-9), MW21060718 (480-137275-9[MS]), MW21060718 (480-137275-9[MSD]) and MW21060718 DUP (480-137275-10). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The matrix spike (MS) recoveries for Perfluoropentanoic acid (PFPeA) and Perfluorooctanesulfonic acid (PFOS) preparation batch 320-229051 and analytical batch 320-231951 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 537 (modified): The matrix spike duplicate (MSD) recoveries for Perfluoropentanoic acid (PFPeA) forpreparation batch 320-229051 and analytical batch 320-231951 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Organic Prep
Method(s) 3510C: Due to the matrix, the initial volume(s) used for the following samples deviated from the standard procedure: MWF060618 (480-137275-1), MW23060618 (480-137275-2), MW5060518 (480-137275-3), PZ11R060618 (480-137275-5), OW1060518 (480-137275-6), A1PZ2060618 (480-137275-7) and MW13BR060618 (480-137275-8). The reporting limits (RLs) have been adjusted proportionately.

Method(s) 3535: The following samples: MWF060618 (480-137275-1), MW23060618 (480-137275-2), MW5060518 (480-137275-3), MW1060618 (480-137275-4), PZ11R060618 (480-137275-5), OW1060518 (480-137275-6), A1PZ2060618 (480-137275-7), MW13BR060618 (480-137275-8), MW21060718 (480-137275-9), MW21060718 (480-137275-9[MS]), MW21060718 (480-137275-9[MSD]), MW21060718 DUP (480-137275-10) and PZ2060618 (480-137275-14) were decanted prior to extraction, due to containing an excess of fine sediment that had the potential to clog the solid-phase column.

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

Qualifiers

GC/MS Semi VOA

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

LCMS

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

Glossary

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

Sample Summary

Client: Pace Analytical Services, LLC
Project/Site: LMC UTICA 6/6

TestAmerica Job ID: 480-137275-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-137275-1	MWF060618	Water	06/06/18 09:15	06/12/18 09:45
480-137275-2	MW23060618	Water	06/06/18 08:30	06/12/18 09:45
480-137275-3	MW5060518	Water	06/05/18 16:45	06/12/18 09:45
480-137275-4	MW1060618	Water	06/06/18 11:40	06/12/18 09:45
480-137275-5	PZ11R060618	Water	06/06/18 11:00	06/12/18 09:45
480-137275-6	OW1060518	Water	06/05/18 15:30	06/12/18 09:45
480-137275-7	A1PZ2060618	Water	06/06/18 14:40	06/12/18 09:45
480-137275-8	MW13BR060618	Water	06/06/18 12:30	06/12/18 09:45
480-137275-9	MW21060718	Water	06/07/18 09:20	06/12/18 09:45
480-137275-10	MW21060718 DUP	Water	06/07/18 09:10	06/12/18 09:45
480-137275-11	EQUIPBLANK060618	Water	06/06/18 17:00	06/12/18 09:45
480-137275-12	TRIP BLANK	Water	06/07/18 00:00	06/12/18 09:45
480-137275-14	PZ2060618	Water	06/06/18 10:00	06/12/18 09:45

Method Summary

Client: Pace Analytical Services, LLC
Project/Site: LMC UTICA 6/6

TestAmerica Job ID: 480-137275-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

MSV - FORM II VOA-1
WATER VOLATILE SURROGATE RECOVERY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Instrument ID: 70MSV1

LAB SAMPLE ID	SAMPLE NAME	12D4	BFB	TOL8
327090	327090BLANK	94	98	102
327091	327091LCS	92	100	101
327092	327092DUP	89	102	100
7054419002	PZ13R060718VOC	92	100	98
7054419003	A1PZ2060618VOC	86	104	102
7054419004	MW1060618VOC	93	102	101
7054419005	MW4060718VOC	87	98	96
7054419006	MW4060718VOC DUP	86	98	98
7054419008	MW10060718VOC	89	98	103
7054419009	EQUIPBLANK060618	89	97	92
7054419010	MW21060618VOC	86	103	101

	QC LIMITS
(12D4) = 1,2-Dichloroethane-d4 (S)	(68-153)
(BFB) = 4-Bromofluorobenzene (S)	(79-124)
(TOL8) = Toluene-d8 (S)	(69-124)

* Values outside of QC Limits

MSV - FORM II VOA-2
WATER VOLATILE SURROGATE RECOVERY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Instrument ID: 70MSV1

LAB SAMPLE ID	SAMPLE NAME	12D4	BFB	TOL8
327960	327960BLANK	94	98	104
327961	327961LCS	91	110	104
327962	327962MS	100	102	104
327963	327963DUP	94	98	103
7054419001	PZ5060618VOC	90	103	104
7054419007	PZ6060618VOC	94	104	107
7054419011	MW20060718VOC	89	103	98
7054419012	MW2060718VOC	86	95	99
7054419013	TRIP BLANK	87	93	95
7054419028	MW3060718VOC	90	99	97

	QC LIMITS
(12D4) = 1,2-Dichloroethane-d4 (S)	(68-153)
(BFB) = 4-Bromofluorobenzene (S)	(79-124)
(TOL8) = Toluene-d8 (S)	(69-124)

* Values outside of QC Limits

MSV - FORM VIII VOA-1
MSV INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Sample ID : 10288191CCV Date Analyzed: 06/12/2018

Instrument ID: 70MSV1 GC Column: Col 1 Time Analyzed: 11:49

Lab File ID: 061218.B\A03133.D

		AREA CBZ	RT	AREA DCB	RT	AREA DFB	RT	AREA PFB	RT
12 HOUR STD		292377	5.888	264308	7.714	597599	3.894	381324	3.443
UPPER LIMIT		584754	6.388	528616	8.214	1195198	4.394	762648	3.943
LOWER LIMIT		146188.5	5.388	132154	7.214	298799.5	3.394	190662	2.943
LAB SAMPLE ID	SAMPLE NO.								
327090	327090BLANK	322273	5.895	267204	7.715	616160	3.895	384077	3.444
327091	327091LCS	278962	5.895	246162	7.715	546636	3.895	348587	3.444
327092	327092DUP	340575	5.9	269486	7.72	658269	3.9	398650	3.45
7054419002	PZ13R060718VOC	302752	5.902	249005	7.715	566330	3.901	357346	3.451
7054419003	A1PZ2060618VOC	332731	5.895	272568	7.72	651308	3.9	394428	3.45
7054419004	MW1060618VOC	293368	5.901	245878	7.72	565094	3.9	352828	3.45
7054419005	MW4060718VOC	341609	5.901	281079	7.721	657954	3.901	407899	3.444
7054419006	MW4060718VOC DUP	288966	5.899	232875	7.719	564626	3.899	350173	3.449
7054419008	MW10060718VOC	331003	5.898	255933	7.718	672757	3.904	393746	3.447
7054419009	EQUIPBLANK060618	329075	5.895	269964	7.721	607211	3.901	382000	3.444
7054419010	MW21060618VOC	293319	5.9	233308	7.72	563371	3.9	351534	3.45

CBZ = Chlorobenzene-D5 (IS)
DCB = 1,4-Dichlorobenzene-d4 (IS)
DFB = 1,4-Difluorobenzene (IS)
PFB = Pentafluorobenzene (IS)

AREA UPPER LIMIT = 200% of Internal Standard Area
AREA LOWER LIMIT = 50% of Internal Standard Area
RT UPPER LIMIT = +0.50 minutes of Internal Standard RT
RT LOWER LIMIT = -0.50 minutes of Internal Standard RT

* Values outside of QC Limits

MSV - FORM VIII VOA-1
MSV INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Sample ID : 10310371CCV Date Analyzed: 06/13/2018

Instrument ID: 70MSV1 GC Column: Col 1 Time Analyzed: 13:19

Lab File ID: 061318.B\A03158.D

		AREA CBZ	RT	AREA DCB	RT	AREA DFB	RT	AREA PFB	RT
12 HOUR STD		313361	5.9	278144	7.726	659812	3.906	412488	3.449
UPPER LIMIT		626722	6.4	556288	8.226	1319624	4.406	824976	3.949
LOWER LIMIT		156680.5	5.4	139072	7.226	329906	3.406	206244	2.949
LAB SAMPLE ID	SAMPLE NO.								
327960	327960BLANK	329103	5.905	292352	7.725	643140	3.911	417976	3.454
327961	327961LCS	298474	5.906	273362	7.726	608081	3.906	381995	3.456
327962	327962MS	318203	5.912	297311	7.732	637793	3.912	406128	3.462
327963	327963DUP	322645	5.912	262086	7.732	656227	3.912	392339	3.462
7054419001	PZ5060618VOC	295138	5.911	238576	7.731	603231	3.911	378958	3.455
7054419007	PZ6060618VOC	338783	5.908	288002	7.734	669501	3.908	419000	3.458
7054419011	MW20060718VOC	301686	5.912	246441	7.726	624581	3.912	386533	3.456
7054419012	MW2060718VOC	336627	5.912	255420	7.732	651365	3.906	420790	3.456
7054419013	TRIP BLANK	321886	5.913	257278	7.733	622925	3.907	371681	3.457
7054419028	MW3060718VOC	344137	5.925	279473	7.745	670964	3.919	405326	3.469

CBZ = Chlorobenzene-D5 (IS)
DCB = 1,4-Dichlorobenzene-d4 (IS)
DFB = 1,4-Difluorobenzene (IS)
PFB = Pentafluorobenzene (IS)

AREA UPPER LIMIT = 200% of Internal Standard Area
AREA LOWER LIMIT = 50% of Internal Standard Area
RT UPPER LIMIT = +0.50 minutes of Internal Standard RT
RT LOWER LIMIT = -0.50 minutes of Internal Standard RT

* Values outside of QC Limits

SAMPLE NO.

327090BLANK

MSV - FORM IV VOA-1
VOLATILE METHOD BLANK SUMMARY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Instrument ID: 70MSV1 Matrix: Water Lab Sample ID: 327090

Lab File ID: 061218.B\A03135.D Date Analyzed: 06/12/2018 Time: 13:04

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	ANALYZED
327091LCS	327091	061218.B\A03136.D	06/12/2018 13:25
MW21060618VOC	7054419010	061218.B\A03145.D	06/12/2018 17:41
EQUIPBLANK060618	7054419009	061218.B\A03146.D	06/12/2018 18:02
MW10060718VOC	7054419008	061218.B\A03147.D	06/12/2018 18:23
MW4060718VOC DUP	7054419006	061218.B\A03148.D	06/12/2018 18:43
MW4060718VOC	7054419005	061218.B\A03149.D	06/12/2018 19:04
MW1060618VOC	7054419004	061218.B\A03150.D	06/12/2018 19:25
A1PZ2060618VOC	7054419003	061218.B\A03151.D	06/12/2018 19:46
PZ13R060718VOC	7054419002	061218.B\A03152.D	06/12/2018 20:07
327092DUP	327092	061218.B\A03153.D	06/12/2018 20:27

SAMPLE NO.

BLANK

MSV - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York Contract: LMC UTICA 6/6

Date Received: Matrix: Water SDG No.: 7054419

Date Extracted: 06/12/2018 13:04 Lab Sample ID: 327090

Date Analyzed: 06/12/2018 13:04 Lab File ID: 061218.B\A03135.D

Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1 Instrument: 70MSV1 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<5.0	U
71-43-2	Benzene	<1.0	U
108-90-7	Chlorobenzene	<1.0	U
75-00-3	Chloroethane	<1.0	U
95-50-1	1,2-Dichlorobenzene	<1.0	U
541-73-1	1,3-Dichlorobenzene	<1.0	U
106-46-7	1,4-Dichlorobenzene	<1.0	U
75-71-8	Dichlorodifluoromethane	<1.0	U
75-34-3	1,1-Dichloroethane	<1.0	U
107-06-2	1,2-Dichloroethane	<1.0	U
75-35-4	1,1-Dichloroethene	<1.0	U
156-59-2	cis-1,2-Dichloroethene	<1.0	U
156-60-5	trans-1,2-Dichloroethene	<1.0	U
142-28-9	1,3-Dichloropropane	<1.0	U
10061-01-5	cis-1,3-Dichloropropene	<1.0	U
10061-02-6	trans-1,3-Dichloropropene	<1.0	U
100-41-4	Ethylbenzene	<1.0	U
75-09-2	Methylene Chloride	<1.0	U
127-18-4	Tetrachloroethene	<1.0	U
108-88-3	Toluene	<1.0	U
71-55-6	1,1,1-Trichloroethane	<1.0	U
79-00-5	1,1,2-Trichloroethane	<1.0	U
79-01-6	Trichloroethene	<1.0	U
76-13-1	1,1,2-Trichlorotrifluoroethane	<1.0	U
75-01-4	Vinyl chloride	<1.0	U
1330-20-7	Xylene (Total)	<3.0	U
179601-23-1	m&p-Xylene	<2.0	U
95-47-6	o-Xylene	<1.0	U

MSV - FORM III VOA-1

WATER LABORATORY CONTROL SAMPLE RECOVERY

Lab Name: Pace Analytical - New York | Lab Sample ID: 327091LCS

Date Extracted: 06/12/2018 | Date Analyzed (1): 06/12/2018

Instrument: 70MSV1 | LCS Lot No: 45785

Lab File ID: 061218.B\A03136.D | SDG No.: 7054419

COMPOUND	AMOUNT ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS %REC	QC LIMITS REC.
Acetone	50.0	41.5	83	23-188
Benzene	50.0	53.4	107	73-119
Chlorobenzene	50.0	51.9	104	75-113
Chloroethane	50.0	45.0	90	49-151
1,2-Dichlorobenzene	50.0	53.8	108	74-113
1,3-Dichlorobenzene	50.0	54.5	109	71-112
1,4-Dichlorobenzene	50.0	55.2	110	71-113
Dichlorodifluoromethane	50.0	26.7	53	22-154
1,1-Dichloroethane	50.0	53.0	106	83-151
1,2-Dichloroethane	50.0	45.3	91	74-129
1,1-Dichloroethene	50.0	49.5	99	45-146
cis-1,2-Dichloroethene	50.0	50.2	100	72-121
trans-1,2-Dichloroethene	50.0	47.7	95	56-142
1,3-Dichloropropane	50.0	53.9	108	74-112
cis-1,3-Dichloropropene	50.0	55.5	111	78-116
trans-1,3-Dichloropropene	50.0	55.2	110	79-116
Ethylbenzene	50.0	59.4	119	70-113
Methylene Chloride	50.0	49.1	98	61-142
Tetrachloroethene	50.0	67.8	136	60-128
Toluene	50.0	54.8	110	72-119
1,1,1-Trichloroethane	50.0	53.4	107	65-118
1,1,2-Trichloroethane	50.0	55.5	111	80-117
Trichloroethene	50.0	55.4	111	69-117
1,1,2-Trichlorotrifluoroethane	50.0	57.8	116	60-140
Vinyl chloride	50.0	49.6	99	43-143
Xylene (Total)	150	161	108	71-109
m&p-Xylene	100	104	104	72-115
o-Xylene	50.0	57.3	115	73-117

Spike Recovery: 2 out of 28 outside limits.

MSV - FORM III VOA-1

WATER VOLATILE SAMPLE/DUPLICATE RECOVERY

Lab Name: Pace Analytical - New York
Duplicate Sample No: 7054419010DUP
Date Extracted: 06/12/2018
Date Analyzed: 06/12/2018
Instrument 70MSV1
Lab File ID: 061218.B\A03153.D
Lab Sample ID: MW21060618VOC
SDG No.: 7054419

COMPOUND	SAMPLE CONCENTRATION (ug/L)	DUPLICATE CONCENTRATION (ug/L)	RPD	RPD LIMITS
1,1,1-Trichloroethane	<1.0	<1.0		0-20
1,1,2-Trichlorotrifluoroethane	<1.0	<1.0		0-20
1,1-Dichloroethane	<1.0	<1.0		0-20
1,2-Dichlorobenzene	<1.0	<1.0		0-20
1,3-Dichlorobenzene	<1.0	<1.0		0-20
1,4-Dichlorobenzene	<1.0	<1.0		0-20
Benzene	<1.0	<1.0		0-20
Chlorobenzene	<1.0	<1.0		0-20
Chloroethane	<1.0	<1.0		0-20
Dichlorodifluoromethane	<1.0	<1.0		0-20
Ethylbenzene	<1.0	<1.0		0-20
Tetrachloroethene	<1.0	<1.0		0-20
Toluene	<1.0	<1.0		0-20
Trichloroethene	<1.0	<1.0		0-20
Vinyl chloride	<1.0	<1.0		0-20
Xylene (Total)	<3.0	<3.0		0-20
cis-1,2-Dichloroethene	<1.0	<1.0		0-20
m&p-Xylene	<2.0	<2.0		0-20
o-Xylene	<1.0	<1.0		0-20
trans-1,2-Dichloroethene	<1.0	<1.0		0-20

RPD: ____ out of __0__ outside limits.

SAMPLE NO.

327960BLANK

MSV - FORM IV VOA-1
VOLATILE METHOD BLANK SUMMARY

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Instrument ID: 70MSV1 Matrix: Water Lab Sample ID: 327960

Lab File ID: 061318.B\A03160.D Date Analyzed: 06/13/2018 Time: 14:22

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	ANALYZED
327961LCS	327961	061318.B\A03161.D	06/13/2018 14:43
PZ5060618VOC	7054419001	061318.B\A03163.D	06/13/2018 15:39
PZ6060618VOC	7054419007	061318.B\A03164.D	06/13/2018 15:58
MW20060718VOC	7054419011	061318.B\A03165.D	06/13/2018 16:17
MW2060718VOC	7054419012	061318.B\A03166.D	06/13/2018 16:38
TRIP BLANK	7054419013	061318.B\A03167.D	06/13/2018 17:24
MW3060718VOC	7054419028	061318.B\A03168.D	06/13/2018 17:45
327963DUP	327963	061318.B\A03179.D	06/13/2018 21:33
327962MS	327962	061318.B\A03180.D	06/13/2018 21:53

SAMPLE NO.

BLANK

MSV - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: Pace Analytical - New York Contract: LMC UTICA 6/6

Date Received: Matrix: Water SDG No.: 7054419

Date Extracted: 06/13/2018 14:22 Lab Sample ID: 327960

Date Analyzed: 06/13/2018 14:22 Lab File ID: 061318.B\A03160.D

Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1 Instrument: 70MSV1 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<5.0	U
71-43-2	Benzene	<1.0	U
108-90-7	Chlorobenzene	<1.0	U
75-00-3	Chloroethane	<1.0	U
95-50-1	1,2-Dichlorobenzene	<1.0	U
541-73-1	1,3-Dichlorobenzene	<1.0	U
106-46-7	1,4-Dichlorobenzene	<1.0	U
75-71-8	Dichlorodifluoromethane	<1.0	U
75-34-3	1,1-Dichloroethane	<1.0	U
107-06-2	1,2-Dichloroethane	<1.0	U
75-35-4	1,1-Dichloroethene	<1.0	U
156-59-2	cis-1,2-Dichloroethene	<1.0	U
156-60-5	trans-1,2-Dichloroethene	<1.0	U
142-28-9	1,3-Dichloropropane	<1.0	U
10061-01-5	cis-1,3-Dichloropropene	<1.0	U
10061-02-6	trans-1,3-Dichloropropene	<1.0	U
100-41-4	Ethylbenzene	<1.0	U
75-09-2	Methylene Chloride	<1.0	U
127-18-4	Tetrachloroethene	<1.0	U
108-88-3	Toluene	<1.0	U
71-55-6	1,1,1-Trichloroethane	<1.0	U
79-00-5	1,1,2-Trichloroethane	<1.0	U
79-01-6	Trichloroethene	<1.0	U
76-13-1	1,1,2-Trichlorotrifluoroethane	<1.0	U
75-01-4	Vinyl chloride	<1.0	U
1330-20-7	Xylene (Total)	<3.0	U
179601-23-1	m&p-Xylene	<2.0	U
95-47-6	o-Xylene	<1.0	U

MSV - FORM III VOA-1

WATER LABORATORY CONTROL SAMPLE RECOVERY

Lab Name: Pace Analytical - New York
Lab Sample ID: 327961LCS
Date Extracted: 06/13/2018
Date Analyzed (1): 06/13/2018
Instrument: 70MSV1
LCS Lot No: 45785
Lab File ID: 061318.B\A03161.D
SDG No.: 7054419

COMPOUND	AMOUNT ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS %REC	QC LIMITS REC.
Acetone	50.0	48.3	97	23-188
Benzene	50.0	46.1	92	73-119
Chlorobenzene	50.0	50.0	100	75-113
Chloroethane	50.0	38.0	76	49-151
1,2-Dichlorobenzene	50.0	47.2	94	74-113
1,3-Dichlorobenzene	50.0	47.9	96	71-112
1,4-Dichlorobenzene	50.0	50.4	101	71-113
Dichlorodifluoromethane	50.0	22.5	45	22-154
1,1-Dichloroethane	50.0	47.4	95	83-151
1,2-Dichloroethane	50.0	43.5	87	74-129
1,1-Dichloroethene	50.0	48.7	97	45-146
cis-1,2-Dichloroethene	50.0	49.5	99	72-121
trans-1,2-Dichloroethene	50.0	43.8	88	56-142
1,3-Dichloropropane	50.0	53.3	107	74-112
cis-1,3-Dichloropropene	50.0	51.3	103	78-116
trans-1,3-Dichloropropene	50.0	51.4	103	79-116
Ethylbenzene	50.0	49.1	98	70-113
Methylene Chloride	50.0	43.0	86	61-142
Tetrachloroethene	50.0	60.3	121	60-128
Toluene	50.0	47.8	96	72-119
1,1,1-Trichloroethane	50.0	45.5	91	65-118
1,1,2-Trichloroethane	50.0	49.1	98	80-117
Trichloroethene	50.0	51.2	102	69-117
1,1,2-Trichlorotrifluoroethane	50.0	51.3	103	60-140
Vinyl chloride	50.0	45.7	91	43-143
Xylene (Total)	150	147	98	71-109
m&p-Xylene	100	96.8	97	72-115
o-Xylene	50.0	50.4	101	73-117

Spike Recovery: 0 out of 28 outside limits.

09/04/2018 2:28

MSV - FORM III VOA-1

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Pace Analytical - New York
Matrix Spike - Sample No: 327962MS
Date Extracted: 06/13/2018
Date Analyzed (1): 06/13/2018
Instrument: 70MSV1
Lab File ID: 061318.B\A03180.D
Parent Sample ID: MW20060718VOC
SDG No.: 7054419

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS %REC	QC LIMITS REC.
1,1,1-Trichloroethane	50.0	<1.0	45.4	91	65-118
1,1,2-Trichlorotrifluoroethane	50.0	<1.0	50.5	101	60-140
1,1-Dichloroethane	50.0	<1.0	44.8	90	83-151
1,1-Dichloroethene	50.0	<1.0	40.6	81	45-146
1,2-Dichlorobenzene	50.0	<1.0	39.9	80	74-113
1,3-Dichlorobenzene	50.0	<1.0	43.3	87	71-112
1,4-Dichlorobenzene	50.0	<1.0	45.7	91	71-113
Benzene	50.0	<1.0	43.3	87	73-119
Chlorobenzene	50.0	<1.0	43.7	87	75-113
Chloroethane	50.0	<1.0	46.9	94	49-151
Dichlorodifluoromethane	50.0	<1.0	23.6	47	22-154
Ethylbenzene	50.0	<1.0	48.4	97	70-113
Tetrachloroethene	50.0	<1.0	39.7	79	60-128
Toluene	50.0	<1.0	43.1	86	72-119
Trichloroethene	50.0	<1.0	47.4	95	69-117
Vinyl chloride	50.0	5.8	47.9	84	43-143
Xylene (Total)	150	<3.0	131	87	71-109
cis-1,2-Dichloroethene	50.0	1.6	40.1	77	72-121
m&p-Xylene	100	<2.0	84.6	85	72-115
o-Xylene	50.0	<1.0	46.0	92	73-117
trans-1,2-Dichloroethene	50.0	1.3	42.6	83	56-142

Spike Recovery: 0 out of 21 outside limits.

MSV - FORM III VOA-1

WATER VOLATILE SAMPLE/DUPLICATE RECOVERY

Lab Name: Pace Analytical - New York
Duplicate Sample No: 7054419028DUP
Date Extracted: 06/13/2018
Date Analyzed: 06/13/2018
Instrument 70MSV1
Lab File ID: 061318.B\A03179.D
Lab Sample ID: MW3060718VOC
SDG No.: 7054419

COMPOUND	SAMPLE CONCENTRATION (ug/L)	DUPLICATE CONCENTRATION (ug/L)	RPD	RPD LIMITS
1,1,1-Trichloroethane	<1.0	<1.0		0-20
1,1,2-Trichlorotrifluoroethane	<1.0	<1.0		0-20
1,1-Dichloroethane	2.3	2.0	14	0-20
1,1-Dichloroethene	<1.0	<1.0		0-20
1,2-Dichlorobenzene	<1.0	<1.0		0-20
1,3-Dichlorobenzene	<1.0	<1.0		0-20
1,4-Dichlorobenzene	<1.0	<1.0		0-20
Benzene	<1.0	<1.0		0-20
Chlorobenzene	<1.0	<1.0		0-20
Chloroethane	<1.0	<1.0		0-20
Dichlorodifluoromethane	<1.0	<1.0		0-20
Ethylbenzene	<1.0	<1.0		0-20
Tetrachloroethene	2.5	<1.0		0-20
Toluene	<1.0	<1.0		0-20
Trichloroethene	5.9	5.4	9	0-20
Vinyl chloride	2.5	2.5	1	0-20
Xylene (Total)	<3.0	<3.0		0-20
cis-1,2-Dichloroethene	8.5	9.2	8	0-20
m&p-Xylene	<2.0	<2.0		0-20
o-Xylene	<1.0	<1.0		0-20
trans-1,2-Dichloroethene	<1.0	<1.0		0-20

RPD: 0 out of 4 outside limits.

MSV - FORM V VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6

Lab File ID: 060518.B\A03065.D BFB Injection Date: 06/05/2018

Instrument ID: 70MSV1 BFB Injection Time: 14:50

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.00 - 40.00% of mass 95	26.65	
75	30.00 - 60.00% of mass 95	50.30	
95	Base Peak, 100.00% relative abundance	100.00	
96	5.00 - 9.00% of mass 95	7.84	
173	Less than 2.00% of mass 174	0.38	(0.46)[1]
174	50.00 - 100.00% of mass 95	81.77	
175	5.00 - 9.00% of mass 174	4.33	(5.30)[1]
176	95.00 - 101.00% of mass 174	78.21	(95.65)[1]
177	5.00 - 9.00% of mass 176	5.73	(7.33)[2]

1 - Value is % mass 174 2 - Value is % mass 176

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
10277586CAL1	10277586CAL1	060518.B\A03066.D	06/05/2018	15:28
10277603CAL2	10277603CAL2	060518.B\A03067.D	06/05/2018	15:49
10277591CAL3	10277591CAL3	060518.B\A03068.D	06/05/2018	16:10
10277588CAL4	10277588CAL4	060518.B\A03069.D	06/05/2018	16:31
10277621CAL5	10277621CAL5	060518.B\A03070.D	06/05/2018	16:51
10277620CAL6	10277620CAL6	060518.B\A03071.D	06/05/2018	17:12
10277585CAL7	10277585CAL7	060518.B\A03072.D	06/05/2018	17:33
10277587CAL8	10277587CAL8	060518.B\A03073.D	06/05/2018	17:54
10614305ICV	10614305ICV	060518.B\A03074.D	06/05/2018	18:40

MSV - FORM VI VOA-3
MSV INITIAL CALIBRATION DATA

Lab Name: Pace Analytical - New York Instrument ID: 70MSV1 GC Column: Col 1 SDG No.: 7054419

Calibration Date(s): 06/05/2018 06/05/2018 Calibration Time(s): 15:28 17:54

LAB FILE ID

CAL1 = 060518.B\A03066.D CAL2 = 060518.B\A03067.D CAL3 = 060518.B\A03068.D

CAL4 = 060518.B\A03069.D CAL5 = 060518.B\A03070.D CAL6 = 060518.B\A03071.D

CAL7 = 060518.B\A03072.D CAL8 = 060518.B\A03073.D

COMPOUND	CURVE TYPE	%RSD	R2	A1	A2	A3
Acetone	Averaged	18.22230			0.17346	
Benzene	Averaged	13.08810			1.32682	
Chlorobenzene	Averaged	12.79677			2.00747	
Chloroethane	Averaged	15.22634			0.41980	
1,2-Dichlorobenzene	Averaged	17.10554			1.37785	
1,3-Dichlorobenzene	Averaged	17.09675			1.41760	
1,4-Dichlorobenzene	Averaged	10.50169			1.49005	
Dichlorodifluoromethane	Averaged	18.65615			0.73126	
1,1-Dichloroethane	Averaged	9.46707			1.03820	
1,2-Dichloroethane	Averaged	18.64231			0.96990	
1,1-Dichloroethene	Averaged	18.48419			0.54330	
cis-1,2-Dichloroethene	Averaged	19.95418			0.71145	
trans-1,2-Dichloroethene	Averaged	17.79845			0.65969	
1,3-Dichloropropane	Averaged	14.12697			1.10769	
cis-1,3-Dichloropropene	Averaged	15.65922			0.60922	
trans-1,3-Dichloropropene	Linear		0.99409	0.02237519	0.52519	
Ethylbenzene	Averaged	13.74468			0.93537	
Methylene Chloride	Averaged	18.34948			0.63015	
Tetrachloroethene	Linear		0.99758	0.03050865	0.70716	
Toluene	Averaged	12.73326			1.33426	
1,1,1-Trichloroethane	Averaged	18.92028			0.54072	
1,1,2-Trichloroethane	Averaged	18.98656			0.30380	
Trichloroethene	Averaged	13.20442			0.34790	
1,1,2-Trichlorotrifluoroethane	Averaged	19.31197			0.48328	
Vinyl chloride	Averaged	15.31316			0.67827	
m&p-Xylene	Averaged	18.85401			1.26317	
o-Xylene	Averaged	10.97577			1.18973	
4-Bromofluorobenzene (S)	Averaged	4.98856			0.65637	
1,2-Dichloroethane-d4 (S)	Averaged	7.04484			0.36842	
Toluene-d8 (S)	Averaged	5.14335			1.77755	

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

SAMPLE NO.

10614305ICV

MSV - FORM VII VOA-1
MSV INITIAL CALIBRATION DATA

Lab Name: Pace Analytical - New York Calibration Date: 06/05/2018 Time: 18:40

Instrument ID: 70MSV1 GC Column: Col 1 Init. Calib. Date(s): 06/05/2018 06/05/2018

Lab File ID: 060518.B\A03074.D Init. Calib. Time(s): 15:28 17:54

SDG No.: 7054419

COMPOUND	CURVE	$\overline{\text{RRF}}$ or Amount	RRF or Amount	MIN RRF	%D	MAX %D
Acetone	Averaged	0.17346	0.16430	0.0100	-5.2806	30.0000
Benzene	Averaged	1.32682	1.23754	0.0100	-6.7286	30.0000
Chlorobenzene	Averaged	2.00747	1.84929	0.3000	-7.8791	30.0000
Chloroethane	Averaged	0.41980	0.34116	0.0100	-18.7331	30.0000
1,2-Dichlorobenzene	Averaged	1.37785	1.29610	0.0100	-5.9333	30.0000
1,3-Dichlorobenzene	Averaged	1.41760	1.37744	0.0100	-2.8330	30.0000
1,4-Dichlorobenzene	Averaged	1.49005	1.47804	0.0100	-0.8057	30.0000
Dichlorodifluoromethane	Averaged	0.73126	0.66527	0.0100	-9.0248	30.0000
1,1-Dichloroethane	Averaged	1.03820	1.00637	0.1000	-3.0663	30.0000
1,2-Dichloroethane	Averaged	0.96990	0.91064	0.0100	-6.1101	30.0000
1,1-Dichloroethene	Averaged	0.54330	0.46890	0.0100	-13.6948	30.0000
cis-1,2-Dichloroethene	Averaged	0.71145	0.63912	0.0100	-10.1672	30.0000
trans-1,2-Dichloroethene	Averaged	0.65969	0.56913	0.0100	-13.7278	30.0000
1,3-Dichloropropane	Averaged	1.10769	1.07508	0.0100	-2.9440	30.0000
cis-1,3-Dichloropropene	Averaged	0.60922	0.64852	0.0100	6.4516	30.0000
trans-1,3-Dichloropropene	Linear	50	51.25192	0.0100	2.5038	30.0000
Ethylbenzene	Averaged	0.93537	0.89582	0.0100	-4.2284	30.0000
Methylene Chloride	Averaged	0.63015	0.60172	0.0100	-4.5125	30.0000
Tetrachloroethene	Linear	50	46.87120	0.0100	-6.2576	30.0000
Toluene	Averaged	1.33426	1.23530	0.0100	-7.4170	30.0000
1,1,1-Trichloroethane	Averaged	0.54072	0.54514	0.0100	0.8163	30.0000
1,1,2-Trichloroethane	Averaged	0.30380	0.30736	0.0100	1.1728	30.0000
Trichloroethene	Averaged	0.34790	0.35615	0.0100	2.3718	30.0000
1,1,2-Trichlorotrifluoroethane	Averaged	0.48328	0.45880	0.0100	-5.0641	30.0000
Vinyl chloride	Averaged	0.67827	0.60602	0.0100	-10.6513	30.0000
m&p-Xylene	Averaged	1.26317	1.11374	0.0100	-11.8296	30.0000
o-Xylene	Averaged	1.18973	1.13275	0.0100	-4.7889	30.0000
4-Bromofluorobenzene (S)	Averaged	0.65637	0.61906	0.0100	-5.6843	30.0000
1,2-Dichloroethane-d4 (S)	Averaged	0.36842	0.39834	0.0100	8.1218	30.0000
Toluene-d8 (S)	Averaged	1.77755	1.72298	0.0100	-3.0702	30.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

MSV - FORM V VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6
Lab File ID: 061218.B\A03132.D BFB Injection Date: 06/12/2018
Instrument ID: 70MSV1 BFB Injection Time: 11:20

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.00 - 40.00% of mass 95	19.21	
75	30.00 - 60.00% of mass 95	44.77	
95	Base Peak, 100.00% relative abundance	100.00	
96	5.00 - 9.00% of mass 95	5.54	
173	Less than 2.00% of mass 174	0.26	(0.33)[1]
174	50.00 - 100.00% of mass 95	77.56	
175	5.00 - 9.00% of mass 174	4.58	(5.90)[1]
176	95.00 - 101.00% of mass 174	74.28	(95.77)[1]
177	5.00 - 9.00% of mass 176	4.21	(5.67)[2]

1 - Value is % mass 174 2 - Value is % mass 176

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
10288191CCV	10288191CCV	061218.B\A03133.D	06/12/2018	11:49
327090BLANK	327090BLANK	061218.B\A03135.D	06/12/2018	13:04
327091LCS	327091LCS	061218.B\A03136.D	06/12/2018	13:25
MW21060618VOC	7054419010	061218.B\A03145.D	06/12/2018	17:41
EQUIPBLANK060618	7054419009	061218.B\A03146.D	06/12/2018	18:02
MW10060718VOC	7054419008	061218.B\A03147.D	06/12/2018	18:23
MW4060718VOC DUP	7054419006	061218.B\A03148.D	06/12/2018	18:43
MW4060718VOC	7054419005	061218.B\A03149.D	06/12/2018	19:04
MW1060618VOC	7054419004	061218.B\A03150.D	06/12/2018	19:25
A1PZ2060618VOC	7054419003	061218.B\A03151.D	06/12/2018	19:46
PZ13R060718VOC	7054419002	061218.B\A03152.D	06/12/2018	20:07
327092DUP	327092DUP	061218.B\A03153.D	06/12/2018	20:27

SAMPLE NO.

10288191CCV

MSV - FORM VII VOA-1
MSV CONTINUING CALIBRATION DATA

Lab Name: Pace Analytical - New York Calibration Date: 06/12/2018 Time: 11:49

Instrument ID: 70MSV1 GC Column: Col 1 Init. Calib. Date(s): 06/05/2018 06/05/2018

Lab File ID: 061218.B\A03133.D Init. Calib. Time(s): 15:28 17:54

SDG No.: 7054419

COMPOUND	CURVE	$\overline{\text{RRF}}$ or Amount	RRF or Amount	MIN RRF	%D	MAX %D
Acetone	Averaged	0.17346	0.14532	0.0100	-16.2192	20.0000
Benzene	Averaged	1.32682	1.35248	0.0100	1.9343	20.0000
Chlorobenzene	Averaged	2.00747	2.20513	0.3000	9.8463	20.0000
Chloroethane	Averaged	0.41980	0.38545	0.0100	-8.1813	20.0000
1,2-Dichlorobenzene	Averaged	1.37785	1.41213	0.0100	2.4878	20.0000
1,3-Dichlorobenzene	Averaged	1.41760	1.54264	0.0100	8.8204	20.0000
1,4-Dichlorobenzene	Averaged	1.49005	1.64117	0.0100	10.1424	20.0000
Dichlorodifluoromethane	Averaged	0.73126	0.37946	0.0100	-48.1087	20.0000
1,1-Dichloroethane	Averaged	1.03820	0.95786	0.1000	-7.7384	20.0000
1,2-Dichloroethane	Averaged	0.96990	0.88636	0.0100	-8.6131	20.0000
1,1-Dichloroethene	Averaged	0.54330	0.53688	0.0100	-1.1821	20.0000
cis-1,2-Dichloroethene	Averaged	0.71145	0.71647	0.0100	0.7054	20.0000
trans-1,2-Dichloroethene	Averaged	0.65969	0.59995	0.0100	-9.0569	20.0000
1,3-Dichloropropane	Averaged	1.10769	1.22343	0.0100	10.4487	20.0000
cis-1,3-Dichloropropene	Averaged	0.60922	0.64906	0.0100	6.5399	20.0000
trans-1,3-Dichloropropene	Linear	50	53.28438	0.0100	6.5688	20.0000
Ethylbenzene	Averaged	0.93537	1.02378	0.0100	9.4523	20.0000
Methylene Chloride	Averaged	0.63015	0.60371	0.0100	-4.1960	20.0000
Tetrachloroethene	Linear	50	53.54501	0.0100	7.0900	20.0000
Toluene	Averaged	1.33426	1.41723	0.0100	6.2186	20.0000
1,1,1-Trichloroethane	Averaged	0.54072	0.57244	0.0100	5.8655	20.0000
1,1,2-Trichloroethane	Averaged	0.30380	0.30440	0.0100	0.1988	20.0000
Trichloroethene	Averaged	0.34790	0.39790	0.0100	14.3716	20.0000
1,1,2-Trichlorotrifluoroethane	Averaged	0.48328	0.56905	0.0100	17.7484	20.0000
Vinyl chloride	Averaged	0.67827	0.69711	0.0100	2.7787	20.0000
m&p-Xylene	Averaged	1.26317	1.29592	0.0100	2.5929	20.0000
o-Xylene	Averaged	1.18973	1.32933	0.0100	11.7337	20.0000
4-Bromofluorobenzene (S)	Averaged	0.65637	0.74532	0.0100	13.5518	20.0000
1,2-Dichloroethane-d4 (S)	Averaged	0.36842	0.36277	0.0100	-1.5347	20.0000
Toluene-d8 (S)	Averaged	1.77755	1.96360	0.0100	10.4664	20.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

MSV - FORM V VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Pace Analytical - New York SDG No.: 7054419 Contract: LMC UTICA 6/6
Lab File ID: 061318.B\A03157.D BFB Injection Date: 06/13/2018
Instrument ID: 70MSV1 BFB Injection Time: 11:53

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.00 - 40.00% of mass 95	23.89	
75	30.00 - 60.00% of mass 95	45.71	
95	Base Peak, 100.00% relative abundance	100.00	
96	5.00 - 9.00% of mass 95	6.48	
173	Less than 2.00% of mass 174	0.00	
174	50.00 - 100.00% of mass 95	82.92	
175	5.00 - 9.00% of mass 174	5.77	(6.96)[1]
176	95.00 - 101.00% of mass 174	82.18	(99.11)[1]
177	5.00 - 9.00% of mass 176	5.53	(6.73)[2]

1 - Value is % mass 174 2 - Value is % mass 176

SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
10310371CCV	10310371CCV	061318.B\A03158.D	06/13/2018	13:19
327960BLANK	327960BLANK	061318.B\A03160.D	06/13/2018	14:22
327961LCS	327961LCS	061318.B\A03161.D	06/13/2018	14:43
PZ5060618VOC	7054419001	061318.B\A03163.D	06/13/2018	15:39
PZ6060618VOC	7054419007	061318.B\A03164.D	06/13/2018	15:58
MW20060718VOC	7054419011	061318.B\A03165.D	06/13/2018	16:17
MW2060718VOC	7054419012	061318.B\A03166.D	06/13/2018	16:38
TRIP BLANK	7054419013	061318.B\A03167.D	06/13/2018	17:24
MW3060718VOC	7054419028	061318.B\A03168.D	06/13/2018	17:45
327963DUP	327963DUP	061318.B\A03179.D	06/13/2018	21:33
327962MS	327962MS	061318.B\A03180.D	06/13/2018	21:53

SAMPLE NO.

10310371CCV

MSV - FORM VII VOA-1
MSV CONTINUING CALIBRATION DATA

Lab Name: Pace Analytical - New York Calibration Date: 06/13/2018 Time: 13:19

Instrument ID: 70MSV1 GC Column: Col 1 Init. Calib. Date(s): 06/05/2018 06/05/2018

Lab File ID: 061318.B\A03158.D Init. Calib. Time(s): 15:28 17:54

SDG No.: 7054419

COMPOUND	CURVE	$\overline{\text{RRF}}$ or Amount	RRF or Amount	MIN RRF	%D	MAX %D
Acetone	Averaged	0.17346	0.14772	0.0100	-14.8353	20.0000
Benzene	Averaged	1.32682	1.24756	0.0100	-5.9740	20.0000
Chlorobenzene	Averaged	2.00747	2.05897	0.3000	2.5658	20.0000
Chloroethane	Averaged	0.41980	0.36041	0.0100	-14.1481	20.0000
1,2-Dichlorobenzene	Averaged	1.37785	1.43361	0.0100	4.0466	20.0000
1,3-Dichlorobenzene	Averaged	1.41760	1.57601	0.0100	11.1745	20.0000
1,4-Dichlorobenzene	Averaged	1.49005	1.58645	0.0100	6.4700	20.0000
Dichlorodifluoromethane	Averaged	0.73126	0.34034	0.0100	-53.4587	20.0000
1,1-Dichloroethane	Averaged	1.03820	1.00415	0.1000	-3.2805	20.0000
1,2-Dichloroethane	Averaged	0.96990	0.84108	0.0100	-13.2814	20.0000
1,1-Dichloroethene	Averaged	0.54330	0.49979	0.0100	-8.0076	20.0000
cis-1,2-Dichloroethene	Averaged	0.71145	0.68246	0.0100	-4.0751	20.0000
trans-1,2-Dichloroethene	Averaged	0.65969	0.58554	0.0100	-11.2400	20.0000
1,3-Dichloropropane	Averaged	1.10769	1.16498	0.0100	5.1716	20.0000
cis-1,3-Dichloropropene	Averaged	0.60922	0.57795	0.0100	-5.1326	20.0000
trans-1,3-Dichloropropene	Linear	50	46.79759	0.0100	-6.4048	20.0000
Ethylbenzene	Averaged	0.93537	0.97552	0.0100	4.2924	20.0000
Methylene Chloride	Averaged	0.63015	0.53846	0.0100	-14.5507	20.0000
Tetrachloroethene	Linear	50	57.70973	0.0100	15.4195	20.0000
Toluene	Averaged	1.33426	1.23931	0.0100	-7.1167	20.0000
1,1,1-Trichloroethane	Averaged	0.54072	0.50165	0.0100	-7.2254	20.0000
1,1,2-Trichloroethane	Averaged	0.30380	0.30250	0.0100	-0.4267	20.0000
Trichloroethene	Averaged	0.34790	0.34634	0.0100	-0.4494	20.0000
1,1,2-Trichlorotrifluoroethane	Averaged	0.48328	0.49366	0.0100	2.1494	20.0000
Vinyl chloride	Averaged	0.67827	0.63224	0.0100	-6.7864	20.0000
m&p-Xylene	Averaged	1.26317	1.23297	0.0100	-2.3909	20.0000
o-Xylene	Averaged	1.18973	1.30705	0.0100	9.8615	20.0000
4-Bromofluorobenzene (S)	Averaged	0.65637	0.63957	0.0100	-2.5590	20.0000
1,2-Dichloroethane-d4 (S)	Averaged	0.36842	0.32664	0.0100	-11.3397	20.0000
Toluene-d8 (S)	Averaged	1.77755	1.96057	0.0100	10.2961	20.0000

The values for compounds reported as total are based on a summation of the components within the laboratory information management system.

FORM II
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): RXI-5Sil MS ID: 0.25(mm)

Client Sample ID	Lab Sample ID	DXE #
MWF060618	480-137275-1	50
MW23060618	480-137275-2	54
MW5060518	480-137275-3	50
MW1060618	480-137275-4	45
PZ11R060618	480-137275-5	50
OW1060518	480-137275-6	53
A1PZ2060618	480-137275-7	57
MW13BR060618	480-137275-8	55
MW21060718	480-137275-9	37
MW21060718 DUP	480-137275-10	45
EQUIPBLANK060618	480-137275-11	44
TRIP BLANK	480-137275-12	38
	MB 480-419185/1-A	55
	LCS 480-419185/2-A	56
MW21060718 MS	480-137275-9 MS	41
MW21060718 MSD	480-137275-9 MSD	49

	QC LIMITS
DXE = 1,4-Dioxane-d8	15-110

Column to be used to flag recovery values

FORM II 8270D SIM ID

FORM IV
GC/MS SEMI VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Lab File ID: U3308614.D Lab Sample ID: MB 480-419185/1-A

Matrix: Water Date Extracted: 06/12/2018 14:50

Instrument ID: HP5973U Date Analyzed: 06/13/2018 18:38

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 480-419185/2-A	U3308615.D	06/13/2018 19:02
MWF060618	480-137275-1	U3308620.D	06/13/2018 21:06
MW23060618	480-137275-2	U3308621.D	06/13/2018 21:30
MW5060518	480-137275-3	U3308622.D	06/13/2018 21:54
MW1060618	480-137275-4	U3308623.D	06/13/2018 22:18
PZ11R060618	480-137275-5	U3308624.D	06/13/2018 22:42
OW1060518	480-137275-6	U3308625.D	06/13/2018 23:06
A1PZ2060618	480-137275-7	U3308626.D	06/13/2018 23:30
MW13BR060618	480-137275-8	U3308627.D	06/13/2018 23:54
MW21060718	480-137275-9	U3308628.D	06/14/2018 00:18
MW21060718 MS	480-137275-9 MS	U3308629.D	06/14/2018 00:42
MW21060718 MSD	480-137275-9 MSD	U3308630.D	06/14/2018 01:06
MW21060718 DUP	480-137275-10	U3308631.D	06/14/2018 01:29
EQUIPBLANK060618	480-137275-11	U3308632.D	06/14/2018 01:53
TRIP BLANK	480-137275-12	U3308633.D	06/14/2018 02:17

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Buffalo | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 480-419185/1-A

Matrix: Water | Lab File ID: U3308614.D

Analysis Method: 8270D SIM ID | Date Collected:

Extract. Method: 3510C | Date Extracted: 06/12/2018 14:50

Sample wt/vol: 1000(mL) | Date Analyzed: 06/13/2018 18:38

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

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

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

Analysis Batch No.: 419458 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
123-91-1	1,4-Dioxane	0.20	U	0.20	0.10

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
17647-74-4	1,4-Dioxane-d8	55		15-110

FORM III
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3308615.D

Lab ID: LCS 480-419185/2-A Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	1.20	120	40-140	E
1,4-Dioxane-d8	10.0	5.62	56	15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM III
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3308629.D

Lab ID: 480-137275-9 MS Client ID: MW21060718 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,4-Dioxane	1.00	2.2	2.97	78	40-140	
1,4-Dioxane-d8	10.0	3.7	4.14	41	15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM III
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: U3308630.D

Lab ID: 480-137275-9 MSD Client ID: MW21060718 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,4-Dioxane	1.00	2.86	67	4	20	40-140	
1,4-Dioxane-d8	10.0	4.86	49			15-110	

Column to be used to flag recovery and RPD values

FORM III 8270D SIM ID

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Sample No.: ICIS 480-418974/5 Date Analyzed: 06/12/2018 17:01

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3308555.D Heated Purge: (Y/N) N

Calibration ID: 34033

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		931446	5.60				
UPPER LIMIT		1862892	6.10				
LOWER LIMIT		465723	5.10				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVIS 480-419458/3		660242	5.60				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

FORM VIII
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Sample No.: CCVIS 480-419458/3 Date Analyzed: 06/13/2018 18:13

Instrument ID: HP5973U GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm)

Lab File ID (Standard): U3308613.D Heated Purge: (Y/N) N

Calibration ID: 34033

		DCBd4					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		660242	5.60				
UPPER LIMIT		1320484	6.10				
LOWER LIMIT		330121	5.10				
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 480-419185/1-A		646489	5.61				
LCS 480-419185/2-A		641442	5.61				
480-137275-1	MWF060618	665392	5.61				
480-137275-2	MW23060618	630383	5.61				
480-137275-3	MW5060518	644589	5.61				
480-137275-4	MW1060618	602982	5.60				
480-137275-5	PZ11R060618	658708	5.61				
480-137275-6	OW1060518	649969	5.61				
480-137275-7	A1PZ2060618	615820	5.61				
480-137275-8	MW13BR060618	629236	5.61				
480-137275-9	MW21060718	628422	5.60				
480-137275-9 MS	MW21060718 MS	647969	5.60				
480-137275-9 MSD	MW21060718 MSD	648754	5.60				
480-137275-10	MW21060718 DUP	661441	5.60				
480-137275-11	EQUIPBLANK060618	668652	5.60				
480-137275-12	TRIP BLANK	695016	5.60				

DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8270D SIM ID

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Lab File ID: U3308552.D DFTPP Injection Date: 06/12/2018

Instrument ID: HP5973U DFTPP Injection Time: 15:43

Analysis Batch No.: 418974

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	36.2	
68	Less than 2% of mass 69	0.0	(0.0) 1
69	Mass 69 Relative abundance	33.5	
70	Less than 2% of mass 69	0.3	(0.9) 1
127	10-80% of Base Peak	43.0	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	7.1	
275	10-60% of Base Peak	33.2	
365	Greater than 1% of mass 198	4.8	
441	present but less than 24% of mass 442	17.7	(17.3) 2
442	Greater than 50% of mass 198	102.1	
443	15-24% of mass 442	20.6	(20.2) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 480-418974/3	U3308553.D	06/12/2018	16:12
	IC 480-418974/4	U3308554.D	06/12/2018	16:37
	ICIS 480-418974/5	U3308555.D	06/12/2018	17:01
	IC 480-418974/6	U3308556.D	06/12/2018	17:26
	IC 480-418974/7	U3308557.D	06/12/2018	17:51
	IC 480-418974/8	U3308558.D	06/12/2018	18:16

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

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1 Analy Batch No.: 418974

SDG No.:

Instrument ID: HP5973U GC Column: RXI-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/12/2018 16:12 Calibration End Date: 06/12/2018 18:16 Calibration ID: 34033

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 480-418974/3	U3308553.D
Level 2	ICIS 480-418974/5	U3308555.D
Level 3	IC 480-418974/6	U3308556.D
Level 4	IC 480-418974/7	U3308557.D
Level 5	IC 480-418974/8	U3308558.D
Level 6	IC 480-418974/4	U3308554.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
1,4-Dioxane	1.0081 1.0632	1.1215	1.0391	1.0454	1.0423	AveID		1.0533			0.0100	3.6		20.0			
1,4-Dioxane-d8	0.3977 0.4310	0.4397	0.4126	0.4605	0.4714	Lin2	-0.136	0.4632			0.0100				0.9960		0.9900

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

FORM V
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Lab File ID: U3308612.D DFTPP Injection Date: 06/13/2018

Instrument ID: HP5973U DFTPP Injection Time: 17:44

Analysis Batch No.: 419458

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	10-80% of Base Peak	43.4	
68	Less than 2% of mass 69	0.0	(0.0) 1
69	Mass 69 Relative abundance	37.9	
70	Less than 2% of mass 69	0.3	(0.7) 1
127	10-80% of Base Peak	47.2	
197	Less than 2% of mass 198	0.0	
198	Base peak	100.0	
199	5-9% of mass 198	7.0	
275	10-60% of Base Peak	28.2	
365	Greater than 1% of mass 198	3.6	
441	present but less than 24% of mass 442	14.1	(17.4) 2
442	Greater than 50% of mass 198	80.7	
443	15-24% of mass 442	16.5	(20.4) 2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 480-419458/3	U3308613.D	06/13/2018	18:13
	MB 480-419185/1-A	U3308614.D	06/13/2018	18:38
	LCS 480-419185/2-A	U3308615.D	06/13/2018	19:02
MWF060618	480-137275-1	U3308620.D	06/13/2018	21:06
MW23060618	480-137275-2	U3308621.D	06/13/2018	21:30
MW5060518	480-137275-3	U3308622.D	06/13/2018	21:54
MW1060618	480-137275-4	U3308623.D	06/13/2018	22:18
PZ11R060618	480-137275-5	U3308624.D	06/13/2018	22:42
OW1060518	480-137275-6	U3308625.D	06/13/2018	23:06
A1PZ2060618	480-137275-7	U3308626.D	06/13/2018	23:30
MW13BR060618	480-137275-8	U3308627.D	06/13/2018	23:54
MW21060718	480-137275-9	U3308628.D	06/14/2018	00:18
MW21060718 MS	480-137275-9 MS	U3308629.D	06/14/2018	00:42
MW21060718 MSD	480-137275-9 MSD	U3308630.D	06/14/2018	01:06
MW21060718 DUP	480-137275-10	U3308631.D	06/14/2018	01:29
EQUIPBLANK060618	480-137275-11	U3308632.D	06/14/2018	01:53
TRIP BLANK	480-137275-12	U3308633.D	06/14/2018	02:17

FORM VII
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCVIS 480-419458/3 Calibration Date: 06/13/2018 18:13

Instrument ID: HP5973U Calib Start Date: 06/12/2018 16:12

GC Column: RXI-5Sil MS(0.5 ID: 0.25(mm) Calib End Date: 06/12/2018 18:16

Lab File ID: U3308613.D Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,4-Dioxane	AveID	1.053	1.087	0.0100	619	600	3.2	20.0
1,4-Dioxane-d8	Lin2		0.4473	0.0100	6090	6000	1.5	20.0

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Batch Number: 419185 Batch Start Date: 06/12/18 14:49 Batch Analyst: Gruning, Anton T

Batch Method: 3510C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	ReceivedpH	FirstAdjustpH	SecondAdjustpH	OP_SIM_LCS 00003
MB 480-419185/1		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU	>11 SU	
LCS 480-419185/2		3510C, 8270D SIM ID		1000 mL	1 mL	7 SU	<2 SU	>11 SU	1 mL
480-137275-A-1	MWF060618	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-B-2	MW23060618	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-B-3	MW5060518	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-B-4	MW1060618	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-A-5	PZ11R060618	3510C, 8270D SIM ID	T	50 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-A-6	OW1060518	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-A-7	A1PZ2060618	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-A-8	MW13BR060618	3510C, 8270D SIM ID	T	100 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-B-9	MW21060718	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-B-9 MS	MW21060718	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	>11 SU	1 mL
480-137275-A-9 MSD	MW21060718	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	>11 SU	1 mL
480-137275-A-10	MW21060718 DUP	3510C, 8270D SIM ID	T	1000 mL	1 mL	7 SU	<2 SU	>11 SU	
480-137275-A-11	EQUIPBLANK060618	3510C, 8270D SIM ID	T	1000 mL	1 mL	6 SU	<2 SU	>11 SU	
480-137275-A-12	TRIP BLANK	3510C, 8270D SIM ID	T	1000 mL	1 mL	6 SU	<2 SU	>11 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	OP_SimSurr 00004	AnalysisComment				
MB 480-419185/1		3510C, 8270D SIM ID		1 mL					
LCS 480-419185/2		3510C, 8270D SIM ID		1 mL					
480-137275-A-1	MWF060618	3510C, 8270D SIM ID	T	1 mL	Cloudy				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D SIM ID

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Batch Number: 419185 Batch Start Date: 06/12/18 14:49 Batch Analyst: Gruning, Anton T

Batch Method: 3510C Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	OP_SimSurr 00004	AnalysisComment				
480-137275-B-2	MW23060618	3510C, 8270D SIM ID	T	1 mL	Cloudy				
480-137275-B-3	MW5060518	3510C, 8270D SIM ID	T	1 mL	Cloudy				
480-137275-B-4	MW1060618	3510C, 8270D SIM ID	T	1 mL					
480-137275-A-5	PZ11R060618	3510C, 8270D SIM ID	T	1 mL	Dark, cloudy with shiny sediment				
480-137275-A-6	OW1060518	3510C, 8270D SIM ID	T	1 mL	Cloudy				
480-137275-A-7	A1PZ2060618	3510C, 8270D SIM ID	T	1 mL	Cloudy, overconcentrated				
480-137275-A-8	MW13BR060618	3510C, 8270D SIM ID	T	1 mL	Cloudy				
480-137275-B-9	MW21060718	3510C, 8270D SIM ID	T	1 mL					
480-137275-B-9 MS	MW21060718	3510C, 8270D SIM ID	T	1 mL					
480-137275-A-9 MSD	MW21060718	3510C, 8270D SIM ID	T	1 mL					
480-137275-A-10	MW21060718 DUP	3510C, 8270D SIM ID	T	1 mL					
480-137275-A-11	EQUIPBLANK060618	3510C, 8270D SIM ID	T	1 mL					
480-137275-A-12	TRIP BLANK	3510C, 8270D SIM ID	T	1 mL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D SIM ID

GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Buffalo Job No.: 480-137275-1

SDG No.:

Batch Number: 419185 Batch Start Date: 06/12/18 14:49 Batch Analyst: Gruning, Anton T

Batch Method: 3510C Batch End Date:

Batch Notes	
Acid Used for pH Adjustment ID	4536397
Base Used to Adjust pH ID	4413636
Analyst ID - Concentration	MV, AG
Analyst ID - Extraction	MV, AG
Method/Fraction	3510C/8270D
Na2SO4 ID	4667733
Prep Solvent ID	4703052
Prep Solvent Volume Used	360 mL
Analyst ID - Spike Analyst	AG
Sufficient Volume for Batch QC	Yes
Vial Lot Number	1709111094

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8270D SIM ID

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFBA #	PFPeA #	PFBS #	PFHxA #	PFHpA #	PFHxS #	M262FTS #	PFOA #
MWF060618	480-137275-1	77	82	86	86	85	92	93	87
MW23060618	480-137275-2	80	82	84	85	85	92	88	90
MW5060518	480-137275-3	62	71	76	77	85	86	97	85
MW1060618	480-137275-4	77	82	83	83	91	91	102	88
PZ11R060618	480-137275-5	62	72	76	78	80	86	139	86
OW1060518	480-137275-6	61	74	81	77	79	89	124	90
A1PZ2060618	480-137275-7	95	90	91	90	92	95	93	90
MW13BR060618	480-137275-8	96	87	86	89	93	96	90	93
MW21060718	480-137275-9	48	61	71	67	72	80	179 *	81
MW21060718 DUP	480-137275-10	56	68	78	76	81	89	196 *	88
EQUIPBLANK060618	480-137275-11	84	81	79	82	85	87	86	81
TRIP BLANK	480-137275-12	99	103	105	100	98	101	96	98
PZ2060618	480-137275-14	78	90	100	97	97	101	143	95
	MB 320-229051/1-A	95	90	84	92	95	93	94	92
	LCS 320-229051/2-A	99	91	89	95	93	98	97	96
MW21060718 MS	480-137275-9 MS	57	71	80	76	87	94	201 *	85
MW21060718 MSD	480-137275-9 MSD	61	78	87	81	92	98	228 *	94

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

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFNA #	PFOS #	M282FTS #	PFDA #	PFOSA #	d3NMFOS #	d5NEFOS #	PFUnA #
MWF060618	480-137275-1	88	90	91	89	86	95	94	91
MW23060618	480-137275-2	87	88	92	89	86	88	88	87
MW5060518	480-137275-3	84	85	84	84	80	84	86	87
MW1060618	480-137275-4	90	94	87	90	82	88	89	92
PZ11R060618	480-137275-5	87	88	123	96	82	78	96	96
OW1060518	480-137275-6	88	94	96	86	82	93	95	96
A1PZ2060618	480-137275-7	92	93	100	91	92	87	93	97
MW13BR060618	480-137275-8	89	92	96	97	86	86	95	86
MW21060718	480-137275-9	81	82	172 *	88	76	85	92	84
MW21060718 DUP	480-137275-10	100	95	187 *	102	88	98	103	107
EQUIPBLANK060618	480-137275-11	81	84	86	88	81	90	95	92
TRIP BLANK	480-137275-12	102	103	113	105	104	108	100	113
PZ2060618	480-137275-14	101	99	131	114	104	93	124	112
	MB 320-229051/1-A	93	93	92	98	85	90	97	93
	LCS 320-229051/2-A	95	98	98	99	87	95	99	94
MW21060718 MS	480-137275-9 MS	97	98	184 *	101	88	101	106	94
MW21060718 MSD	480-137275-9 MSD	102	104	187 *	109	95	111	109	109

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

Column to be used to flag recovery values

FORM II 537 (modified)

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFDoA #	PFTDA #
MWF060618	480-137275-1	89	91
MW23060618	480-137275-2	84	89
MW5060518	480-137275-3	82	83
MW1060618	480-137275-4	86	87
PZ11R060618	480-137275-5	86	82
OW1060518	480-137275-6	86	86
A1PZ2060618	480-137275-7	86	83
MW13BR060618	480-137275-8	84	67
MW21060718	480-137275-9	85	77
MW21060718 DUP	480-137275-10	93	87
EQUIPBLANK060618	480-137275-11	87	89
TRIP BLANK	480-137275-12	101	92
PZ2060618	480-137275-14	107	84
	MB 320-229051/1-A	94	92
	LCS 320-229051/2-A	89	95
MW21060718 MS	480-137275-9 MS	98	87
MW21060718 MSD	480-137275-9 MSD	96	95

	QC LIMITS
PFDoA = 13C2 PFDoA	25-150
PFTDA = 13C2-PFTeDA	25-150

Column to be used to flag recovery values

FORM II 537 (modified)

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Sample No.: IC 320-231835/5 Date Analyzed: 06/29/2018 21:52

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2018.06.29LLICALA_0 Heated Purge: (Y/N) N

Calibration ID: 39859

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		4168201	2.66				
UPPER LIMIT		6252302	2.86				
LOWER LIMIT		2084101	2.46				
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICB 320-231835/9		4109243	2.65				
ICV 320-231835/10		4207014	2.65				
CCV 320-231947/3 CCVIS		4007514	2.65				
CCV 320-232412/3 CCVIS		4725400	2.64				

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 (MODIFIED)

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Sample No.: CCV 320-231947/3 Date Analyzed: 07/01/2018 06:42

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2018.07.01LLA_005.d Heated Purge: (Y/N) N

Calibration ID: 39859

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		4007514	2.65				
UPPER LIMIT		6011271	2.85				
LOWER LIMIT		2003757	2.45				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-231947/1		4078469	2.64				
CCVL 320-231947/2		4170511	2.64				
CCV 320-231951/1		4202001	2.64				
MB 320-229051/1-A		4705209	2.66				
LCS 320-229051/2-A		4466647	2.66				
480-137275-1	MWF060618	4749478	2.65				
480-137275-2	MW23060618	5133543	2.65				
480-137275-3	MW5060518	5451434	2.66				
480-137275-4	MW1060618	5109704	2.66				
480-137275-5	PZ11R060618	5411908	2.66				
480-137275-6	OW1060518	5068978	2.66				
480-137275-7	A1PZ2060618	4681770	2.65				
480-137275-8	MW13BR060618	4867135	2.66				
CCV 320-231951/12		4009045	2.66				
480-137275-9	MW21060718	5526014	2.65				
480-137275-9 MS	MW21060718 MS	5169834	2.66				
480-137275-9 MSD	MW21060718 MSD	4786362	2.66				
480-137275-10	MW21060718 DUP	5334614	2.66				
480-137275-11	EQUIPBLANK060618	5182836	2.65				
CCV 320-231951/20		4170526	2.67				

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 (MODIFIED)

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Sample No.: CCV 320-232412/3 Date Analyzed: 07/04/2018 03:51

Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3(mm)

Lab File ID (Standard): 2018.07.04LLA_003.d Heated Purge: (Y/N) N

Calibration ID: 39859

		13PFOA					
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		4725400	2.64				
UPPER LIMIT		7088100	2.84				
LOWER LIMIT		2362700	2.44				
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCB 320-232412/1		4337989	2.64				
CCVL 320-232412/2		4456689	2.64				
CCV 320-232416/1		4687667	2.64				
480-137275-12	TRIP BLANK	5249495	2.64				
480-137275-14	PZ2060618	5592438	2.64				
CCV 320-232416/10		4393521	2.64				

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area
RT Limit = ± 0.2 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 537 (MODIFIED)

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab File ID: 2018.07.01LLA_045.d Lab Sample ID: MB 320-229051/1-A

Matrix: Water Date Extracted: 06/14/2018 10:26

Instrument ID: A8_N Date Analyzed: 07/01/2018 11:55

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-229051/2-A	2018.07.01LLA_046.d	07/01/2018 12:03
MWF060618	480-137275-1	2018.07.01LLA_047.d	07/01/2018 12:11
MW23060618	480-137275-2	2018.07.01LLA_048.d	07/01/2018 12:19
MW5060518	480-137275-3	2018.07.01LLA_049.d	07/01/2018 12:26
MW1060618	480-137275-4	2018.07.01LLA_050.d	07/01/2018 12:34
PZ11R060618	480-137275-5	2018.07.01LLA_051.d	07/01/2018 12:42
OW1060518	480-137275-6	2018.07.01LLA_052.d	07/01/2018 12:50
A1PZ2060618	480-137275-7	2018.07.01LLA_053.d	07/01/2018 12:58
MW13BR060618	480-137275-8	2018.07.01LLA_054.d	07/01/2018 13:06
MW21060718	480-137275-9	2018.07.01LLA_056.d	07/01/2018 13:21
MW21060718 MS	480-137275-9 MS	2018.07.01LLA_057.d	07/01/2018 13:29
MW21060718 MSD	480-137275-9 MSD	2018.07.01LLA_058.d	07/01/2018 13:37
MW21060718 DUP	480-137275-10	2018.07.01LLA_059.d	07/01/2018 13:45
EQUIPBLANK060618	480-137275-11	2018.07.01LLA_060.d	07/01/2018 13:52
TRIP BLANK	480-137275-12	2018.07.04LLA_020.d	07/04/2018 06:04
PZ2060618	480-137275-14	2018.07.04LLA_021.d	07/04/2018 06:12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-229051/1-A

Matrix: Water | Lab File ID: 2018.07.01LLA_045.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 07/01/2018 11:55

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	20	U	20	2.0
39108-34-4	8:2 FTS	20	U	20	2.0
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20
375-22-4	Perfluorobutanoic acid (PFBA)	1.57	J	2.0	0.35
335-77-3	Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32
335-76-2	Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31
307-55-1	Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.302	J	2.0	0.17
307-24-4	Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58
375-95-1	Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27
754-91-6	Perfluorooctane Sulfonamide (FOSA)	2.0	U	2.0	0.35
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54
335-67-1	Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85
2706-90-3	Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49
376-06-7	Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	2.0	U	2.0	1.3
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-229051/1-A

Matrix: Water | Lab File ID: 2018.07.01LLA_045.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 06/14/2018 10:26

Sample wt/vol: 250.0(mL) | Date Analyzed: 07/01/2018 11:55

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231951 | Units: ng/L

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	98		25-150
STL00998	13C2 PFDoA	94		25-150
STL00993	13C2 PFHxA	92		25-150
STL00997	13C2 PFUnA	93		25-150
STL02116	13C2-PFTeDA	92		25-150
STL02337	13C3-PFBS	84		25-150
STL00992	13C4 PFBA	95		25-150
STL00990	13C4 PFOA	92		25-150
STL00991	13C4 PFOS	93		25-150
STL01892	13C4-PFHpA	95		25-150
STL00995	13C5 PFNA	93		25-150
STL01893	13C5 PFPeA	90		25-150
STL01056	13C8 FOSA	85		25-150
STL00994	18O2 PFHxS	93		25-150
STL02118	d3-NMeFOSAA	90		25-150
STL02117	d5-NEtFOSAA	97		25-150
STL02279	M2-6:2FTS	94		25-150
STL02280	M2-8:2FTS	92		25-150

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_046.d

Lab ID: LCS 320-229051/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
13C2 PFDA	100	99.0	99	25-150	
13C2 PFDoA	100	88.8	89	25-150	
13C2 PFHxA	100	94.5	95	25-150	
13C2 PFUnA	100	94.2	94	25-150	
13C2-PFTeDA	100	95.1	95	25-150	
13C3-PFBS	93.0	82.3	89	25-150	
13C4 PFBA	100	99.0	99	25-150	
13C4 PFOA	100	96.0	96	25-150	
13C4 PFOS	95.6	93.7	98	25-150	
13C4-PFHpA	100	92.5	93	25-150	
13C5 PFNA	100	95.1	95	25-150	
13C5 PFPeA	100	91.0	91	25-150	
13C8 FOSA	100	87.2	87	25-150	
18O2 PFHxS	94.6	92.5	98	25-150	
6:2 FTS	37.9	35.5	94	66-126	
8:2 FTS	38.3	36.7	96	67-127	
d3-NMeFOSAA	100	95.0	95	25-150	
d5-NEtFOSAA	100	98.9	99	25-150	
M2-6:2FTS	95.0	92.4	97	25-150	
M2-8:2FTS	95.8	93.6	98	25-150	
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	40.0	36.6	92	65-125	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	40.0	38.3	96	67-127	
Perfluorobutanesulfonic acid (PFBS)	35.4	34.7	98	73-133	
Perfluorobutanoic acid (PFBA)	40.0	37.1	93	70-130	
Perfluorodecanesulfonic acid (PFDS)	38.6	34.0	88	68-128	
Perfluorodecanoic acid (PFDA)	40.0	35.7	89	69-129	
Perfluorododecanoic acid (PFDoA)	40.0	38.7	97	71-131	
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	34.5	91	68-128	
Perfluoroheptanoic acid (PFHpA)	40.0	38.7	97	66-126	
Perfluorohexanesulfonic acid (PFHxS)	36.4	31.3	86	63-123	
Perfluorohexanoic acid (PFHxA)	40.0	35.7	89	66-126	
Perfluorononanoic acid (PFNA)	40.0	35.6	89	68-128	
Perfluorooctane Sulfonamide (FOSA)	40.0	38.1	95	70-130	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_046.d

Lab ID: LCS 320-229051/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	37.1	33.6	90	67-127	
Perfluorooctanoic acid (PFOA)	40.0	34.6	86	64-124	
Perfluoropentanoic acid (PFPeA)	40.0	36.4	91	66-126	
Perfluorotetradecanoic acid (PFTeA)	40.0	37.8	95	68-128	
Perfluorotridecanoic Acid (PFTriA)	40.0	40.2	100	72-132	
Perfluoroundecanoic acid (PFUnA)	40.0	34.9	87	60-120	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_057.d

Lab ID: 480-137275-9 MS Client ID: MW21060718 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
13C2 PFDA	98.3	86	99.4	101	25-150	
13C2 PFDoA	98.3	84	96.7	98	25-150	
13C2 PFHxA	98.3	66	74.8	76	25-150	
13C2 PFUnA	98.3	83	92.7	94	25-150	
13C2-PFTeDA	98.3	76	85.0	87	25-150	
13C3-PFBS	91.4	65	73.5	80	25-150	
13C4 PFBA	98.3	48	55.7	57	25-150	
13C4 PFOA	98.3	80	83.4	85	25-150	
13C4 PFOS	94.0	77	92.4	98	25-150	
13C4-PFHpA	98.3	71	85.4	87	25-150	
13C5 PFNA	98.3	80	95.2	97	25-150	
13C5 PFPeA	98.3	60	69.9	71	25-150	
13C8 FOSA	98.3	75	86.9	88	25-150	
18O2 PFHxS	93.0	75	87.6	94	25-150	
6:2 FTS	37.3	20 U	33.4	90	66-126	
8:2 FTS	37.7	20 U	35.0	93	67-127	
d3-NMeFOSAA	98.3	84	99.2	101	25-150	
d5-NEtFOSAA	98.3	91	104	106	25-150	
M2-6:2FTS	93.4	170	187	201	25-150	*
M2-8:2FTS	94.2	160	173	184	25-150	*
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	39.3	20 U	37.1	94	65-125	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	39.3	20 U	39.9	102	67-127	
Perfluorobutanesulfonic acid (PFBS)	34.8	0.34 J	32.9	94	73-133	
Perfluorobutanoic acid (PFBA)	39.3	14	45.7	80	70-130	
Perfluorodecanesulfonic acid (PFDS)	37.9	1.1 J	34.8	89	68-128	
Perfluorodecanoic acid (PFDA)	39.3	1.3 J	36.2	89	69-129	
Perfluorododecanoic acid (PFDoA)	39.3	0.88 J	36.8	91	71-131	
Perfluoroheptanesulfonic Acid (PFHpS)	37.4	0.21 J	34.4	91	68-128	
Perfluoroheptanoic acid (PFHpA)	39.3	7.5	39.6	82	66-126	
Perfluorohexanesulfonic acid (PFHxS)	35.8	1.7 J	30.4	80	63-123	
Perfluorohexanoic acid (PFHxA)	39.3	41	67.5	68	66-126	
Perfluorononanoic acid (PFNA)	39.3	1.4 J	35.1	86	68-128	
Perfluorooctane Sulfonamide (FOSA)	39.3	0.60 J	37.1	93	70-130	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_057.d

Lab ID: 480-137275-9 MS Client ID: MW21060718 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	36.5	26	48.7	63	67-127	F1
Perfluorooctanoic acid (PFOA)	39.4	7.7	44.4	93	64-124	
Perfluoropentanoic acid (PFPeA)	39.3	46	66.2	52	66-126	F1
Perfluorotetradecanoic acid (PFTeA)	39.3	0.29 J	38.2	96	68-128	
Perfluorotridecanoic Acid (PFTriA)	39.3	2.0 U	32.8	83	72-132	
Perfluoroundecanoic acid (PFUnA)	39.3	2.0 U	35.7	91	60-120	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_058.d

Lab ID: 480-137275-9 MSD Client ID: MW21060718 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
13C2 PFDA	99.5	108	109			25-150	
13C2 PFDoA	99.5	95.2	96			25-150	
13C2 PFHxA	99.5	80.8	81			25-150	
13C2 PFUnA	99.5	108	109			25-150	
13C2-PFTeDA	99.5	94.6	95			25-150	
13C3-PFBS	92.5	80.5	87			25-150	
13C4 PFBA	99.5	60.8	61			25-150	
13C4 PFOA	99.5	93.8	94			25-150	
13C4 PFOS	95.1	98.9	104			25-150	
13C4-PFHpA	99.5	91.5	92			25-150	
13C5 PFNA	99.5	102	102			25-150	
13C5 PFPeA	99.5	77.4	78			25-150	
13C8 FOSA	99.5	94.9	95			25-150	
18O2 PFHxS	94.1	92.1	98			25-150	
6:2 FTS	37.7	31.1	83	7	30	66-126	
8:2 FTS	38.1	35.6	94	2	30	67-127	
d3-NMeFOSAA	99.5	110	111			25-150	
d5-NEtFOSAA	99.5	108	109			25-150	
M2-6:2FTS	94.5	216	228			25-150	*
M2-8:2FTS	95.3	178	187			25-150	*
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	39.8	38.9	98	5	30	65-125	
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	39.8	40.1	101	0	30	67-127	
Perfluorobutanesulfonic acid (PFBS)	35.2	34.2	96	4	30	73-133	
Perfluorobutanoic acid (PFBA)	39.8	46.9	82	3	30	70-130	
Perfluorodecanesulfonic acid (PFDS)	38.4	35.5	90	2	30	68-128	
Perfluorodecanoic acid (PFDA)	39.8	35.1	85	3	30	69-129	
Perfluorododecanoic acid (PFDoA)	39.8	37.8	93	3	30	71-131	
Perfluoroheptanesulfonic Acid (PFHpS)	37.9	35.6	93	3	30	68-128	
Perfluoroheptanoic acid (PFHpA)	39.8	43.0	89	8	30	66-126	
Perfluorohexanesulfonic acid (PFHxS)	36.2	33.2	87	9	30	63-123	
Perfluorohexanoic acid (PFHxA)	39.8	69.9	73	4	30	66-126	
Perfluorononanoic acid (PFNA)	39.8	37.5	91	7	30	68-128	
Perfluorooctane Sulfonamide (FOSA)	39.8	38.8	96	4	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Matrix: Water Level: Low Lab File ID: 2018.07.01LLA_058.d

Lab ID: 480-137275-9 MSD Client ID: MW21060718 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	36.9	55.1	80	12	30	67-127	
Perfluorooctanoic acid (PFOA)	39.8	45.1	94	2	30	64-124	
Perfluoropentanoic acid (PFPeA)	39.8	68.8	58	4	30	66-126	F1
Perfluorotetradecanoic acid (PFTeA)	39.8	40.4	101	5	30	68-128	
Perfluorotridecanoic Acid (PFTriA)	39.8	37.5	94	13	30	72-132	
Perfluoroundecanoic acid (PFUnA)	39.8	35.7	90	0	30	60-120	

Column to be used to flag recovery and RPD values

FORM III 537 (modified)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Instrument ID: A8_N Start Date: 06/29/2018 21:29

Analysis Batch Number: 231835 End Date: 06/29/2018 22:39

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-231835/2		06/29/2018 21:29	1	2018.06.29LLICALA 002.d	GeminiC18 3x100 3(mm)
IC 320-231835/3		06/29/2018 21:36	1	2018.06.29LLICALA 003.d	GeminiC18 3x100 3(mm)
IC 320-231835/4		06/29/2018 21:44	1	2018.06.29LLICALA 004.d	GeminiC18 3x100 3(mm)
IC 320-231835/5 ICIS		06/29/2018 21:52	1	2018.06.29LLICALA 005.d	GeminiC18 3x100 3(mm)
IC 320-231835/6		06/29/2018 22:00	1	2018.06.29LLICALA 006.d	GeminiC18 3x100 3(mm)
IC 320-231835/7		06/29/2018 22:08	1	2018.06.29LLICALA 007.d	GeminiC18 3x100 3(mm)
IC 320-231835/8		06/29/2018 22:16	1	2018.06.29LLICALA 008.d	GeminiC18 3x100 3(mm)
ICB 320-231835/9		06/29/2018 22:23	1	2018.06.29LLICALA 009.d	GeminiC18 3x100 3(mm)
ICV 320-231835/10		06/29/2018 22:31	1	2018.06.29LLICALA 010.d	GeminiC18 3x100 3(mm)
CCB 320-231835/11		06/29/2018 22:39	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-231835/2	2018.06.29LLICALA_002.d
Level 2	IC 320-231835/3	2018.06.29LLICALA_003.d
Level 3	IC 320-231835/4	2018.06.29LLICALA_004.d
Level 4	IC 320-231835/5	2018.06.29LLICALA_005.d
Level 5	IC 320-231835/6	2018.06.29LLICALA_006.d
Level 6	IC 320-231835/7	2018.06.29LLICALA_007.d
Level 7	IC 320-231835/8	2018.06.29LLICALA_008.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanoic acid (PFBA)	1.1172 1.0147	1.0378 0.9924	0.9746	0.9742	1.0109	AveID		1.0174				4.9		35.0			
Perfluoropentanoic acid (PFPeA)	1.1831 1.1764	1.2809 1.1416	1.1626	1.1873	1.1798	AveID		1.1874				3.7		35.0			
Perfluorobutanesulfonic acid (PFBS)	79.069 78.301	77.680 74.556	75.181	76.908	78.450	AveID		77.163				2.2		50.0			
4:2 FTS	22.926 18.821	20.439 18.373	19.234	18.646	19.569	AveID		19.715				8.0		50.0			
Perfluorohexanoic acid (PFHxA)	0.9740 1.0307	1.1170 1.0482	0.9998	1.0381	1.0327	AveID		1.0344				4.3		35.0			
Perfluoropentanesulfonic acid (PFPeS)	71.573 70.160	67.484 65.414	69.342	69.002	71.219	AveID		69.171				3.1		50.0			
HFPO-DA (GenX)	3.4338 3.6895	2.6734 3.7420	3.2333	3.5532	3.6963	AveID		3.4316				11.0		35.0			
Perfluoroheptanoic acid (PFHpA)	1.2725 1.1312	1.0179 1.0825	1.0536	1.1126	1.0932	AveID		1.1091				7.3		35.0			
Perfluorohexanesulfonic acid (PFHxS)	1.3541 1.1133	1.2539 1.1879	1.0335	1.0628	1.1052	AveID		1.1587				9.8		35.0			
ADONA	4.2596 3.9743	4.0550 3.3491	3.9704	4.2716	4.0986	AveID		3.9969				7.8		50.0			
6:2 FTS	1.5015 1.6305	1.5781 1.6740	1.6010	1.5976	1.6672	AveID		1.6071				3.7		35.0			
Perfluorooctanoic acid (PFOA)	1.2981 1.1451	1.1933 1.0999	1.1186	1.1664	1.2071	AveID		1.1755				5.6		35.0			
Perfluoroheptanesulfonic Acid (PFHpS)	1.2603 1.4385	1.3364 1.3173	1.3690	1.3812	1.4110	AveID		1.3591				4.4		50.0			
Perfluorononanoic acid (PFNA)	1.3006 1.1390	1.1247 1.1055	1.0619	1.0454	1.0020	AveID		1.1113				8.7		35.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorooctanesulfonic acid (PFOS)	1.1744 1.1875	1.2182 1.1558	1.1195	1.1233	1.1612	AveID		1.1628				3.0		35.0			
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate	1.7292 1.9978	1.9852 1.8756	1.8329	1.9569	1.9237	AveID		1.9002				5.0		50.0			
Perfluorononanesulfonic acid (PFNS)	0.7933 0.8189	0.8645 0.7890	0.7846	0.7919	0.7943	AveID		0.8052				3.5		50.0			
Perfluorooctane Sulfonamide (FOSA)	0.9209 0.9897	1.0093 1.0018	1.0079	1.0226	1.0660	AveID		1.0026				4.3		35.0			
8:2 FTS	1.3651 1.3034	1.3378 1.3200	1.3111	1.4039	1.3853	AveID		1.3467				2.9		35.0			
Perfluorodecanoic acid (PFDA)	1.1434 1.0626	1.0656 1.0181	1.0651	0.9934	1.0803	AveID		1.0612				4.5		35.0			
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.9972 1.0074	0.8393 0.9793	0.9400	0.9204	1.0028	AveID		0.9552				6.4		35.0			
Perfluorodecanesulfonic acid (PFDS)	0.6679 0.7024	0.6462 0.7045	0.6843	0.6936	0.7190	AveID		0.6883				3.6		50.0			
Perfluoroundecanoic acid (PFUnA)	1.0160 0.8771	0.9333 0.8713	0.8908	0.7937	0.9325	AveID		0.9021				7.6		35.0			
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.8603 0.8826	0.9246 0.9634	0.8969	0.8354	0.8931	AveID		0.8938				4.7		35.0			
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate	2.8903 2.9030	2.9688 2.5914	3.0325	2.9569	3.1770	AveID		2.9314				6.1		50.0			
Perfluorododecanoic acid (PFDoA)	0.8803 1.0723	1.1610 1.1170	1.1090	1.0943	1.1434	AveID		1.0825				8.7		35.0			
Perfluorotridecanoic Acid (PFTriA)	1.3189 1.1473	1.1343 1.2037	1.0878	1.1059	1.2011	AveID		1.1713				6.7		50.0			
Perfluorotetradecanoic acid (PFTeA)	0.2983 0.2475	0.2357 0.2391	0.2446	0.2456	0.2400	AveID		0.2501				8.7		50.0			
Perfluoro-n-hexadecanoic acid (PFHxDA)	1.7330 0.9268	1.3763 0.9277	1.0468	0.9667	0.9674	L1ID	0.0218	0.9305							1.0000		0.9900
Perfluoro-n-octadecanoic acid (PFODA)	1.1241 1.1022	1.1322 1.0863	1.0274	1.1221	1.1069	AveID		1.1002				3.2		50.0			
13C4 PFBA	1.3863 1.3876	1.3300 1.5102	1.3550	1.3868	1.4226	Ave		1.3969				4.1		50.0			
13C5 PFPeA	0.9682 0.9686	0.9284 1.0521	0.9535	0.9748	1.0208	Ave		0.9809				4.3		50.0			
13C3-PFBS	0.0213 0.0212	0.0204 0.0227	0.0212	0.0219	0.0227	Ave		0.0216				4.0		50.0			
M2-4:2FTS	0.1729 0.1583	0.1703 0.1635	0.1586	0.1573	0.1728	Ave		0.1648				4.3		50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5		B	M1	M2								
13C2 PFHxA	1.0894 1.0693	1.0509 1.0792	1.0299	1.0727	1.1271	Ave		1.0741				2.8		50.0			
13C3 HFPO-DA	0.0496 0.0487	0.0531 0.0527	0.0512	0.0496	0.0509	Ave		0.0508				3.3		50.0			
13C4-PFHpA	1.0103 0.9285	0.9649 1.0337	0.9845	0.9750	1.0680	Ave		0.9950				4.7		50.0			
18O2 PFHxS	1.2140 1.1143	1.1146 1.1204	1.1828	1.1747	1.2103	Ave		1.1616				3.8		50.0			
M2-6:2FTS	0.2505 0.2341	0.2364 0.2377	0.2370	0.2423	0.2494	Ave		0.2411				2.7		50.0			
13C4 PFOA	0.9586 0.9614	0.9358 0.9784	0.9307	0.9510	0.9678	Ave		0.9548				1.8		50.0			
13C4 PFOS	0.7870 0.7450	0.7462 0.7838	0.7760	0.7919	0.8213	Ave		0.7787				3.4		50.0			
13C5 PFNA	0.8244 0.7339	0.7794 0.7798	0.7715	0.7963	0.8488	Ave		0.7906				4.7		50.0			
13C8 FOSA	1.0769 1.0021	1.0237 0.9933	0.9893	1.0141	1.0645	Ave		1.0234				3.4		50.0			
M2-8:2FTS	0.2813 0.2414	0.2639 0.2541	0.2719	0.2480	0.2737	Ave		0.2621				5.6		50.0			
13C2 PFDA	0.6633 0.6205	0.6194 0.6454	0.6360	0.6697	0.6628	Ave		0.6453				3.2		50.0			
d3-NMeFOSAA	0.3813 0.3793	0.3579 0.4140	0.3827	0.3964	0.3969	Ave		0.3869				4.6		50.0			
d5-NEtFOSAA	0.4059 0.3505	0.3871 0.3625	0.3843	0.3988	0.3880	Ave		0.3825				5.1		50.0			
13C2 PFUnA	0.5402 0.5121	0.5421 0.5155	0.5064	0.5590	0.5360	Ave		0.5302				3.6		50.0			
13C2 PFDoA	0.6148 0.5967	0.5817 0.6172	0.6203	0.6250	0.6480	Ave		0.6148				3.4		50.0			
13C2-PFTeDA	0.7905 0.7344	0.7538 0.7760	0.7400	0.7743	0.7969	Ave		0.7666				3.2		50.0			
13C2-PFHxDA	1.4812 1.4223	1.4101 1.3815	1.3890	1.4499	1.5161	Ave		1.4357				3.4		50.0			

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

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-231835/2	2018.06.29LLICALA_002.d
Level 2	IC 320-231835/3	2018.06.29LLICALA_003.d
Level 3	IC 320-231835/4	2018.06.29LLICALA_004.d
Level 4	IC 320-231835/5	2018.06.29LLICALA_005.d
Level 5	IC 320-231835/6	2018.06.29LLICALA_006.d
Level 6	IC 320-231835/7	2018.06.29LLICALA_007.d
Level 7	IC 320-231835/8	2018.06.29LLICALA_008.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
Perfluorobutanoic acid (PFBA)		AveID	63343 11741171	126354 23128489	610361	2252577	5508925	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanoic acid (PFPeA)		AveID	46852 9501364	108868 18536324	512335	1929658	4613629	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorobutanesulfonic acid (PFBS)		AveID	60783 12236181	128257 23050057	650349	2478950	6043590	0.0221 4.42	0.0442 8.84	0.221	0.884	2.21
4:2 FTS		AveID	18621 3107472	35656 6001471	175795	635002	1592786	0.0234 4.67	0.0467 9.34	0.234	0.934	2.34
Perfluorohexanoic acid (PFHxA)		AveID	43400 9190933	107466 17458801	475916	1856655	4458485	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoropentanesulfonic acid (PFPeS)		AveID	58382 11633698	118229 21459182	636482	2359989	5821695	0.0235 4.69	0.0469 9.38	0.235	0.938	2.35
HFPO-DA (GenX)		AveID	6959 1498805	13008 3044328	76449	293630	720752	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoroheptanoic acid (PFHpA)		AveID	52584 8757903	89912 17268732	479453	1808556	4472196	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorohexanesulfonic acid (PFHxS)		AveID	61184 9413780	116431 18691081	514149	1894329	4662604	0.0228 4.55	0.0455 9.10	0.228	0.910	2.28
ADONA		AveID	129163 23257472	260958 38162957	1341342	5312499	12146932	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
6:2 FTS		AveID	14584 3017922	32377 5820534	166253	611856	1509731	0.0237 4.74	0.0474 9.48	0.237	0.948	2.37
Perfluorooctanoic acid (PFOA)		AveID	50947 9189211	102335 16625027	481654	1851409	4479330	0.0250 5.01	0.0501 10.0	0.250	1.00	2.50
Perfluoroheptanesulfonic Acid (PFHpS)		AveID	38620 8507357	86914 15169426	467426	1735998	4226190	0.0238 4.76	0.0476 9.52	0.238	0.952	2.38
Perfluorononanoic acid (PFNA)		AveID	43852 6970772	80249 13304232	378656	1387831	3257852	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorooctanesulfonic acid (PFOS)		AveID	35082 6845858	77229 12974045	372592	1376214	3390238	0.0232 4.64	0.0464 9.28	0.232	0.928	2.32

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonate		AveID	51876 11567093	126398 21145191	612649	2407964	5640819	0.0233 4.66	0.0466 9.32	0.233	0.932	2.33
Perfluorononanesulfonic acid (PFNS)		AveID	24516 4883680	56695 9162545	270116	1003682	2399114	0.0240 4.80	0.0480 9.60	0.240	0.960	2.40
Perfluorooctane Sulfonamide (FOSA)		AveID	40561 8270576	94580 15357897	460857	1729076	4346618	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
8:2 FTS		AveID	15048 2513469	30968 4958739	157827	556151	1391409	0.0240 4.79	0.0479 9.58	0.240	0.958	2.40
Perfluorodecanoic acid (PFDA)		AveID	31018 5498196	60419 10140917	313067	1109123	2743088	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)		AveID	15552 3186253	27497 6257140	166284	608345	1524413	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorodecanesulfonic acid (PFDS)		AveID	20726 4206492	42559 8214689	236582	882815	2180555	0.0241 4.82	0.0482 9.64	0.241	0.964	2.41
Perfluoroundecanoic acid (PFUnA)		AveID	22447 3744964	46322 6931775	208512	739739	1914730	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)		AveID	14281 2579637	32768 5390142	159315	555505	1327250	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonate		AveID	87642 16988504	191054 29528990	1024495	3677381	9415700	0.0236 4.71	0.0471 9.42	0.236	0.942	2.36
Perfluorododecanoic acid (PFDoA)		AveID	22136 5334947	61822 10640247	317910	1140263	2838470	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotridecanoic Acid (PFTriA)		AveID	33165 5708249	60399 11465935	311842	1152386	2981566	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluorotetradecanoic acid (PFTeA)		AveID	9644 1515366	16269 2863050	83650	317057	732758	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-hexadecanoic acid (PFHxDA)		L1ID	104989 10991709	177676 19777832	672010	2336955	5618411	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
Perfluoro-n-octadecanoic acid (PFODA)		AveID	68099 13072405	146155 23160118	659572	2712647	6428481	0.0250 5.00	0.0500 10.0	0.250	1.00	2.50
13C4 PFBA	13PFOA	Ave	5669907 5785463	6087691 5826550	6262374	5780456	5449346	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C5 PFPeA	13PFOA	Ave	3960055 4038335	4249734 4059427	4406926	4063195	3910355	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3-PFBS	13PFOA	Ave	80874 82201	86851 81313	91006	84775	81046	2.33 2.33	2.33 2.33	2.33	2.33	2.33
M2-4:2FTS	13PFOA	Ave	660383 616394	728227 589051	684729	612236	618269	2.34 2.34	2.34 2.34	2.34	2.34	2.34
13C2 PFHxA	13PFOA	Ave	4455638 4458382	4810563 4163964	4760163	4471278	4317490	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C3 HFPO-DA	13PFOA	Ave	202662 203116	243286 203387	236443	206597	194995	2.50 2.50	2.50 2.50	2.50	2.50	2.50

FORM VI
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1 Analy Batch No.: 231835

SDG No.:

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/29/2018 21:29 Calibration End Date: 06/29/2018 22:16 Calibration ID: 39859

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3	LVL 4	LVL 5
13C4-PFHpA	13PF OA	Ave	4132240 3871069	4416706 3988277	4550423	4063826	4090923	2.50 2.50	2.50 2.50	2.50	2.50	2.50
18O2 PFHxS	13PF OA	Ave	4697015 4395037	4826276 4089199	5171616	4632149	4385789	2.37 2.37	2.37 2.37	2.37	2.37	2.37
M2-6:2FTS	13PF OA	Ave	973359 927417	1028014 871081	1040599	959459	907459	2.38 2.38	2.38 2.38	2.38	2.38	2.38
13C4 PFOA	13PF OA	Ave	3920686 4008387	4283590 3774933	4301713	3964131	3707106	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C4 PFOS	13PF OA	Ave	3077341 2969473	3265540 2891085	3428587	3155396	3007709	2.39 2.39	2.39 2.39	2.39	2.39	2.39
13C5 PFNA	13PF OA	Ave	3371665 3059923	3567496 3008741	3565828	3318974	3251248	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C8 FOSA	13PF OA	Ave	4404580 4178174	4685651 3832562	4572335	4227113	4077656	2.50 2.50	2.50 2.50	2.50	2.50	2.50
M2-8:2FTS	13PF OA	Ave	1102336 964231	1157380 939188	1203743	990382	1004377	2.40 2.40	2.40 2.40	2.40	2.40	2.40
13C2 PFDA	13PF OA	Ave	2712679 2587120	2835108 2490269	2939262	2791311	2539116	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d3-NMeFOSAA	13PF OA	Ave	1559520 1581489	1638012 1597284	1768886	1652411	1520200	2.50 2.50	2.50 2.50	2.50	2.50	2.50
d5-NEtFOSAA	13PF OA	Ave	1659993 1461344	1771980 1398706	1776279	1662467	1486190	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFUnA	13PF OA	Ave	2209251 2134943	2481505 1989027	2340674	2329895	2053362	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2 PFDoA	13PF OA	Ave	2514542 2487635	2662501 2381403	2866693	2605043	2482377	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFTeDA	13PF OA	Ave	3232976 3061795	3450533 2994139	3420305	3227344	3052797	2.50 2.50	2.50 2.50	2.50	2.50	2.50
13C2-PFHxDA	13PF OA	Ave	6058178 5930151	6454693 5329991	6419892	6043418	5807526	2.50 2.50	2.50 2.50	2.50	2.50	2.50

Curve Type Legend:

Ave = Average ISTD
AveID = Average isotope dilution
L1ID = Linear 1/conc IsoDil

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: ICV 320-231835/10 Calibration Date: 06/29/2018 22:31

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.06.29LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9762		2.40	2.50	-4.1	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.133		2.38	2.50	-4.6	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	79.50		2.28	2.21	3.0	50.0
4:2 FTS	AveID	19.72	18.05		2.14	2.34	-8.5	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	0.996		2.41	2.50	-3.7	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	70.12		2.38	2.35	1.4	50.0
HFPO-DA (GenX)	AveID	3.432	2.912		2.12	2.50	-15.1	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.053		2.37	2.50	-5.0	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.051		2.07	2.28	-9.3	40.0
ADONA	AveID	3.997	3.743		2.34	2.50	-6.4	50.0
6:2 FTS	AveID	1.607	1.632		2.41	2.38	1.6	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.105		2.35	2.50	-6.0	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.358		2.37	2.38	-0.0	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.016		2.29	2.50	-8.6	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.127		2.24	2.31	-3.1	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.796		2.20	2.33	-5.5	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8228		2.45	2.40	2.2	50.0
8:2 FTS	AveID	1.347	1.304		2.32	2.40	-3.2	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	1.042		2.60	2.50	3.9	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.072		2.53	2.50	1.0	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.063		2.78	2.50	11.3	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.6713		2.35	2.41	-2.5	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	1.054		2.95	2.50	17.9	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.8398		2.33	2.50	-6.9	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	2.851		2.29	2.36	-2.7	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.044		2.41	2.50	-3.5	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.103		2.35	2.50	-5.8	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2474		2.47	2.50	-1.1	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9601		2.56	2.50	2.2	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: ICV 320-231835/10 Calibration Date: 06/29/2018 22:31

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.06.29LLICALA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.116		2.54	2.50	1.5	50.0
13C4 PFBA	Ave	1.397	1.399		2.50	2.50	0.2	50.0
13C5 PFPeA	Ave	0.9809	0.9778		2.49	2.50	-0.3	50.0
13C3-PFBS	Ave	0.0216	0.0215		2.31	2.33	-0.4	50.0
M2-4:2FTS	Ave	0.1648	0.1700		2.41	2.34	3.1	50.0
13C2 PFHxA	Ave	1.074	1.091		2.54	2.50	1.5	50.0
13C3 HFPO-DA	Ave	0.0508	0.0538		2.64	2.50	5.8	50.0
13C4-PFHpA	Ave	0.9950	1.020		2.56	2.50	2.5	50.0
18O2 PFHxS	Ave	1.162	1.164		2.37	2.37	0.2	50.0
M2-6:2FTS	Ave	0.2411	0.2325		2.29	2.38	-3.6	40.0
13C4 PFOA	Ave	0.9548	0.9644		2.53	2.50	1.0	50.0
13C4 PFOS	Ave	0.7787	0.7730		2.37	2.39	-0.7	50.0
13C5 PFNA	Ave	0.7906	0.7773		2.46	2.50	-1.7	50.0
M2-8:2FTS	Ave	0.2621	0.2612		2.39	2.40	-0.3	40.0
13C8 FOSA	Ave	1.023	1.009		2.47	2.50	-1.4	50.0
13C2 PFDA	Ave	0.6453	0.6490		2.51	2.50	0.6	50.0
d3-NMeFOSAA	Ave	0.3869	0.3878		2.51	2.50	0.2	50.0
d5-NEtFOSAA	Ave	0.3825	0.3475		2.27	2.50	-9.1	50.0
13C2 PFUnA	Ave	0.5302	0.5307		2.50	2.50	0.0	50.0
13C2 PFDoA	Ave	0.6148	0.6200		2.52	2.50	0.8	50.0
13C2-PFTeDA	Ave	0.7666	0.7512		2.45	2.50	-2.0	50.0
13C2-PFHxDA	Ave	1.436	1.434		2.50	2.50	-0.1	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Instrument ID: A8_N Start Date: 07/01/2018 06:26

Analysis Batch Number: 231947 End Date: 07/01/2018 07:52

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-231947/1		07/01/2018 06:26	1	2018.07.01LLA_003.d	GeminiC18 3x100 3(mm)
CCVL 320-231947/2		07/01/2018 06:34	1	2018.07.01LLA_004.d	GeminiC18 3x100 3(mm)
CCV 320-231947/3 CCVIS		07/01/2018 06:42	1	2018.07.01LLA_005.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 06:50	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 06:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:13	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:37	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 07:45	1		GeminiC18 3x100 3(mm)
CCV 320-231947/12		07/01/2018 07:52	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCVL 320-231947/2 Calibration Date: 07/01/2018 06:34

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	1.116		0.0548	0.0500	9.7	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.257		0.0529	0.0500	5.9	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	78.02		0.0447	0.0442	1.1	50.0
4:2 FTS	AveID	19.72	17.97		0.500	0.0467	-8.8	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.041		0.0503	0.0500	0.6	50.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	75.52		0.0512	0.0469	9.2	50.0
HFPO-DA (GenX)	AveID	3.432	3.526		0.0514	0.0500	2.8	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.140		0.0514	0.0500	2.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.163		0.0457	0.0455	0.4	50.0
ADONA	AveID	3.997	4.223		0.0498	0.0471	5.7	50.0
6:2 FTS	AveID	1.607	1.714		0.0506	0.0474	6.7	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.388		0.0591	0.0501	18.1	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.364		0.0478	0.0476	0.4	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.039		0.0468	0.0500	-6.5	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.262		0.0504	0.0464	8.6	50.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.872		0.0459	0.0466	-1.5	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8319		0.0496	0.0480	3.3	50.0
8:2 FTS	AveID	1.347	1.438		0.0511	0.0479	6.8	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.9891		0.0493	0.0500	-1.4	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	0.9789		0.0461	0.0500	-7.8	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	0.9930		0.500	0.0500	4.0	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7751		0.0543	0.0482	12.6	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.9625		0.0538	0.0500	7.7	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	1.063		0.0589	0.0500	17.8	50.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	2.996		0.0481	0.0471	2.2	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.026		0.0474	0.0500	-5.2	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.018		0.0435	0.0500	-13.1	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2696		0.0539	0.0500	7.8	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.370		0.0502	0.0500	0.5	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCVL 320-231947/2 Calibration Date: 07/01/2018 06:34

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.118		0.0508	0.0500	1.6	50.0
13C4 PFBA	Ave	1.397	1.373		2.46	2.50	-1.7	50.0
13C5 PFPeA	Ave	0.9809	0.9619		2.45	2.50	-1.9	50.0
13C3-PFBS	Ave	0.0216	0.0212		2.28	2.33	-1.8	50.0
M2-4:2FTS	Ave	0.1648	0.1618		2.29	2.34	-1.8	50.0
13C2 PFHxA	Ave	1.074	1.070		2.49	2.50	-0.4	50.0
13C3 HFPO-DA	Ave	0.0508	0.0524		2.58	2.50	3.2	50.0
13C4-PFHpA	Ave	0.9950	0.996		2.50	2.50	0.1	50.0
18O2 PFHxS	Ave	1.162	1.231		2.51	2.37	6.0	50.0
M2-6:2FTS	Ave	0.2411	0.2504		2.47	2.38	3.9	50.0
13C4 PFOA	Ave	0.9548	0.9424		2.47	2.50	-1.3	50.0
13C4 PFOS	Ave	0.7787	0.7938		2.44	2.39	1.9	50.0
13C5 PFNA	Ave	0.7906	0.7790		2.46	2.50	-1.5	50.0
M2-8:2FTS	Ave	0.2621	0.2948		2.69	2.40	12.5	50.0
13C8 FOSA	Ave	1.023	1.059		2.59	2.50	3.5	50.0
13C2 PFDA	Ave	0.6453	0.6857		2.66	2.50	6.3	50.0
d3-NMeFOSAA	Ave	0.3869	0.4005		2.59	2.50	3.5	50.0
d5-NEtFOSAA	Ave	0.3825	0.3907		2.55	2.50	2.2	50.0
13C2 PFUnA	Ave	0.5302	0.5383		2.54	2.50	1.5	50.0
13C2 PFDoA	Ave	0.6148	0.6799		2.76	2.50	10.6	50.0
13C2-PFTeDA	Ave	0.7666	0.7950		2.59	2.50	3.7	50.0
13C2-PFHxDA	Ave	1.436	1.602		2.79	2.50	11.6	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231947/3 Calibration Date: 07/01/2018 06:42

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9852		0.968	1.00	-3.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.166		0.982	1.00	-1.8	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	76.07		0.871	0.884	-1.4	50.0
4:2 FTS	AveID	19.72	18.81		0.891	0.934	-4.6	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.008		0.974	1.00	-2.6	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	65.84		0.893	0.938	-4.8	50.0
HFPO-DA (GenX)	AveID	3.432	3.651		1.06	1.00	6.4	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.103		0.995	1.00	-0.5	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.109		0.871	0.910	-4.3	40.0
ADONA	AveID	3.997	3.987		0.940	0.942	-0.3	50.0
6:2 FTS	AveID	1.607	1.596		0.941	0.948	-0.7	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.122		0.956	1.00	-4.5	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.377		0.964	0.952	1.3	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.045		0.940	1.00	-6.0	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.129		0.901	0.928	-2.9	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.837		0.901	0.932	-3.3	50.0
8:2 FTS	AveID	1.347	1.290		0.918	0.958	-4.2	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.7950		0.948	0.960	-1.3	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.060		0.999	1.00	-0.1	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.9821		0.980	1.00	-2.0	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.002		1.05	1.00	4.9	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.6692		0.937	0.964	-2.8	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8723		0.976	1.00	-2.4	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.8573		0.950	1.00	-5.0	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	2.999		0.964	0.942	2.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.155		1.07	1.00	6.7	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.137		0.971	1.00	-2.9	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2407		0.962	1.00	-3.8	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.015		1.07	1.00	6.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231947/3 Calibration Date: 07/01/2018 06:42

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_005.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.148		1.04	1.00	4.4	50.0
13C4 PFBA	Ave	1.397	1.408		2.52	2.50	0.8	50.0
13C5 PFPeA	Ave	0.9809	1.005		2.56	2.50	2.5	50.0
13C3-PFBS	Ave	0.0216	0.0228		2.45	2.33	5.6	50.0
M2-4:2FTS	Ave	0.1648	0.1693		2.40	2.34	2.7	50.0
13C2 PFHxA	Ave	1.074	1.123		2.61	2.50	4.6	50.0
13C3 HFPO-DA	Ave	0.0508	0.0516		2.54	2.50	1.5	50.0
13C4-PFHpA	Ave	0.9950	1.029		2.59	2.50	3.4	50.0
18O2 PFHxS	Ave	1.162	1.219		2.48	2.37	4.9	50.0
M2-6:2FTS	Ave	0.2411	0.2582		2.54	2.38	7.1	40.0
13C4 PFOA	Ave	0.9548	0.9832		2.57	2.50	3.0	50.0
13C4 PFOS	Ave	0.7787	0.8251		2.53	2.39	6.0	50.0
13C5 PFNA	Ave	0.7906	0.8308		2.63	2.50	5.1	50.0
M2-8:2FTS	Ave	0.2621	0.2973		2.72	2.40	13.5	40.0
13C2 PFDA	Ave	0.6453	0.6419		2.49	2.50	-0.5	50.0
13C8 FOSA	Ave	1.023	1.113		2.72	2.50	8.8	50.0
d3-NMeFOSAA	Ave	0.3869	0.4151		2.68	2.50	7.3	50.0
13C2 PFUnA	Ave	0.5302	0.5424		2.56	2.50	2.3	50.0
d5-NEtFOSAA	Ave	0.3825	0.4125		2.70	2.50	7.9	50.0
13C2 PFDoA	Ave	0.6148	0.6195		2.52	2.50	0.8	50.0
13C2-PFTeDA	Ave	0.7666	0.8353		2.72	2.50	9.0	50.0
13C2-PFHxDA	Ave	1.436	1.473		2.57	2.50	2.6	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Instrument ID: A8_N Start Date: 07/01/2018 11:47

Analysis Batch Number: 231951 End Date: 07/01/2018 14:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-231951/1		07/01/2018 11:47	1	2018.07.01LLA_044.d	GeminiC18 3x100 3(mm)
MB 320-229051/1-A		07/01/2018 11:55	1	2018.07.01LLA_045.d	GeminiC18 3x100 3(mm)
LCS 320-229051/2-A		07/01/2018 12:03	1	2018.07.01LLA_046.d	GeminiC18 3x100 3(mm)
480-137275-1		07/01/2018 12:11	1	2018.07.01LLA_047.d	GeminiC18 3x100 3(mm)
480-137275-2		07/01/2018 12:19	1	2018.07.01LLA_048.d	GeminiC18 3x100 3(mm)
480-137275-3		07/01/2018 12:26	1	2018.07.01LLA_049.d	GeminiC18 3x100 3(mm)
480-137275-4		07/01/2018 12:34	1	2018.07.01LLA_050.d	GeminiC18 3x100 3(mm)
480-137275-5		07/01/2018 12:42	1	2018.07.01LLA_051.d	GeminiC18 3x100 3(mm)
480-137275-6		07/01/2018 12:50	1	2018.07.01LLA_052.d	GeminiC18 3x100 3(mm)
480-137275-7		07/01/2018 12:58	1	2018.07.01LLA_053.d	GeminiC18 3x100 3(mm)
480-137275-8		07/01/2018 13:06	1	2018.07.01LLA_054.d	GeminiC18 3x100 3(mm)
CCV 320-231951/12		07/01/2018 13:13	1	2018.07.01LLA_055.d	GeminiC18 3x100 3(mm)
480-137275-9		07/01/2018 13:21	1	2018.07.01LLA_056.d	GeminiC18 3x100 3(mm)
480-137275-9 MS		07/01/2018 13:29	1	2018.07.01LLA_057.d	GeminiC18 3x100 3(mm)
480-137275-9 MSD		07/01/2018 13:37	1	2018.07.01LLA_058.d	GeminiC18 3x100 3(mm)
480-137275-10		07/01/2018 13:45	1	2018.07.01LLA_059.d	GeminiC18 3x100 3(mm)
480-137275-11		07/01/2018 13:52	1	2018.07.01LLA_060.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 14:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/01/2018 14:08	1		GeminiC18 3x100 3(mm)
CCV 320-231951/20		07/01/2018 14:16	1	2018.07.01LLA_063.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/1 Calibration Date: 07/01/2018 11:47

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_044.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9759		0.959	1.00	-4.1	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.182		0.996	1.00	-0.4	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	80.08		0.917	0.884	3.8	50.0
4:2 FTS	AveID	19.72	19.40		0.919	0.934	-1.6	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.021		0.987	1.00	-1.3	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	70.99		0.963	0.938	2.6	50.0
HFPO-DA (GenX)	AveID	3.432	3.024		0.881	1.00	-11.9	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.142		1.03	1.00	3.0	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.100		0.864	0.910	-5.0	40.0
ADONA	AveID	3.997	4.162		0.981	0.942	4.1	50.0
6:2 FTS	AveID	1.607	1.679		0.991	0.948	4.5	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.151		0.981	1.00	-2.0	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.357		0.950	0.952	-0.2	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.106		0.995	1.00	-0.5	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.145		0.914	0.928	-1.5	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.944		0.953	0.932	2.3	50.0
8:2 FTS	AveID	1.347	1.305		0.929	0.958	-3.1	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8315		0.991	0.960	3.3	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.104		1.04	1.00	4.1	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.9632		0.961	1.00	-3.9	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	0.9933		1.04	1.00	4.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7245		1.01	0.964	5.3	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8365		0.936	1.00	-6.4	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.9632		1.07	1.00	6.8	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.213		1.03	0.942	9.6	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.038		0.959	1.00	-4.1	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.083		0.925	1.00	-7.5	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2476		0.990	1.00	-1.0	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9541		1.00	1.00	0.2	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/1 Calibration Date: 07/01/2018 11:47

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_044.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.101		1.00	1.00	0.0	50.0
13C4 PFBA	Ave	1.397	1.377		2.46	2.50	-1.4	50.0
13C5 PFPeA	Ave	0.9809	0.9727		2.48	2.50	-0.8	50.0
13C3-PFBS	Ave	0.0216	0.0211		2.26	2.33	-2.6	50.0
M2-4:2FTS	Ave	0.1648	0.1660		2.35	2.34	0.7	50.0
13C2 PFHxA	Ave	1.074	1.066		2.48	2.50	-0.8	50.0
13C3 HFPO-DA	Ave	0.0508	0.0531		2.61	2.50	4.4	50.0
13C4-PFHpA	Ave	0.9950	0.9502		2.39	2.50	-4.5	50.0
18O2 PFHxS	Ave	1.162	1.153		2.35	2.37	-0.7	50.0
M2-6:2FTS	Ave	0.2411	0.2399		2.36	2.38	-0.5	40.0
13C4 PFOA	Ave	0.9548	0.9410		2.46	2.50	-1.5	50.0
13C4 PFOS	Ave	0.7787	0.7914		2.43	2.39	1.6	50.0
13C5 PFNA	Ave	0.7906	0.7523		2.38	2.50	-4.8	50.0
M2-8:2FTS	Ave	0.2621	0.2805		2.56	2.40	7.0	40.0
13C2 PFDA	Ave	0.6453	0.6239		2.42	2.50	-3.3	50.0
13C8 FOSA	Ave	1.023	1.049		2.56	2.50	2.5	50.0
d3-NMeFOSAA	Ave	0.3869	0.3875		2.50	2.50	0.1	50.0
13C2 PFUnA	Ave	0.5302	0.5325		2.51	2.50	0.4	50.0
d5-NEtFOSAA	Ave	0.3825	0.4074		2.66	2.50	6.5	50.0
13C2 PFDoA	Ave	0.6148	0.6571		2.67	2.50	6.9	50.0
13C2-PFTeDA	Ave	0.7666	0.8049		2.62	2.50	5.0	50.0
13C2-PFHxDA	Ave	1.436	1.538		2.68	2.50	7.1	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/12 Calibration Date: 07/01/2018 13:13

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	1.004		2.47	2.50	-1.3	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.149		2.42	2.50	-3.3	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	78.29		2.24	2.21	1.5	50.0
4:2 FTS	AveID	19.72	17.71		2.10	2.34	-10.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.064		2.57	2.50	2.8	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	72.44		2.46	2.35	4.7	50.0
HFPO-DA (GenX)	AveID	3.432	3.213		2.34	2.50	-6.4	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.163		2.62	2.50	4.8	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.133		2.23	2.28	-2.2	40.0
ADONA	AveID	3.997	4.173		2.46	2.36	4.4	50.0
6:2 FTS	AveID	1.607	1.542		2.27	2.37	-4.1	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.161		2.47	2.50	-1.2	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.448		2.54	2.38	6.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.145		2.58	2.50	3.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.170		2.33	2.32	0.6	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	2.079		2.55	2.33	9.4	50.0
8:2 FTS	AveID	1.347	1.257		2.24	2.40	-6.7	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.7924		2.36	2.40	-1.6	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.029		2.42	2.50	-3.0	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	1.032		2.57	2.50	2.9	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.022		2.67	2.50	7.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7305		2.56	2.41	6.1	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.9369		2.62	2.50	4.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.8874		2.46	2.50	-1.6	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.148		2.53	2.36	7.4	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.070		2.47	2.50	-1.1	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.199		2.56	2.50	2.4	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2713		2.71	2.50	8.5	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.996		2.65	2.50	6.1	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/12 Calibration Date: 07/01/2018 13:13

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_055.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.183		2.69	2.50	7.5	50.0
13C4 PFBA	Ave	1.397	1.454		2.60	2.50	4.1	50.0
13C5 PFPeA	Ave	0.9809	1.021		2.60	2.50	4.1	50.0
13C3-PFBS	Ave	0.0216	0.0224		2.40	2.33	3.4	50.0
M2-4:2FTS	Ave	0.1648	0.1635		2.32	2.34	-0.8	50.0
13C2 PFHxA	Ave	1.074	1.045		2.43	2.50	-2.7	50.0
13C3 HFPO-DA	Ave	0.0508	0.0547		2.69	2.50	7.7	50.0
13C4-PFHpA	Ave	0.9950	0.9705		2.44	2.50	-2.5	50.0
18O2 PFHxS	Ave	1.162	1.210		2.46	2.37	4.1	50.0
M2-6:2FTS	Ave	0.2411	0.2441		2.41	2.38	1.3	40.0
13C4 PFOA	Ave	0.9548	0.9500		2.49	2.50	-0.5	50.0
13C4 PFOS	Ave	0.7787	0.8193		2.51	2.39	5.2	50.0
13C5 PFNA	Ave	0.7906	0.7880		2.49	2.50	-0.3	50.0
M2-8:2FTS	Ave	0.2621	0.2697		2.46	2.40	2.9	40.0
13C2 PFDA	Ave	0.6453	0.6852		2.65	2.50	6.2	50.0
13C8 FOSA	Ave	1.023	1.063		2.60	2.50	3.9	50.0
d3-NMeFOSAA	Ave	0.3869	0.4099		2.65	2.50	5.9	50.0
d5-NEtFOSAA	Ave	0.3825	0.3867		2.53	2.50	1.1	50.0
13C2 PFUnA	Ave	0.5302	0.5453		2.57	2.50	2.9	50.0
13C2 PFDoA	Ave	0.6148	0.6333		2.58	2.50	3.0	50.0
13C2-PFTeDA	Ave	0.7666	0.7870		2.57	2.50	2.7	50.0
13C2-PFHxDA	Ave	1.436	1.535		2.67	2.50	6.9	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/20 Calibration Date: 07/01/2018 14:16

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_063.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9855		0.969	1.00	-3.1	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.148		0.966	1.00	-3.4	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	80.53		0.923	0.884	4.4	50.0
4:2 FTS	AveID	19.72	17.94		0.850	0.934	-9.0	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.054		1.02	1.00	1.9	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	71.48		0.969	0.938	3.3	50.0
HFPO-DA (GenX)	AveID	3.432	3.229		0.941	1.00	-5.9	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.085		0.979	1.00	-2.1	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.101		0.865	0.910	-5.0	40.0
ADONA	AveID	3.997	4.072		0.960	0.942	1.9	50.0
6:2 FTS	AveID	1.607	1.665		0.982	0.948	3.6	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.108		0.943	1.00	-5.8	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.399		0.980	0.952	2.9	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.145		1.03	1.00	3.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.112		0.888	0.928	-4.3	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	2.002		0.982	0.932	5.4	50.0
8:2 FTS	AveID	1.347	1.223		0.870	0.958	-9.2	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8278		0.987	0.960	2.8	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	0.9706		0.915	1.00	-8.5	40.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.9836		0.981	1.00	-1.9	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	0.9554		1.00	1.00	0.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7501		1.05	0.964	9.0	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8441		0.944	1.00	-5.6	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.7914		0.877	1.00	-12.3	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.201		1.03	0.942	9.2	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.071		0.989	1.00	-1.1	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.183		1.01	1.00	1.0	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2690		1.08	1.00	7.5	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9635		1.01	1.00	1.2	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-231951/20 Calibration Date: 07/01/2018 14:16

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.01LLA_063.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.166		1.06	1.00	6.0	50.0
13C4 PFBA	Ave	1.397	1.400		2.50	2.50	0.2	50.0
13C5 PFPeA	Ave	0.9809	0.9634		2.46	2.50	-1.8	50.0
13C3-PFBS	Ave	0.0216	0.0209		2.25	2.33	-3.3	50.0
M2-4:2FTS	Ave	0.1648	0.1551		2.20	2.34	-5.9	50.0
13C2 PFHxA	Ave	1.074	1.018		2.37	2.50	-5.3	50.0
13C3 HFPO-DA	Ave	0.0508	0.0481		2.37	2.50	-5.4	50.0
13C4-PFHpA	Ave	0.9950	1.015		2.55	2.50	2.1	50.0
18O2 PFHxS	Ave	1.162	1.205		2.45	2.37	3.7	50.0
M2-6:2FTS	Ave	0.2411	0.2318		2.28	2.38	-3.8	40.0
13C4 PFOA	Ave	0.9548	0.9473		2.48	2.50	-0.8	50.0
13C4 PFOS	Ave	0.7787	0.8134		2.50	2.39	4.4	50.0
13C5 PFNA	Ave	0.7906	0.7860		2.49	2.50	-0.6	50.0
M2-8:2FTS	Ave	0.2621	0.2699		2.47	2.40	3.0	40.0
13C2 PFDA	Ave	0.6453	0.6571		2.55	2.50	1.8	50.0
13C8 FOSA	Ave	1.023	1.051		2.57	2.50	2.7	50.0
d3-NMeFOSAA	Ave	0.3869	0.3914		2.53	2.50	1.2	50.0
d5-NEtFOSAA	Ave	0.3825	0.3930		2.57	2.50	2.8	50.0
13C2 PFUnA	Ave	0.5302	0.5696		2.69	2.50	7.4	50.0
13C2 PFDoA	Ave	0.6148	0.6083		2.47	2.50	-1.1	50.0
13C2-PFTeDA	Ave	0.7666	0.7717		2.52	2.50	0.7	50.0
13C2-PFHxDA	Ave	1.436	1.486		2.59	2.50	3.5	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Instrument ID: A8_N Start Date: 07/04/2018 03:35

Analysis Batch Number: 232412 End Date: 07/04/2018 04:14

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCB 320-232412/1		07/04/2018 03:35	1	2018.07.04LLA_001.d	GeminiC18 3x100 3(mm)
CCVL 320-232412/2		07/04/2018 03:43	1	2018.07.04LLA_002.d	GeminiC18 3x100 3(mm)
CCV 320-232412/3 CCVIS		07/04/2018 03:51	1	2018.07.04LLA_003.d	GeminiC18 3x100 3(mm)
CCV 320-232412/6		07/04/2018 04:14	1		GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCVL 320-232412/2 Calibration Date: 07/04/2018 03:43

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	1.026		0.0504	0.0500	0.8	50.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.275		0.0537	0.0500	7.3	50.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	81.59		0.0467	0.0442	5.7	50.0
4:2 FTS	AveID	19.72	16.12		0.500	0.0467	-18.2	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.055		0.0510	0.0500	2.0	50.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	61.31		0.0416	0.0469	-11.4	50.0
HFPO-DA (GenX)	AveID	3.432	2.114		0.0308	0.0500	-38.4	50.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.030		0.0464	0.0500	-7.2	50.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.199		0.0471	0.0455	3.5	50.0
ADONA	AveID	3.997	3.700		0.0436	0.0471	-7.4	50.0
6:2 FTS	AveID	1.607	1.516		0.500	0.0474	-5.6	50.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.278		0.0544	0.0501	8.7	50.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.235		0.0433	0.0476	-9.1	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.088		0.0489	0.0500	-2.1	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.171		0.0467	0.0464	0.7	50.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.764		0.0433	0.0466	-7.1	50.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8134		0.0485	0.0480	1.0	50.0
8:2 FTS	AveID	1.347	1.359		0.500	0.0479	0.9	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	1.041		0.0519	0.0500	3.8	50.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.075		0.0507	0.0500	1.3	50.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.057		0.500	0.0500	10.6	50.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7509		0.0526	0.0482	9.1	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8824		0.0494	0.0500	-1.3	50.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.9735		0.0540	0.0500	7.9	50.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	2.814		0.0452	0.0471	-4.0	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.100		0.0508	0.0500	1.6	50.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.111		0.0474	0.0500	-5.2	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2617		0.0523	0.0500	4.6	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.429		0.0534	0.0500	6.7	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCVL 320-232412/2 Calibration Date: 07/04/2018 03:43

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.150		0.0522	0.0500	4.5	50.0
13C4 PFBA	Ave	1.397	1.392		2.49	2.50	-0.3	50.0
13C5 PFPeA	Ave	0.9809	1.112		2.83	2.50	13.4	50.0
13C3-PFBS	Ave	0.0216	0.0254		2.74	2.33	17.6	50.0
M2-4:2FTS	Ave	0.1648	0.1704		2.41	2.34	3.4	50.0
13C2 PFHxA	Ave	1.074	1.177		2.74	2.50	9.5	50.0
13C3 HFPO-DA	Ave	0.0508	0.0921		4.53	2.50	81.3*	50.0
13C4-PFHpA	Ave	0.9950	1.033		2.59	2.50	3.8	50.0
18O2 PFHxS	Ave	1.162	1.223		2.49	2.37	5.3	50.0
M2-6:2FTS	Ave	0.2411	0.2401		2.37	2.38	-0.4	50.0
13C4 PFOA	Ave	0.9548	0.9374		2.45	2.50	-1.8	50.0
13C4 PFOS	Ave	0.7787	0.9025		2.77	2.39	15.9	50.0
13C5 PFNA	Ave	0.7906	0.8522		2.70	2.50	7.8	50.0
M2-8:2FTS	Ave	0.2621	0.2947		2.69	2.40	12.5	50.0
13C8 FOSA	Ave	1.023	1.243		3.04	2.50	21.5	50.0
13C2 PFDA	Ave	0.6453	0.7363		2.85	2.50	14.1	50.0
d3-NMeFOSAA	Ave	0.3869	0.4388		2.84	2.50	13.4	50.0
13C2 PFUnA	Ave	0.5302	0.6348		2.99	2.50	19.7	50.0
d5-NEtFOSAA	Ave	0.3825	0.4701		3.07	2.50	22.9	50.0
13C2 PFDoA	Ave	0.6148	0.7082		2.88	2.50	15.2	50.0
13C2-PFTeDA	Ave	0.7666	0.8069		2.63	2.50	5.3	50.0
13C2-PFHxDA	Ave	1.436	1.450		2.52	2.50	1.0	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232412/3 Calibration Date: 07/04/2018 03:51

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9860		0.969	1.00	-3.1	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.175		0.990	1.00	-1.0	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	76.10		0.872	0.884	-1.4	50.0
4:2 FTS	AveID	19.72	16.35		0.774	0.934	-17.1	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.043		1.01	1.00	0.8	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	62.15		0.843	0.938	-10.2	50.0
HFPO-DA (GenX)	AveID	3.432	2.591		0.755	1.00	-24.5	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.119		1.01	1.00	0.9	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.090		0.856	0.910	-6.0	40.0
ADONA	AveID	3.997	4.062		0.957	0.942	1.6	50.0
6:2 FTS	AveID	1.607	1.446		0.853	0.948	-10.0	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.149		0.978	1.00	-2.3	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.334		0.935	0.952	-1.8	50.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.146		0.914	0.928	-1.5	40.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.062		0.955	1.00	-4.5	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.939		0.951	0.932	2.0	50.0
8:2 FTS	AveID	1.347	1.229		0.874	0.958	-8.7	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8273		0.986	0.960	2.7	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.9830		0.980	1.00	-2.0	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.017		0.958	1.00	-4.2	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	0.9741		1.02	1.00	2.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7378		1.03	0.964	7.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8065		0.902	1.00	-9.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.9663		1.07	1.00	7.1	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.298		1.06	0.942	12.5	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.123		1.04	1.00	3.7	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.045		0.892	1.00	-10.8	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2556		1.02	1.00	2.2	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.006		1.06	1.00	5.8	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232412/3 Calibration Date: 07/04/2018 03:51

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_003.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.228		1.12	1.00	11.6	50.0
13C4 PFBA	Ave	1.397	1.379		2.47	2.50	-1.3	50.0
13C5 PFPeA	Ave	0.9809	1.091		2.78	2.50	11.3	50.0
13C3-PFBS	Ave	0.0216	0.0256		2.75	2.33	18.3	50.0
M2-4:2FTS	Ave	0.1648	0.1696		2.40	2.34	2.9	50.0
13C2 PFHxA	Ave	1.074	1.168		2.72	2.50	8.7	50.0
13C3 HFPO-DA	Ave	0.0508	0.0862		4.24	2.50	69.6*	50.0
13C4-PFHpA	Ave	0.9950	0.9936		2.50	2.50	-0.1	50.0
18O2 PFHxS	Ave	1.162	1.200		2.44	2.37	3.3	50.0
M2-6:2FTS	Ave	0.2411	0.2548		2.51	2.38	5.7	40.0
13C4 PFOA	Ave	0.9548	0.9657		2.53	2.50	1.1	50.0
13C4 PFOS	Ave	0.7787	0.8524		2.62	2.39	9.5	50.0
13C5 PFNA	Ave	0.7906	0.8318		2.63	2.50	5.2	50.0
M2-8:2FTS	Ave	0.2621	0.3014		2.75	2.40	15.0	40.0
13C8 FOSA	Ave	1.023	1.268		3.10	2.50	23.9	50.0
13C2 PFDA	Ave	0.6453	0.7428		2.88	2.50	15.1	50.0
d3-NMeFOSAA	Ave	0.3869	0.4656		3.01	2.50	20.3	50.0
d5-NEtFOSAA	Ave	0.3825	0.4878		3.19	2.50	27.5	50.0
13C2 PFUnA	Ave	0.5302	0.6513		3.07	2.50	22.8	50.0
13C2 PFDoA	Ave	0.6148	0.6797		2.76	2.50	10.5	50.0
13C2-PFTeDA	Ave	0.7666	0.7380		2.41	2.50	-3.7	50.0
13C2-PFHxDA	Ave	1.436	1.453		2.53	2.50	1.2	50.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Instrument ID: A8_N Start Date: 07/04/2018 05:09

Analysis Batch Number: 232416 End Date: 07/04/2018 06:20

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-232416/1		07/04/2018 05:09	1	2018.07.04LLA_013.d	GeminiC18 3x100 3(mm)
480-137275-12		07/04/2018 06:04	1	2018.07.04LLA_020.d	GeminiC18 3x100 3(mm)
480-137275-14		07/04/2018 06:12	1	2018.07.04LLA_021.d	GeminiC18 3x100 3(mm)
CCV 320-232416/10		07/04/2018 06:20	1	2018.07.04LLA_022.d	GeminiC18 3x100 3(mm)

537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232416/1 Calibration Date: 07/04/2018 05:09

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	0.9801		0.963	1.00	-3.7	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.159		0.976	1.00	-2.4	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	73.17		0.838	0.884	-5.2	50.0
4:2 FTS	AveID	19.72	15.84		0.751	0.934	-19.6	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.055		1.02	1.00	2.0	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	63.53		0.862	0.938	-8.1	50.0
HFPO-DA (GenX)	AveID	3.432	2.182		0.636	1.00	-36.4	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.046		0.943	1.00	-5.7	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.061		0.833	0.910	-8.4	40.0
ADONA	AveID	3.997	4.064		0.958	0.942	1.7	50.0
6:2 FTS	AveID	1.607	1.502		0.886	0.948	-6.5	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.141		0.972	1.00	-2.9	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.321		0.925	0.952	-2.8	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.066		0.959	1.00	-4.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.123		0.896	0.928	-3.5	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.844		0.905	0.932	-2.9	50.0
8:2 FTS	AveID	1.347	1.335		0.949	0.958	-0.9	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8508		1.01	0.960	5.7	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	0.998		0.995	1.00	-0.5	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.056		0.995	1.00	-0.5	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.020		1.07	1.00	6.8	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7444		1.04	0.964	8.2	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8689		0.972	1.00	-2.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.8583		0.951	1.00	-4.9	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.075		0.988	0.942	4.9	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.093		1.01	1.00	1.0	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.061		0.906	1.00	-9.4	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2557		1.02	1.00	2.2	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		1.001		1.05	1.00	5.2	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232416/1 Calibration Date: 07/04/2018 05:09

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.227		1.12	1.00	11.5	50.0
13C4 PFBA	Ave	1.397	1.386		2.48	2.50	-0.8	50.0
13C5 PFPeA	Ave	0.9809	1.070		2.73	2.50	9.1	50.0
13C3-PFBS	Ave	0.0216	0.0253		2.72	2.33	17.1	50.0
M2-4:2FTS	Ave	0.1648	0.1694		2.40	2.34	2.8	50.0
13C2 PFHxA	Ave	1.074	1.105		2.57	2.50	2.9	50.0
13C3 HFPO-DA	Ave	0.0508	0.0913		4.49	2.50	79.6*	50.0
13C4-PFHpA	Ave	0.9950	1.009		2.53	2.50	1.4	50.0
18O2 PFHxS	Ave	1.162	1.190		2.42	2.37	2.5	50.0
M2-6:2FTS	Ave	0.2411	0.2414		2.38	2.38	0.2	40.0
13C4 PFOA	Ave	0.9548	0.9419		2.47	2.50	-1.4	50.0
13C4 PFOS	Ave	0.7787	0.8496		2.61	2.39	9.1	50.0
13C5 PFNA	Ave	0.7906	0.8299		2.62	2.50	5.0	50.0
M2-8:2FTS	Ave	0.2621	0.2777		2.54	2.40	6.0	40.0
13C8 FOSA	Ave	1.023	1.178		2.88	2.50	15.1	50.0
13C2 PFDA	Ave	0.6453	0.7330		2.84	2.50	13.6	50.0
d3-NMeFOSAA	Ave	0.3869	0.4377		2.83	2.50	13.1	50.0
d5-NEtFOSAA	Ave	0.3825	0.4545		2.97	2.50	18.8	50.0
13C2 PFUnA	Ave	0.5302	0.6262		2.95	2.50	18.1	50.0
13C2 PFDoA	Ave	0.6148	0.6828		2.78	2.50	11.1	50.0
13C2-PFTeDA	Ave	0.7666	0.7422		2.42	2.50	-3.2	50.0
13C2-PFHxDA	Ave	1.436	1.482		2.58	2.50	3.2	50.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232416/10 Calibration Date: 07/04/2018 06:20

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanoic acid (PFBA)	AveID	1.017	1.005		2.47	2.50	-1.2	40.0
Perfluoropentanoic acid (PFPeA)	AveID	1.187	1.166		2.45	2.50	-1.8	40.0
Perfluorobutanesulfonic acid (PFBS)	AveID	77.16	77.68		2.22	2.21	0.7	50.0
4:2 FTS	AveID	19.72	16.88		2.00	2.34	-14.4	50.0
Perfluorohexanoic acid (PFHxA)	AveID	1.034	1.059		2.56	2.50	2.3	40.0
Perfluoropentanesulfonic acid (PFPeS)	AveID	69.17	65.51		2.22	2.35	-5.3	50.0
HFPO-DA (GenX)	AveID	3.432	2.610		1.90	2.50	-24.0	40.0
Perfluoroheptanoic acid (PFHpA)	AveID	1.109	1.117		2.52	2.50	0.7	40.0
Perfluorohexanesulfonic acid (PFHxS)	AveID	1.159	1.075		2.11	2.28	-7.2	40.0
ADONA	AveID	3.997	3.792		2.23	2.36	-5.1	50.0
6:2 FTS	AveID	1.607	1.510		2.23	2.37	-6.1	40.0
Perfluorooctanoic acid (PFOA)	AveID	1.176	1.197		2.55	2.50	1.8	40.0
Perfluoroheptanesulfonic Acid (PFHpS)	AveID	1.359	1.435		2.51	2.38	5.6	50.0
Perfluorononanoic acid (PFNA)	AveID	1.111	1.134		2.55	2.50	2.1	40.0
Perfluorooctanesulfonic acid (PFOS)	AveID	1.163	1.157		2.31	2.32	-0.5	40.0
9-Chlorohexadecafluoro-3-oxa nonane-1-sulfonate	AveID	1.900	1.909		2.34	2.33	0.5	50.0
8:2 FTS	AveID	1.347	1.307		2.32	2.40	-3.0	40.0
Perfluorononanesulfonic acid (PFNS)	AveID	0.8052	0.8551		2.55	2.40	6.2	50.0
Perfluorooctane Sulfonamide (FOSA)	AveID	1.003	1.021		2.55	2.50	1.8	40.0
Perfluorodecanoic acid (PFDA)	AveID	1.061	1.076		2.53	2.50	1.4	40.0
N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	AveID	0.9552	1.003		2.62	2.50	5.0	40.0
Perfluorodecanesulfonic acid (PFDS)	AveID	0.6883	0.7747		2.71	2.41	12.5	50.0
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	AveID	0.8938	0.8510		2.38	2.50	-4.8	40.0
Perfluoroundecanoic acid (PFUnA)	AveID	0.9021	0.8982		2.49	2.50	-0.4	40.0
11-Chloroeicosafluoro-3-oxau ndecane-1-sulfonate	AveID	2.931	3.203		2.57	2.36	9.3	50.0
Perfluorododecanoic acid (PFDoA)	AveID	1.082	1.103		2.55	2.50	1.9	40.0
Perfluorotridecanoic Acid (PFTriA)	AveID	1.171	1.080		2.31	2.50	-7.8	50.0
Perfluorotetradecanoic acid (PFTeA)	AveID	0.2501	0.2546		2.54	2.50	1.8	50.0
Perfluoro-n-hexadecanoic acid (PFHxDA)	L1ID		0.9598		2.56	2.50	2.2	50.0

FORM VII 537 (modified)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Lab Sample ID: CCV 320-232416/10 Calibration Date: 07/04/2018 06:20

Instrument ID: A8_N Calib Start Date: 06/29/2018 21:29

GC Column: GeminiC18 3x100 ID: 3.00(mm) Calib End Date: 06/29/2018 22:16

Lab File ID: 2018.07.04LLA_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluoro-n-octadecanoic acid (PFODA)	AveID	1.100	1.159		2.63	2.50	5.4	50.0
13C4 PFBA	Ave	1.397	1.446		2.59	2.50	3.5	50.0
13C5 PFPeA	Ave	0.9809	1.109		2.83	2.50	13.0	50.0
13C3-PFBS	Ave	0.0216	0.0255		2.74	2.33	17.8	50.0
M2-4:2FTS	Ave	0.1648	0.1706		2.42	2.34	3.5	50.0
13C2 PFHxA	Ave	1.074	1.181		2.75	2.50	9.9	50.0
13C3 HFPO-DA	Ave	0.0508	0.0938		4.61	2.50	84.6*	50.0
13C4-PFHpA	Ave	0.9950	1.019		2.56	2.50	2.4	50.0
18O2 PFHxS	Ave	1.162	1.225		2.49	2.37	5.5	50.0
M2-6:2FTS	Ave	0.2411	0.2461		2.42	2.38	2.1	40.0
13C4 PFOA	Ave	0.9548	0.9699		2.54	2.50	1.6	50.0
13C4 PFOS	Ave	0.7787	0.8666		2.66	2.39	11.3	50.0
13C5 PFNA	Ave	0.7906	0.8412		2.66	2.50	6.4	50.0
13C8 FOSA	Ave	1.023	1.213		2.96	2.50	18.5	50.0
M2-8:2FTS	Ave	0.2621	0.2767		2.53	2.40	5.6	40.0
13C2 PFDA	Ave	0.6453	0.7152		2.77	2.50	10.8	50.0
d3-NMeFOSAA	Ave	0.3869	0.4675		3.02	2.50	20.8	50.0
13C2 PFUnA	Ave	0.5302	0.6357		3.00	2.50	19.9	50.0
d5-NEtFOSAA	Ave	0.3825	0.4662		3.05	2.50	21.9	50.0
13C2 PFDoA	Ave	0.6148	0.7240		2.94	2.50	17.8	50.0
13C2-PFTeDA	Ave	0.7666	0.8096		2.64	2.50	5.6	50.0
13C2-PFHxDA	Ave	1.436	1.578		2.75	2.50	9.9	50.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: ICB 320-231835/9

Matrix: Water | Lab File ID: 2018.06.29LLICALA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 06/29/2018 22:23

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231835 | Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	0.50	U	0.50	0.050
39108-34-4	8:2 FTS	0.50	U	0.50	0.050
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.50	U	0.50	0.048
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.50	U	0.50	0.078
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.050	U	0.050	0.0050
375-22-4	Perfluorobutanoic acid (PFBA)	0.050	U	0.050	0.0088
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.050	U	0.050	0.0080
335-76-2	Perfluorodecanoic acid (PFDA)	0.050	U	0.050	0.0078
307-55-1	Perfluorododecanoic acid (PFDoA)	0.050	U	0.050	0.014
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.050	U	0.050	0.0048
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.050	U	0.050	0.0063
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00870	J	0.050	0.0043
307-24-4	Perfluorohexanoic acid (PFHxA)	0.050	U	0.050	0.015
375-95-1	Perfluorononanoic acid (PFNA)	0.050	U	0.050	0.0068
754-91-6	Perfluorooctane Sulfonamide (FOSA)	0.050	U	0.050	0.0088
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.050	U	0.050	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.050	U	0.050	0.021
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.050	U	0.050	0.012
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.00962	J	0.050	0.0073
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	0.050	U	0.050	0.033
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.050	U	0.050	0.028

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: ICB 320-231835/9

Matrix: Water | Lab File ID: 2018.06.29LLICALA_009.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 06/29/2018 22:23

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231835 | Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	109		25-150
STL00998	13C2 PFDoA	103		25-150
STL00993	13C2 PFHxA	98		25-150
STL00997	13C2 PFUnA	103		25-150
STL02116	13C2-PFTeDA	97		25-150
STL02337	13C3-PFBS	98		25-150
STL00992	13C4 PFBA	99		25-150
STL00990	13C4 PFOA	98		25-150
STL00991	13C4 PFOS	104		25-150
STL01892	13C4-PFHpA	101		25-150
STL00995	13C5 PFNA	99		25-150
STL01893	13C5 PFPeA	98		25-150
STL01056	13C8 FOSA	104		25-150
STL00994	18O2 PFHxS	103		25-150
STL02118	d3-NMeFOSAA	99		25-150
STL02117	d5-NEtFOSAA	105		25-150
STL02279	M2-6:2FTS	109		25-150
STL02280	M2-8:2FTS	107		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: CCB 320-231947/1

Matrix: Water | Lab File ID: 2018.07.01LLA_003.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 07/01/2018 06:26

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231947 | Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	0.50	U	0.50	0.050
39108-34-4	8:2 FTS	0.50	U	0.50	0.050
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.50	U	0.50	0.048
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.50	U	0.50	0.078
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.050	U	0.050	0.0050
375-22-4	Perfluorobutanoic acid (PFBA)	0.050	U	0.050	0.0088
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.00963	J	0.050	0.0080
335-76-2	Perfluorodecanoic acid (PFDA)	0.050	U	0.050	0.0078
307-55-1	Perfluorododecanoic acid (PFDoA)	0.050	U	0.050	0.014
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.050	U	0.050	0.0048
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.050	U	0.050	0.0063
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00618	J	0.050	0.0043
307-24-4	Perfluorohexanoic acid (PFHxA)	0.050	U	0.050	0.015
375-95-1	Perfluorononanoic acid (PFNA)	0.050	U	0.050	0.0068
754-91-6	Perfluorooctane Sulfonamide (FOSA)	0.050	U	0.050	0.0088
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.050	U	0.050	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.050	U	0.050	0.021
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.050	U	0.050	0.012
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.050	U	0.050	0.0073
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	0.050	U	0.050	0.033
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.050	U	0.050	0.028

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: CCB 320-231947/1

Matrix: Water | Lab File ID: 2018.07.01LLA_003.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 07/01/2018 06:26

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 231947 | Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	107		25-150
STL00998	13C2 PFDoA	109		25-150
STL00993	13C2 PFHxA	97		25-150
STL00997	13C2 PFUnA	108		25-150
STL02116	13C2-PFTeDA	105		25-150
STL02337	13C3-PFBS	103		25-150
STL00992	13C4 PFBA	102		25-150
STL00990	13C4 PFOA	101		25-150
STL00991	13C4 PFOS	109		25-150
STL01892	13C4-PFHpA	103		25-150
STL00995	13C5 PFNA	107		25-150
STL01893	13C5 PFPeA	101		25-150
STL01056	13C8 FOSA	108		25-150
STL00994	18O2 PFHxS	108		25-150
STL02118	d3-NMeFOSAA	102		25-150
STL02117	d5-NEtFOSAA	116		25-150
STL02279	M2-6:2FTS	109		25-150
STL02280	M2-8:2FTS	116		25-150

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: CCB 320-232412/1

Matrix: Water | Lab File ID: 2018.07.04LLA_001.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 07/04/2018 03:35

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232412 | Units: ng/mL

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
27619-97-2	6:2 FTS	0.50	U	0.50	0.050
39108-34-4	8:2 FTS	0.50	U	0.50	0.050
2991-50-6	N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	0.50	U	0.50	0.048
2355-31-9	N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	0.50	U	0.50	0.078
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.050	U	0.050	0.0050
375-22-4	Perfluorobutanoic acid (PFBA)	0.050	U	0.050	0.0088
335-77-3	Perfluorodecanesulfonic acid (PFDS)	0.050	U	0.050	0.0080
335-76-2	Perfluorodecanoic acid (PFDA)	0.050	U	0.050	0.0078
307-55-1	Perfluorododecanoic acid (PFDoA)	0.050	U	0.050	0.014
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	0.050	U	0.050	0.0048
375-85-9	Perfluoroheptanoic acid (PFHpA)	0.050	U	0.050	0.0063
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	0.00703	J	0.050	0.0043
307-24-4	Perfluorohexanoic acid (PFHxA)	0.050	U	0.050	0.015
375-95-1	Perfluorononanoic acid (PFNA)	0.050	U	0.050	0.0068
754-91-6	Perfluorooctane Sulfonamide (FOSA)	0.050	U	0.050	0.0088
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.050	U	0.050	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.050	U	0.050	0.021
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.050	U	0.050	0.012
376-06-7	Perfluorotetradecanoic acid (PFTeA)	0.050	U	0.050	0.0073
72629-94-8	Perfluorotridecanoic Acid (PFTriA)	0.050	U	0.050	0.033
2058-94-8	Perfluoroundecanoic acid (PFUnA)	0.050	U	0.050	0.028

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 480-137275-1

SDG No.:

Client Sample ID: | Lab Sample ID: CCB 320-232412/1

Matrix: Water | Lab File ID: 2018.07.04LLA_001.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: | Date Extracted:

Sample wt/vol: 1(mL) | Date Analyzed: 07/04/2018 03:35

Con. Extract Vol.: | Dilution Factor: 1

Injection Volume: 2(uL) | GC Column: GeminiC18 3x100 ID: 3(mm)

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

Analysis Batch No.: 232412 | Units: ng/mL

CAS NO.	ISOTOPE DILUTION	%REC	Q	LIMITS
STL00996	13C2 PFDA	117		25-150
STL00998	13C2 PFDoA	115		25-150
STL00993	13C2 PFHxA	110		25-150
STL00997	13C2 PFUnA	118		25-150
STL02116	13C2-PFTeDA	101		25-150
STL02337	13C3-PFBS	119		25-150
STL00992	13C4 PFBA	101		25-150
STL00990	13C4 PFOA	106		25-150
STL00991	13C4 PFOS	117		25-150
STL01892	13C4-PFHpA	103		25-150
STL00995	13C5 PFNA	110		25-150
STL01893	13C5 PFPeA	112		25-150
STL01056	13C8 FOSA	122		25-150
STL00994	18O2 PFHxS	109		25-150
STL02118	d3-NMeFOSAA	120		25-150
STL02117	d5-NEtFOSAA	126		25-150
STL02279	M2-6:2FTS	102		25-150
STL02280	M2-8:2FTS	110		25-150

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Batch Number: 229051 Batch Start Date: 06/14/18 10:25 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 06/14/18 17:32

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	LCMPFC_ALL_SU 00076	LCPFC-IS 00053
MB 320-229051/1		3535, 537 (modified)				250.0 mL	10.0 mL	500 uL	500 uL
LCS 320-229051/2		3535, 537 (modified)				250.0 mL	10.0 mL	500 uL	500 uL
480-137275-C-1	MWF060618	3535, 537 (modified)	T	281.26 g	27.89 g	253.4 mL	10.0 mL	500 uL	500 uL
480-137275-C-2	MW23060618	3535, 537 (modified)	T	283.52 g	28.34 g	255.2 mL	10.0 mL	500 uL	500 uL
480-137275-C-3	MW5060518	3535, 537 (modified)	T	280.01 g	28.23 g	251.8 mL	10.0 mL	500 uL	500 uL
480-137275-C-4	MW1060618	3535, 537 (modified)	T	268.35 g	28.14 g	240.2 mL	10.0 mL	500 uL	500 uL
480-137275-C-5	PZ11R060618	3535, 537 (modified)	T	263.83 g	27.07 g	236.8 mL	10.0 mL	500 uL	500 uL
480-137275-C-6	OW1060518	3535, 537 (modified)	T	277.96 g	28.18 g	249.8 mL	10.0 mL	500 uL	500 uL
480-137275-C-7	A1PZ2060618	3535, 537 (modified)	T	274.56 g	27.77 g	246.8 mL	10.0 mL	500 uL	500 uL
480-137275-C-8	MW13BR060618	3535, 537 (modified)	T	283.81 g	26.91 g	256.9 mL	10.0 mL	500 uL	500 uL
480-137275-C-9	MW21060718	3535, 537 (modified)	T	280.75 g	27.24 g	253.5 mL	10.0 mL	500 uL	500 uL
480-137275-C-9 MS	MW21060718	3535, 537 (modified)	T	281.55 g	27.25 g	254.3 mL	10.0 mL	500 uL	500 uL
480-137275-C-9 MSD	MW21060718	3535, 537 (modified)	T	278.69 g	27.35 g	251.3 mL	10.0 mL	500 uL	500 uL
480-137275-C-10	MW21060718 DUP	3535, 537 (modified)	T	275.75 g	28.43 g	247.3 mL	10.0 mL	500 uL	500 uL
480-137275-C-11	EQUIPBLANK060618	3535, 537 (modified)	T	282.56 g	27.84 g	254.7 mL	10.0 mL	500 uL	500 uL
480-137275-C-12	TRIP BLANK	3535, 537 (modified)	T	283.36 g	27.02 g	256.3 mL	10.0 mL	500 uL	500 uL
480-137275-A-14	PZ2060618	3535, 537 (modified)	T	260.34 g	28.52 g	231.8 mL	10.0 mL	500 uL	500 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00150					
MB 320-229051/1		3535, 537 (modified)							
LCS 320-229051/2		3535, 537 (modified)		500 uL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Batch Number: 229051 Batch Start Date: 06/14/18 10:25 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 06/14/18 17:32

Lab Sample ID	Client Sample ID	Method Chain	Basis	LCPFCSP 00150					
480-137275-C-1	MWF060618	3535, 537 (modified)	T						
480-137275-C-2	MW23060618	3535, 537 (modified)	T						
480-137275-C-3	MW5060518	3535, 537 (modified)	T						
480-137275-C-4	MW1060618	3535, 537 (modified)	T						
480-137275-C-5	PZ11R060618	3535, 537 (modified)	T						
480-137275-C-6	OW1060518	3535, 537 (modified)	T						
480-137275-C-7	A1PZ2060618	3535, 537 (modified)	T						
480-137275-C-8	MW13BR060618	3535, 537 (modified)	T						
480-137275-C-9	MW21060718	3535, 537 (modified)	T						
480-137275-C-9 MS	MW21060718	3535, 537 (modified)	T	500 uL					
480-137275-C-9 MSD	MW21060718	3535, 537 (modified)	T	500 uL					
480-137275-C-10	MW21060718 DUP	3535, 537 (modified)	T						
480-137275-C-11	EQUIPBLANK060618	3535, 537 (modified)	T						
480-137275-C-12	TRIP BLANK	3535, 537 (modified)	T						
480-137275-A-14	PZ2060618	3535, 537 (modified)	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 480-137275-1

SDG No.:

Batch Number: 229051 Batch Start Date: 06/14/18 10:25 Batch Analyst: Kolstad, Kate M

Batch Method: 3535 Batch End Date: 06/14/18 17:32

Batch Notes	
Analyst ID - Aliquot Step	KMK
Balance ID	QA-070
Batch Comment	Sample labels match client IDs: KMK
Analyst ID - Final Volume Step	KMK
H2O ID	6/12/18
Hexane ID	1270832
Internal Standard ID#	1265440
Manifold ID	7, 21
Methanol ID	1259064
Sodium Hydroxide ID	1265514
Pipette ID	I46345G
Analyst ID - Reagent Drop	KMK
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	AME
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JER
Solvent Lot #	1265486
Solvent Name	0.3% NH4OH/MEOH
SOP Number	WS-LC-0025
SPE Cartridge Type	Oasis WAX 500mg
Solid Phase Extraction Disk ID	003637254A

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.