



Strong Advocates, Effective Solutions, Integrated Implementation

October 21, 2020

Mr. Stanley Radon, CPG
New York State Dept. of Environmental Conservation
Division of Solid and Hazardous Materials, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: *Revised 2020 Annual Summary Report for OU-4 and Benzol Yard Area Source Control ICM
Tecumseh Redevelopment Inc. – Lackawanna, New York Site
Coke Plant By-Products Sub-Area Operable Unit No. 4 and Source Area Control Interim
Corrective Measure (ICM)*

Dear Mr. Radon:

On behalf of Tecumseh Redevelopment Inc., TurnKey Environmental Restoration, LLC is herein providing this revised 2020 Annual Summary Report for Operable Unit No. 4 (OU-4) and Benzol Yard Area Source Control Interim Corrective Measure (ICM), as required in the OU-4 Operation, Maintenance, and Monitoring (OM&M) Plan. This summary report has been prepared in general accordance with the monitoring requirements presented in the updated (April 2020) Operation, Maintenance, and Monitoring (OM&M) Plan for the period of March 2019 through April 2020. Revisions reflect our responses to comments received in letters dated July 15, 2020 and October 1, 2020 from Steven Moeller of your office.

GROUNDWATER COLLECTION & TREATMENT SYSTEMS OPERATION

The groundwater treatment system was operated within design parameters during the current monitoring period except for short-duration shutdowns related to cleaning of the air stripper; power outages; and maintenance and repairs presented in Table 1. Performance monitoring samples (influent, effluent, and groundwater) collected for the 2020 Annual Summary Report were analyzed by Alpha Laboratories in accordance with the April 2020 OM&M Plan.

– *GROUNDWATER COLLECTION AND CONTROL*

Groundwater elevation conditions prior to implementation of the OU-4 groundwater treatment system are presented in Figure 1. Static groundwater level measurements obtained in January 2019 (shortly before OU-4 start-up), April 2019 (shortly after OU-4 start-up), July 2019, October 2019, January 2020, and April 2020 are summarized in Table 2. The groundwater elevations presented in this table were used to create isopotential maps presented in Figure 1 through Figure 6. Due to the cycling operation of each recovery well, the average of the pump-on and pump-off elevation was used in

the pumping wells to prepare the isopotential maps. These Figures illustrate a progression of expanding and interconnecting radii of influence around the 52 pumping wells, with 14 new pumping wells supplementing the 11 existing (Benzol Yard ICM) pumping wells in the southern groundwater collection system and 27 new pumping wells in the northern groundwater system. Groundwater elevation contours have also dropped an average of several feet within the Operable Unit. Pumping wells along the eastern property line (closest to the Gateway Ship Canal) have been set to operating elevations several feet below the target average Lake elevation of approximately 574 to prevent off-site migration toward the Canal. RWS-8 is the exception and is discussed below. Pumping wells further to the west are set to maintain a water level close to the average lake elevation and several feet below baseline groundwater elevations to create and maintain an inward gradient. Following initial start-up, emphasis was upon establishing an inward gradient along the eastern perimeter and progressively lowering operating levels subsequently in the central and then western portions as groundwater was removed from storage. This process of modifying operating levels in pumping wells will continue to optimize hydraulic capture of the groundwater contaminant plume

After the RWS-8 pump was brought online it was apparent that it was not depressing the groundwater at that location to the same extent as the other adjacent recovery wells while running for prolonged periods with very brief off periods. In order to keep RWS-8 pumping without damaging the pump we changed the on/off setpoint to be a difference of 0.2 feet while gradually dropping the operating level. This caused the pump to run for about 10 minutes and turn off for about one minute (all other pumps are on for about 40 seconds and off for several minutes). Apparently, there is a large subsurface reservoir (possibly an abandoned storm sewer pipe and/or building basement) near RWS-8. After operating RWS-8 for six months the groundwater level dropped 1.6 feet but with the Fall rains recovered fairly quickly indicative of significant stormwater recharge in that location. RWS-8 does not appear to be directly connected to the Gateway Ship Canal as it consistently has a higher water elevation than the Canal. We propose to submit a Supplemental Work Plan to investigate and evaluate the need for and potential modification of the OU-4 groundwater collection system in the vicinity of RWS-8.

Another groundwater anomaly in the northern collection system along the eastern perimeter is at monitoring well MWN-67AR, which is installed between two concrete structures. The structures are affecting the ability of RWN-5 to drawdown groundwater in nearby monitoring well MWN-67AR and causing a steep gradient between the two wells. Based on the water level data on Table 2, the water level in MWN-67AR has dropped over time albeit slowly. We will continue monitoring groundwater levels at this location, but no corrective action appears necessary at this time.

Another groundwater anomaly in the northern collection system near the northern perimeter of the OU-4 Area is at piezometer OU4PZ-6. There appears to be a groundwater mound in that location and groundwater in the vicinity of OU4PZ-6 appears to be beyond the reach of the groundwater collection system. We propose to submit a Supplemental Work Plan to investigate and evaluate the need for potential modification of the OU-4 groundwater collection systems or other alternative corrective actions in the vicinity of OU4PZ-6.

– *FLOW MEASUREMENTS*

Flow measurements for the collection system from startup in March 2019 through April 2020 have been recorded, with the current monitoring period measurements included in Table 3. The treatment system collected and treated approximately 5.7-million gallons from the north system and 12.3-million gallons from the south system during this monitoring period. By comparison, the former Benzol yard ICM groundwater collection and system handled approximately 1.7 million gallons in 2018. These flows are higher than projected long-term equilibrium flows as groundwater was being removed from storage in the porous shallow fill media. Overall, the collection system has performed very predictably relative to hydrologic models used in design. Each treatment system's monthly flow is presented in Figure 7 and annual system flow is presented in Figure 8.

– *PRODUCT RECOVERY*

Eight recovery wells (RW-1, 2, B, C, D, F, G, and H), six piezometers (BPP-12, 13, 14, 17, 23, and 24), three monitoring wells (MWN-26C, MWN-31A, and MWN-74A), and two other wells (IW-3 and TMW-2) have historically contained measurable product. These locations have been monitored monthly for product accumulation as part of routine O&M. Any well/piezometer exhibiting product thickness measurements greater than 0.5 feet are manually purged of accumulated product utilizing a bailer. Recovered product was quantified, reported in Table 4, and stored within the OU-4 treatment building in 55-gallon drums within secondary containment. During the current monitoring period approximately 42.2 gallons (or 309.4 pounds) of product was removed.

– *TREATMENT SYSTEM PERFORMANCE*

Table 5 summarizes the treatment system performance for the current monitoring period. Effluent analytical results indicate greater than 99.3% reduction in VOC concentration for the current monitoring period for both the north and south systems. The north treatment system effluent analytical results indicate greater than 97.3% reduction in phenolic compounds for the current monitoring period. The north and south systems combined have removed 4,847 pounds of aqueous-phase contaminants from the shallow saturated fill of OU-4 as summarized in Table 6. This compares to 1,580 pounds of aqueous-phase contaminants removed by the Benzol Yard ICM in 2017/2018.

GROUNDWATER MONITORING SUMMARY

Field activities for the current monitoring period were performed in accordance with the OM&M Plan (updated April 2020) without deviation. Table 7 summarizes the field parameters and analytical results collected for the 2020 Annual Report. Field data forms are provided in Attachment 1. Attachment 2 provides a visual comparison of the BTEX concentrations present at each monitoring location for the March-April 2020 sampling event.

Compounds detected above method detection limits are shown on Table 7 with their associated concentration and NYSDEC Groundwater Quality Standard (NYSDEC TOGS 1.1.1, Ambient Water Quality Standards and Guidance Values, June 1998) for comparison. Guidance Values are presented where Standards have not been established for a specific compound. Concentrations exceeding NYSDEC Groundwater Quality Standards/Guidance Values (GWQS/GV) are shaded. Examination of Table 7 shows groundwater quality in the OU-4 Area are generally, and in many locations particularly in the southern portion, substantially improving over the first year of operating OU-4.

Off-Site monitoring wells MWN-19A and MWN-30A near the southern boundary of OU-4 both have exhibited substantially improving groundwater quality. The April 2020 data for MWN-19A show only has one slight exceedance of GWQS for naphthalene. Groundwater quality in MWN-30A has significantly improved but exceeds GWQS for BTEX VOCs and naphthalene. On the southwest boundary of OU-4, MWN-32A has had the greatest reduction in BTEX compounds of any well monitored in the OU-4 area and is continuing a downward trend. On the western boundary of OU-4, MWN-51AR, piezometers OU4PZ-7 and OU4PZ-11 are below all or most GWQSs. Along the northern boundary of OU-4, OU4PZ-6 exceeds GWQS for benzene, toluene, xylene, naphthalene, and phenolic compounds. We will continue to monitor OU4PZ-6 to assess the trend as it has only been sampled once. Wells closest to the Gateway Ship Canal have relatively low concentrations for BTEX, naphthalene, and phenolic compounds and currently have neutral trends (neither increasing nor decreasing).

MWN-30A has seen a 96.3% reduction in BTEX and 68.8% reduction in naphthalene concentrations since 1999. Based on these reductions we believe the former Benzol Yard ICM system and the current OU-4 system is influencing the MWN-30A area and reducing the contamination footprint.

MWN-32A has seen a 94.7% reduction in BTEX VOCs and 55.2% reduction in naphthalene concentrations since implementation of the OU-4 remedy. As such it is apparent that the former Benzol Yard ICM and to a greater extent the current OU-4 system is influencing the MWN-32A area and reducing the contamination footprint.

MWN-54A has seen a 48.0% reduction in BTEX concentrations and 18.5% reduction in naphthalene since implementation of the OU-4 remedy. As such it is apparent that the former Benzol Yard ICM and to a greater extent the current OU-4 system is influencing the MWN-54A area and reducing the contamination footprint.

MWN-66AR has seen a 93.5% reduction in BTEX and 38.9% reduction in naphthalene concentrations since implementation of the OU-4 remedy. As such it is apparent that the current OU-4 system is influencing the MWN-66AR area and reducing the contamination footprint.

SOIL VAPOR EXTRACTION SUMMARY

The Soil Vapor Extraction (SVE) system was operated within design parameters during the current monitoring period except for short-duration shutdowns related to power outages, maintenance, and repairs (see Table 8). Performance monitoring samples (influent and effluent) collected for the 2020 Annual Summary Report were analyzed in accordance with the April 2020 OM&M Plan. The SVE system mass removal rate from November 2019 through April 2020 was substantially less than previous periods. We speculate that the observed reduction in the PID readings and mass removal for November through April are likely due to seasonally lower soil temperature and/or seasonally higher soil moisture from infiltration. We also observed the system was accumulating more water (likely from condensation) during this winter-spring time frame. There is no discernable increase in groundwater elevation or precipitation around this time frame to warrant the increased water uptake.

– *SVE WELL VACUUM AND PID MEASUREMENTS*

Vacuum and PID measurements obtained on May 2019, July 2019, October 2019, and January 2020 are summarized in Table 9. The vacuum measurements have been consistent during the current monitoring period. The PID measurements at the SVE wells show a decrease over time which is consistent with the SVE system influent PID readings (see Table 8).

– *SVE MASS REMOVAL*

Table 8 summarizes the SVE system mass removal for the current monitoring period. The SVE system has removed 3,426 pounds VOCs during the current monitoring period. The rate of mass removal has decreased from a maximum of over 30 lb/day in April 2019 to less than 1 lb/day in March 2020. Effluent PID results indicate an average of 99.7% emission reduction in VOC concentration across the biofilter for the current monitoring period.

ANNUAL ASSESSMENT OF DATA TRENDS

The following observations and assessments are based upon comparison of data collected for the 2020 Annual Summary Report.

- **Groundwater Treatment Systems Influent Trends:** The total concentration of VOCs in influent groundwater has declined by nearly 50% in the south collection and treatment system since startup of the OU-4 system (see Attachment 3). This is

dramatic compared to the previous reductions in the Benzol Yard ICM influent groundwater quality and demonstrates that the expanded collection system and SVE ICM are addressing all the source areas in the southern portion of OU4. Groundwater influent concentrations in the north collection and treatment system are much lower for VOCs and much higher for SVOCs (primarily naphthalene and phenolics) compared to the south system and have decreased slightly since start-up.

- **Hydraulic Capture:** Based upon a comparison of the isopotential map prepared from the baseline January 2019 event (prior to OU-4 system startup), a significant zone of hydraulic capture has been established: along the north, east and south (on and off-site) perimeter of OU-4 due to the OU-4 treatment system operation (see Figures 1 through 6). When the system was initially started, pumping on the eastern edge (along the Gateway Ship Canal) was accentuated. As groundwater was removed from storage and as groundwater elevations stabilized pump set points were progressively lowered moving westward across the northern collection system.
- **Flow Measurements:** The total volume of groundwater collected and treated since the March 2019 startup is approximately 18 million gallons, with approximately 5.7 million gallons (32%) of treated groundwater was from the north system and approximately 12.3 million gallons (68%) was from the south system.
- **Total Contaminant Mass Removed:** Since startup, nearly 4,847 pounds of APL mass and approximately 309 pounds of LNAPL has been removed (see Table 6). Since startup, the SVE system has collected and treated approximately 3,426 pounds of VOCs (see Table 8 and Attachment 4). The total mass of contamination removed from the ground since startup is approximately 8,582 pounds or 4.29 tons.
- **Groundwater Treatment System Effluent Quality:** The north system treated concentrations were below GWQS/GVs on two of the three sampling events. The south treatment train quality steadily and substantially improved over the first year with VOCs all below GWQS in the April 2020 sampling event. Naphthalene concentrations exceeded GWQS/GV in the south treatment train effluent samples but steadily decreased throughout the year. Emerging contaminants, PFOS and PFAS, were sampled and analyzed only once in the two treatment train effluent samples as requested in your March 9, 2020 letter. PFOS/PFAS concentrations in the south treatment train sample exceeded the groundwater GV. We propose to submit a Supplemental Work Plan to evaluate treatment system modifications to improve PFOS/PFAS, naphthalene and phenolics removal in the southern collection system groundwater.

NYSDEC EQUIS DELIVERABLES

On May 26, 2020 TurnKey submitted the analytical data in Electronic Data Deliverable (EDD) format for the current groundwater monitoring event to the NYSDEC on behalf of Tecumseh to satisfy the NYSDEC EQUIS submittal requirement. Laboratory data reports are included in Attachment 5.

CONCLUSIONS

Both the OU-4 groundwater collection and treatment systems and the SVE ICM groundwater source control system have been operated nearly continuous within design parameters except for shutdowns for routine cleaning and repairs. Operation of the groundwater collection, groundwater treatment and SVE systems has hydraulically contained and removed a substantial amount of aqueous and non-aqueous contamination from OU-4. Approximately 4.29 tons of primary contaminants of concern have been collected and treated (or removed for disposal) from the groundwater treatment and SVE systems this monitoring period. Overall, the groundwater collection, treatment and SVE systems are effectively remediating and controlling groundwater contamination in the OU-4 Area.

We propose to submit a Supplemental Work Plan within 30 days of your approval of this revised Report to address the following issues identified in this Report:

- Investigation and evaluation of groundwater conditions and potential collection system modifications to improve hydraulic capture near RWS-8.
- Investigation and evaluation of groundwater conditions and potential collection system modifications to improve hydraulic capture near OU4PZ-6.
- Evaluation of groundwater treatment system modifications to improve PFOA/PFOS, naphthalene and phenolic contaminant removal in the south system.

Please contact us if you have any questions or require additional information.

Sincerely,
TurnKey Environmental Restoration, LLC



Paul H. Werthman, P.E.
Principal Engineer



Brock Greene
Project Environmental Scientist

cc: S. Moeller, (NYSDEC)
A. Zwack, (NYSDEC)
K. Nagel, (Tecumseh)
R. Laport

File: 0071-020-910

TABLES



TABLE 1

SUMMARY OF MAJOR SYSTEM MAINTENANCE

OU-4 ANNUAL REPORT (2019/2020)
Tecumseh Redevelopment Inc.
Lackawanna, New York

Date	Alarm Condition	Cause	Response/Corrective Measure
3/11/19	None	System started	
4/5/19	None	South air stripper dirty	Cleaned south air stripper
5/6/19	Power Loss	Power loss	Switch to alternate power supply and restart system
6/12/19	North Bag Filter High Pressure	Clogged bag filter	Changed bag filter and restarted north system
6/21/19	North Air Strpper Fault	Clogged bag filter	Changed bag filter and restarted north system
6/27/19	North Air Strpper Fault	Breaker tripper	Reset breaker and restarted north system
6/28/19	None	South air stripper dirty	Cleaned south air stripper
7/2/19	None	North Air stripper dirty	Cleaned north air stripper
7/15/19	North Bag Filter High Pressure	Clogged bag filter	Changed bag filter and restarted north system
8/16/19	None	South air stripper dirty	Cleaned south air stripper
9/6/19	None	North Air stripper dirty	Cleaned north air stripper
9/20/19	None	South air stripper dirty	Cleaned south air stripper
11/4/19	None	South air stripper dirty	Cleaned south air stripper
11/12/19	None	North Air stripper dirty	Cleaned north air stripper
12/4/19	None	South air stripper dirty	Cleaned south air stripper
1/14/20	None	South air stripper dirty	Cleaned south air stripper
1/15/20	None	North Air stripper dirty	Cleaned north air stripper
2/14/20	None	South air stripper dirty	Cleaned south air stripper
2/26/20	None	North Air stripper dirty	Cleaned north air stripper
3/6/20	None	Lead carbon vessel needs replaced	Replaced lead cobon and swapped lead and lag carbon vessel order in treatment
4/16/20	None	North Air stripper dirty	Cleaned north air stripper
4/17/20	None	South air stripper dirty	Cleaned south air stripper



TABLE 2

SUMMARY OF OU-4 MONITORING WELLS, PIEZOMETERS, AND RECOVERY WELLS

OU-4 GROUNDWATER TREATMENT SYSTEM

Tecumseh Redevelopment Inc.

Lackawanna, New York

Monitoring Location	1/4/2019	4/16/19 to 4/17/19	7/15/2019	10/9/2019	1/29/2020	3/30/20 to 4/1/20
	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)
IW-1	--	576.64	--	576.65	576.70	--
IW-2	--	576.62	--	576.66	576.73	--
IW-3	--	576.58	576.47	576.60	576.65	--
TMW-1	--	576.66	--	576.64	576.71	--
TMW-2	--	576.60	576.52	576.69	576.59	--
BPP-03	--	577.76	576.61	577.02	577.34	--
BPP-05R	577.37	577.04	576.71	576.88	576.97	577.17
BPP-10	--	575.94	DRY	DRY	DRY	--
BPP-11	--	574.85	574.67	574.63	574.70	--
BPP-12	--	574.64	574.45	574.34	573.44	--
BPP-13	575.22	575.37	575.01	574.96	575.16	575.25
BPP-14	--	575.34	575.05	575.02	575.16	--
BPP-15	--	576.14	575.10	574.99	575.13	--
BPP-16	--	576.71	576.59	576.64	576.70	--
BPP-17	576.71	576.64	576.48	576.66	576.69	--
BPP-18	577.66	577.90	576.73	577.32	577.33	--
BPP-19	--	577.40	576.33	576.25	576.70	--
BPP-20	578.01	577.60	576.82	577.20	577.67	577.87
BPP-21	--	576.85	576.28	575.91	576.46	--
BPP-22	577.19	576.85	576.53	576.62	576.71	576.91
BPP-23	576.54	575.95	575.86	575.72	575.56	577.22
BPP-24	--	576.96	576.61	576.72	576.85	--
BPP-26	--	576.84	576.64	576.78	576.87	--
MWN-08	575.22	574.49	574.95	574.85	575.05	575.43
MWN-09	573.93	573.19	574.40	573.16	573.59	574.33
MWN-15A	575.70	--	575.75	575.80	576.13	576.12
MWN-19A	577.41	577.28	576.90	577.13	576.24	576.29
MWN-21AR	577.04	577.46	577.09	577.38	577.57	577.85
MWN-25A R	575.81	575.80	575.77	575.93	576.20	576.36
MWN-26A	576.59	576.35	DRY	575.02	576.10	576.32
MWN-27A	577.36	577.07	576.70	576.86	576.93	577.14
MWN-30A	577.66	577.46	577.19	577.54	577.61	577.70
MWN-31A	577.33	577.35	576.67	576.81	576.90	--
MWN-32A	576.85	576.44	DRY	576.36	576.77	577.00
MWN-34A	574.95	574.30	574.66	573.86	574.47	574.92
MWN-45A	573.50	573.48	574.34	573.53	573.55	574.20
MWN-46A	577.14	577.35	576.68	577.19	577.08	577.42
MWN-47A	573.40	573.36	574.34	573.45	573.52	574.22
MWN-48A	--	574.81	575.11	574.85	575.00	--
MWN-49A	575.03	574.25	574.82	574.66	574.75	575.26
MWN-51AR	575.66	575.59	575.71	575.75	576.07	576.08
MWN-53A	576.17	575.29	575.45	574.93	575.00	575.65
MWN-54A	575.89	574.91	575.15	575.13	575.16	575.45
MWN-55AR	577.31	577.30	576.80	577.24	577.15	577.49
MWN-66AR	580.19	577.90	576.77	577.48	579.31	579.42
MWN-67AR	580.08	579.26	578.22	577.96	578.75	578.50



TABLE 2

SUMMARY OF OU-4 MONITORING WELLS, PIEZOMETERS, AND RECOVERY WELLS

OU-4 GROUNDWATER TREATMENT SYSTEM

Tecumseh Redevelopment Inc.

Lackawanna, New York

Monitoring Location	1/4/2019	4/16/19 to 4/17/19	7/15/2019	10/9/2019	1/29/2020	3/30/20 to 4/1/20
	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)
MWN-68A	576.16	575.90	575.47	575.63	576.05	576.35
MWN-72AR	576.84	576.33	575.94	575.72	575.94	576.20
MWN-73A	579.51	577.99	576.31	576.19	576.87	577.19
MWN-74A	580.23	579.18	577.79	576.74	576.91	--
MWN-75A	580.56	580.11	578.64	579.38	579.97	580.31
MWN-76AR	580.74	581.39	579.15	579.93	580.46	580.96
MWN-77A	579.59	579.54	578.09	578.85	579.03	579.49
MWN-78A	578.93	578.59	578.17	578.23	578.15	577.85
MWN-79A	579.26	579.14	578.19	578.78	579.13	579.29
RW-1	--	574.00	574.00	574.00	574.00	574.00
RW-2	--	576.00	576.00	576.00	574.00	574.00
RW-3	--	--	575.03	575.03	575.09	--
RW-A	--	574.00	574.00	574.00	574.00	574.00
RW-B	--	574.00	574.00	574.00	574.00	574.00
RW-C	--	574.00	574.00	574.00	574.00	574.00
RW-D	--	574.00	574.00	574.00	574.00	574.00
RW-E	--	574.00	574.00	574.00	574.00	574.00
RW-F	--	574.50	574.50	574.50	574.50	574.50
RW-G	--	575.50	575.50	575.50	575.50	575.50
RW-H	--	574.00	574.00	574.00	574.00	574.00
RW-I	--	576.00	576.00	576.00	576.00	576.00
RWS-1	--	576.00	575.00	574.00	573.00	573.00
RWS-2	--	575.00	575.00	574.00	573.00	573.00
RWS-3	577.41	574.00	574.00	573.00	573.00	573.00
RWS-4	577.04	574.00	574.00	573.00	573.00	573.00
RWS-5	--	575.00	575.00	574.00	574.00	574.00
RWS-6	--	571.00	571.00	571.00	571.00	571.00
RWS-7	--	571.00	571.00	571.00	571.00	571.00
RWS-8	--	576.70	576.20	575.10	576.00	576.00
RWS-9	--	571.00	571.00	571.00	571.00	571.00
RWS-10	--	572.00	571.50	571.50	572.00	572.00
RWS-11	--	573.00	572.00	572.00	572.00	572.00
RWS-12	578.14	575.00	575.00	575.00	576.00	576.00
RWS-13	--	577.00	576.50	576.50	576.00	576.00
RWS-14	--	574.00	574.00	574.00	576.00	576.00
RWN-1	--	571.00	571.00	571.00	571.00	571.00
RWN-2	--	571.00	571.00	571.00	571.00	571.00
RWN-3	--	571.00	571.00	571.00	571.00	571.00
RWN-4	--	571.00	571.00	571.00	571.00	571.00
RWN-5	--	571.00	571.00	571.00	571.00	571.00
RWN-6	--	571.00	571.00	571.00	571.00	571.00
RWN-7	--	571.00	571.00	571.00	572.00	572.00
RWN-8	--	571.00	571.00	571.00	571.00	571.00
RWN-9	580.63	571.00	571.00	571.00	571.00	571.00
RWN-10	579.14	575.00	573.00	573.00	573.00	573.00
RWN-11	--	575.00	573.00	573.00	573.00	573.00



TABLE 2

SUMMARY OF OU-4 MONITORING WELLS, PIEZOMETERS, AND RECOVERY WELLS

OU-4 GROUNDWATER TREATMENT SYSTEM

Tecumseh Redevelopment Inc.

Lackawanna, New York

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	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)	GWE (ft)
RWN-12	579.49	576.00	573.00	573.00	573.00	573.00
RWN-13	--	575.00	574.00	574.00	574.00	574.00
RWN-14	--	576.00	574.00	574.00	574.00	574.00
RWN-15	--	576.00	573.00	571.50	571.50	571.50
RWN-16	580.60	578.00	573.00	572.00	572.00	572.00
RWN-17	580.69	578.00	576.00	576.00	575.50	575.50
RWN-18	--	578.50	573.00	573.00	572.00	572.00
RWN-19	--	578.00	578.00	578.00	578.00	578.00
RWN-20	--	575.50	574.00	574.00	574.00	574.00
RWN-21	--	578.00	576.00	575.00	575.00	575.00
RWN-22	--	579.00	577.00	575.00	575.00	575.00
RWN-23	--	578.00	577.00	575.00	573.00	573.00
RWN-24	--	578.00	577.00	577.00	577.00	577.00
RWN-25	--	577.50	577.00	575.00	575.00	575.00
RWN-26	--	578.50	575.00	575.00	575.00	575.00
RWN-27	--	577.00	577.00	575.00	575.00	575.00
OU4PZ-1	574.62	573.85	574.53	573.46	574.05	574.69
OU4PZ-2	573.78	573.19	574.26	573.08	573.69	574.35
OU4PZ-3	574.47	573.79	574.50	573.58	574.19	574.75
OU4PZ-4	575.05	574.12	574.46	573.93	574.42	574.75
OU4PZ-5	579.55	573.89	573.38	573.68	575.45	576.03
OU4PZ-6	580.94	580.75	579.36	580.20	580.82	581.36
OU4PZ-7	576.96	577.27	576.88	577.21	577.54	577.66
OU4PZ-8	577.69	578.65	578.36	578.89	579.30	579.50
OU4PZ-9	575.75	575.68	575.81	575.88	576.19	576.23
OU4PZ-10	577.59	578.54	578.33	578.87	579.22	579.45
OU4PZ-11	577.12	577.69	577.56	577.90	578.04	578.22
OU4PZ-12	576.69	576.60	576.51	576.65	576.89	576.99
OU4PZ-13	577.31	576.88	576.22	576.16	576.24	576.32
OU4PZ-14	577.58	577.31	577.06	577.38	577.40	577.57
P-19S	577.56	577.30	576.99	577.26	577.26	577.37
P-1A-S	--	573.32	--	573.37	573.73	--
P2A-S	--	573.08	--	--	577.55	--
SG-01 (canal)	572.94	572.71	574.22	572.82	570.37	574.16

Notes:

1. All elevations are measured in feet; reference datum NAVD 88.
2. " --" = not measured
3. ft = feet
4. GWE = groundwater elevation

Average GWE from pumping well (Average of pump on and pump off set points)



TABLE 3

SUMMARY OF MONTHLY FLOWS

OU-4 ANNUAL REPORT (2019/2020)
Tecumseh Redevelopment, Inc.
Lackawanna, New York

	South Groundwater Treatment System			North Groundwater Treatment System		
Date Date	Totalizer (gallons)	Average Gallons per Minute (GPM)	Gallons per Month (GPmo)	Totalizer (gallons)	Average Gallons per Minute (GPM)	Gallons per Month (GPmo)
03/12/19	0			0		
03/29/19	368,040	15	368,040	263,760	11	263,760
04/29/19	1,400,580	23	1,032,540	768,910	11	505,150
05/31/19	2,266,000	19	865,420	1,235,950	10	467,040
06/28/19	2,949,240	17	683,240	1,576,970	8	341,020
07/29/19	3,438,120	11	488,880	1,907,540	7	330,570
08/30/19	4,363,640	20	925,520	2,212,140	7	304,600
09/27/19	5,324,100	24	960,460	2,603,410	10	391,270
10/25/19	6,189,470	21	865,370	2,931,670	8	328,260
11/29/19	7,500,840	26	1,311,370	3,454,140	10	522,470
12/27/19	8,502,430	25	1,001,590	3,975,670	13	521,530
01/31/20	9,713,310	24	1,210,880	4,535,170	11	559,500
02/28/20	10,618,900	23	905,590	4,922,600	10	387,430
03/28/20	11,536,710	22	917,810	5,365,780	11	443,180
04/24/20	12,321,480	20	784,770	5,744,160	10	378,380



TABLE 4

PRODUCT RECOVERY SUMMARY

OU-4 ANNUAL REPORT (2019/2020)

Tecumseh Redevelopment Inc.
Lackawanna, New York

Date	Operator Initials	Monitoring Location and Quantity (gallons)									
		Total Recovered This Date	RW-1	RW-2	RW-C	RW-F	RW-G	RW-H	BPP-14	IW-3	MWN-74A
03/27/19	CEH	3.00	0.25	--	--	0.75	2.00	--	--	--	--
04/25/19	CEH	5.25	2.00	0.25	0.50	0.50	2.00	--	--	--	--
06/27/19	CEH	2.25	--	--	--	1.00	1.00	0.25	--	--	--
07/16/19	CEH	5.00	2.50	1.00	0.50	0.50	0.25	0.25	--	--	--
08/14/19	CEH	4.00	2.00	--	0.75	0.75	0.50	--	--	--	--
09/10/19	CWE	0.00	--	--	--	--	--	--	--	--	--
10/30/19	CWE	0.00	--	--	--	--	--	--	--	--	--
11/29/19	CWE	0.00	--	--	--	--	--	--	--	--	--
12/31/19	CWE	5.50	--	0.25	0.25	3.00	2.00	--	--	--	--
01/24/20	CWE	5.67	2.50	--	1.00	1.50	0.25	0.25	0.05	0.12	--
02/19/20	CWE	3.00	--	--	0.25	0.25	0.25	0.25	--	--	2.00
03/31/20	CWE	5.00	--	--	--	--	2.00	1.50	--	--	1.50
04/28/20	CWE	3.50	1.50	--	0.50	0.50	--	--	--	--	1.00
ANNUAL REPORT SUBTOTAL:		42.17	10.75	1.50	3.75	8.75	10.25	2.50	0.05	0.12	4.50
SUBTOTAL (since March 2019):		42.17	10.75	1.50	3.75	8.75	10.25	2.50	0.05	0.12	4.50
ANNUAL REPORT TOTALS:		42.17 gallons or 309.38 pounds									
TOTAL (since March 2019):		42.17 gallons or 309.38 pounds									

Notes:

1. " -- " = no product was recovered from this location.
2. Only wells with at least one date of product recovery are listed.



TABLE 5

TREATMENT SYSTEM INFLUENT/EFFLUENT ANALYTICAL DATA SUMMARY

OU-4 GROUNDWATER TREATMENT SYSTEM
Tecumseh Redevelopment Inc.
Lackawanna, New York

Parameter	North Influent	North Effluent	South Influent	South Effluent	North Influent	North Effluent	South Influent	South Effluent	North Influent	North Effluent ⁶	South Influent	South Effluent ⁶
	5/1/2019		5/1/2019		10/7/2019		10/7/2019		4/20/2020		4/20/2020	
TCL Volatile Organic Compounds (mg/L):												
Acetone	0.082	0.0052	ND	0.0064	ND	0.0025 J	ND	0.0036 J	ND	0.0015 J	ND	0.0046 J
Benzene	5.9	0.00029	42	0.13	4.3	0.00059	27	0.065	5.4	0.044	23	0.0022
Chloromethane	ND	ND	ND	ND	ND	0.0029	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.12 J	ND	0.51 J	0.0057	0.14	ND	0.34 J	0.0053	0.27	0.00075 J	0.31 J	0.00071 J
Styrene	0.052	ND	ND	ND	ND	ND	ND	ND	0.029 J	ND	ND	ND
Toluene	1.5	ND	6.6 J	0.028	1	ND	3.7 J	0.015	1.3	0.0034	2.7 J	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0019	ND	ND
Xylenes, Total	0.8	ND	2.14 J	0.035 J	0.7	0.00099 J	1.38 J	0.0301	1.14	0.0037 J	1.43 J	0.0037 J
Subtotal	8.454	0.00549	51.25 J	0.2051 J	6.14	0.00698 J	32.42 J	0.119 J	8.139 J	0.05525 J	27.44 J	0.01121 J
% Reduction	99.94		99.60				99.63		99.32		99.96	
TCL Semi-Volatile Organic Compounds (mg/L):												
Naphthalene	7.3	ND	0.7	0.5	6.7	ND	1	0.29	6.2	0.046	0.91	0.22
2,4-Dimethylphenol	0.26	ND	NA	NA	ND	ND	NA	NA	0.1	0.0083	NA	0.003 J
2-Methylphenol	0.31	ND	NA	NA	0.2	ND	NA	NA	0.13	0.0038 J	NA	0.0068
3-Methylphenol & 4-Methylphenol	0.51	ND	NA	NA	0.38	ND	NA	NA	0.3	0.0032 J	NA	0.0038 J
Phenol	0.16	0.00067 J	NA	NA	0.4	0.0035 J	NA	NA	0.29	0.0064	NA	0.021
Phenolic Compounds Sub Total	1.24	0.00067	NA	NA	0.98	0.0035	NA	NA	0.82	0.0217	NA	0.0346
% Reduction Phenolic Compounds	99.95		NA		99.64		NA		97.35		NA	
Sub Total (Naphthalene and Phenolic Componds) ⁵	8.54	0.00067	0.7	0.5	7.68	0.0035 J	1 J	0.29 J	7.02 J	0.0677 J	0.91 J	0.22 J
% Reduction	99.99		28.57		99.95		71.00		99.04		75.82	
Perfluorinated Alkyl Acid Compounds (ng/L):												
Perfluorobutanoic Acid (PFBA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.8	NA	91.2
Perfluoropentanoic Acid (PFPeA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	21.9	NA	322
Perfluorobutanesulfonic Acid (PFBS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	9.87
Perfluorohexanoic Acid (PFHxA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	11.2	NA	188
Perfluoroheptanoic Acid (PFHpA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.18	NA	95.5
Perfluorohexanesulfonic Acid (PFHxS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.04	NA	4.72
Perfluorooctanoic Acid (PFOA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.15	NA	58.9
1H, 1H, 2H, 2H-Perfluorooctanesulfonic Acid (6:2FTS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8	NA	350
Perfluorononanoic Acid (PFNA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.22 J	NA	23.7
Perfluorooctanesulfonic Acid (PFOS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.03	NA	6.74
Perfluorodecanoic Acid (PFDA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.289 J	NA	28.2
1H, 1H, 2H, 2H-Perfluorodecanesulfonic Acid (8:2FTS)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	123
Perfluoroundecanoic Acid (PFUnA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	1.31 J
PFOA/PFOS, Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.2	NA	65.6
Sub Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	83.609 J	NA	1303.14 J

Notes:
1. Only those compounds detected above the method detection limit at a minimum of one sample location are reported in this table.
2. J = Estimated value. Result is less than the quantitation limit but greater than zero.
3. ND = Parameter was not detected above laboratory reporting limit and is reported herein as not detected (ND).
4. NA = Not Analyzed
5. Sub Total for the South System is for Naphthalene only
6. Sample was analyzed for low level 1,4-dioxane and the results were non-detect.



TABLE 6
ESTIMATED MASS OF ORGANIC COMPOUNDS REMOVED FROM GOUNDWATER
OU-4 GROUNDWATER TREATMENT SYSTEM
Tecumseh Redevelopment Inc.
Lackawanna, New York

Date of Collection	Event	NORTH SYSTEM								SOUTH SYSTEM								APL Mass Removed Per Event			LNAPL Mass Removed Per Event ¹			Total Mass Removed (APL & LNAPL) (pounds)		APL Mass Not Removed Per Event		
		Total VOCs (mg/L)	Average Total VOCs (mg/L)	VOC Percent Reduction	Total TPC + Naph. (mg/L)	Average Total TPC + Naph. (mg/L)	TPC + Naph Percent Reduction	Treated Gallons	Treated Liters	Total VOCs (mg/L)	Average Total VOCs (mg/L)	VOC Percent Reduction	Total Naph. (mg/L)	Average Total Naph. (mg/L)	Naph. Percent Reduction	Treated Gallons	Treated Liters											
		mg	pounds	pounds (cumulative)	gallons	pounds	pounds (cumulative)	per event	cumulative	mg	pounds	pounds (cumulative)																
05/01/19	May-19	8.45	8.45	99.94%	8.54	8.54	99.99%	840,000	3,179,736	51.25	51.25	99.60%	0.70	0.70	28.57%	1,500,000	5,678,100	344,991,767	761	761	8.25	61	61	821	821	4,021,962	9	9
10/07/19	Oct-19	6.14	7.30	99.89%	7.68	8.11	99.95%	1,890,000	7,154,406	32.42	41.84	99.63%	1.00	0.85	71.00%	4,100,000	15,520,140	763,519,158	1,684	2,444	11.25	83	143	1,766	2,587	6,314,507	14	23
04/20/20	Apr-20	8.14	7.14	99.32%	7.02	7.35	99.04%	3,010,000	11,394,054	27.44	29.93	99.96%	0.91	0.96	75.82%	6,720,000	25,437,888	941,978,736	2,077	4,521	22.67	166	309	2,243	4,831	7,535,764	17	39
Total Treated Gallons								5,740,000	Total Treated Gallons								12,320,000	Total Pounds Removed			4,521	42.17	309	4,831	Total Pounds Not Removed			39

- Notes:
1. LNAPL Mass removal conversion: 8.337 pounds/gallon of water x specific gravity of benzol (0.88) = 7.3366 pounds/gallon.
 2. APL = aqueous-phase liquid; dissolved phase
 3. LNAPL = light non-aqueous phase liquid; floats on water
 4. Naph. = Naphthalene
 5. TPC = Total Phonolic Compounds
 6. The average of the two most recent concentrations were used to generate the average concentration.

Total Mass Removed: 4,831 pounds
(APL & LNAPL) 2.42 tons

TABLE 7
GROUNDWATER ANALYTICAL SUMMARY

OU4 ANNUAL REPORT
Tecumseh Redevelopment Inc.
Lackawann, New York



PARAMETER ¹	GWQSGV ²	Units	Monitoring Well Location and Sample Date(s)																											
			MW-N-09				MW-N-19A			MW-N-30A			MW-N-32A			MW-N-34A			MW-N-46A			MW-N-47A				MW-N-49A				
			Nov-1999	Apr-2013	Jan-2019	Mar-2020	Nov-1999	Apr-2013	Apr-2020	Nov-1999	Apr-2013	Apr-2020	Nov-1999	Apr-2013	Apr-2020	Nov-1999	Jan-2019	Apr-2020	Dec-1999	Apr-2013	Apr-2020	Dec-2000	2/29/2012	Jan-2019	Apr-2020	Dec-2000	2/29/2012	Jan-2019	Apr-2020	
VOCs (Method 8260B) - ug/L																														
1,2-Dichloroethane	0.6	ug/l	ND	-	ND	ND	-	-	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	ND	ND	-	ND	-	ND	ND	ND	ND
2-Butanone	50	ug/l	-	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND
Acetone	50	ug/l	-	-	-	1.8 J	ND	-	-	17 J	-	-	ND	ND	ND	ND	-	3.6 J	ND	-	-	3 J	-	-	2.6 J	6.5	-	1.8 J	2.4 J	
Benzene	1	ug/l	6300	3.1	0.4 J	0.64	3300	410 D	0.77	14000	2800 D	410	570000 J	440000 D	26000	2.1 J	0.3 J	2.1	17	9.3	15	37	ND	28	43	2.8 J	ND	0.51	0.8	
Bromomethane	5	ug/l	ND	-	ND	ND	ND	-	ND	ND	-	ND	ND	ND	ND	ND	ND	R	-	ND	R	-	-	ND	R	-	ND	ND	ND	
Cyclohexane	-	ug/l	-	ND	ND	ND	-	-	ND	-	-	1.5 J	ND	ND	ND	ND	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND	ND	ND	ND	ND	180 J	96 J	46	ND	740 J	530	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9 J	ND	ND	ND	ND	ND
Isopropylbenzene	5	ug/l	-	ND	ND	ND	-	ND	ND	-	ND	5.5 J	ND	ND	ND	-	ND	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	ND	ND
Methyl cyclohexane	-	ug/l	-	ND	ND	ND	-	-	ND	-	-	2.6 J	ND	ND	ND	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND
Styrene	5	ug/l	-	-	-	ND	ND	-	-	ND	-	-	ND	ND	ND	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND
Toluene	5	ug/l	ND	ND	ND	ND	ND	ND	ND	360 J	55 J	16	70000	31000	5800	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.89 J	ND	ND	ND	ND	ND
Xylenes, Total	5	ug/l	-	-	-	ND	ND	ND	1.8	ND	980	236	107	4000	1840 J	ND	ND	ND	ND	ND	ND	ND	ND	2.8 J	6 J	ND	ND	ND	ND	ND
TOTAL BTEX	NA	ug/l	6300	3.1	0.4	0.64	3300	411.8	0.77	15520	3187	579	640000	475740	34170	2.1	0.3	2.1	17	9.3	15	37	ND	30.8	50.79	2.8	ND	0.51	0.8	
SVOCs (Method 8270D) - ug/L																														
2,4-Dimethylphenol	See Note 4	ug/l	ND	-	ND	ND	ND	-	ND	ND	-	ND	70 J	-	3 J	ND	ND	ND	ND	-	ND	ND	-	ND	ND	ND	-	ND	ND	ND
2-Methylphenol	-	-	-	-	-	ND	ND	-	ND	ND	-	0.73 J	140 J	-	4.5 J	-	-	ND	ND	-	ND	-	-	ND	-	-	ND	-	-	ND
2-Methylnaphthalene	-	ug/l	-	ND	0.08 J	-	-	ND	-	-	18	-	-	7.9	-	-	0.1 J	-	-	ND	-	-	ND	0.23	-	-	ND	0.19	-	-
2-Nitrophenol	See Note 4	ug/l	ND	ND	ND	ND	-	ND	-	-	ND	-	ND	ND	-	7.6	ND	ND	ND	ND	-	ND	ND	-	0.66 J	0.88 J	ND	ND	ND	ND
3,4-Methylphenol (m,p-Cresol)	See Note 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4-Nitrophenol	See Note 4	ug/l	ND	ND	ND	ND	-	-	ND	-	-	ND	ND	-	ND	ND	ND	ND	-	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/l	-	ND	0.12	-	-	0.78	-	-	ND	-	-	0.46 J	-	-	ND	-	-	0.08 J	-	-	ND	0.2	-	-	ND	0.05 J	-	-
Acenaphthylene	-	ug/l	2.7 J	0.63	0.12	-	-	ND	ND	-	35 J	10	-	ND	5.9	-	ND	0.34	-	ND	ND	-	ND	0.13	-	ND	0.08 J	0.16	-	-
Acetophenone	-	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	ND	-	-
Anthracene	50	ug/l	ND	0.1 J	0.05 J	-	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	0.12	-	ND	ND	-	ND	ND	0.05 J	-	ND	ND	0.18	-
Benzo(a)anthracene	0.002	ug/l	ND	ND	ND	-	ND	ND	-	ND	3 J	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	ND	-	ND	ND	0.02 J	-	-
Benzo(a)pyrene	0 (ND)	ug/l	ND	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	ND	-	ND	ND	ND	-	-
Benzo(b)fluoranthene	0.002	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	0.02 J	-	-	ND	-	-	ND	ND	-	-	ND	0.03 J	-	-
Benzo(ghi)perylene	-	ug/l	-	ND	0.02 J	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	-	-	ND	0.03 J	-	-
Benzo(k)fluoranthene	0.002	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	-	-	ND	0.01 J	-	-
Benzoic acid	-	ug/l	-	-	-	ND	-	-	ND	-	-	ND	-	ND	12 J	-	-	0.01 J	-	ND	-	-	ND	-	-	10 J	-	-	-	ND
Biphenyl	5	ug/l	-	ND	ND	-	-	ND	-	-	6.3	-	-	1.5	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	-	-
Bis(2-ethylhexyl)phthalate	5	ug/l	ND	ND	2.4 J	-	-	ND	ND	-	ND	ND	-	ND	ND	-	3.5 J	2.9 J	-	ND	ND	-	ND	ND	2.5 J	-	ND	ND	2.6 J	-
Carbazole	-	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	-	-
Chrysene	0.002	ug/l	ND	ND	ND	-	ND	ND	-	ND	2.8 J	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	ND	-	ND	ND	ND	-	-
Dibenzo(a,h)anthracene	-	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	-	-
Dibenzofuran	-	ug/l	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	ND	ND	-	-
Di-n-butyl phthalate	50	ug/l	ND	ND	ND	-	ND	ND	-	ND	ND	-	ND	ND	-	ND	3.1 J	-	-	ND	-	-	ND	-	-	ND	ND	ND	-	-
Fluoranthene	50	ug/l	ND	0.1 J	0.07 J	-	ND	ND	-	ND	7.6 J	-	ND	ND	-	ND	0.1 J	-	ND	0.13 J	-	ND	ND	0.08 J	-	ND	ND	0.23	-	-
Fluorene	50	ug/l	10	ND	0.05 J	-	14	8.9	-	1700 D	-	-	ND	0.78 J	-	ND	0.06 J	-	ND	ND	-	ND	ND	0.13	-	ND	ND	0.22	-	-
Hexachloroethane	5	ug/l	ND	ND	ND	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	ND	ND	-	-	ND	0.07 J	ND	-
Indeno(1,2,3-cd)Pyrene	0.002	ug/l	-	ND	0.01 J	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	0.01 J	-	-	ND	0.02 J	-	-
Naphthalene	10	ug/l	18	0.09 J	0.37	-	9 J	0.23	13 **	2400 D	940	750 D **	1400 D	780 D	190 J **	ND	0.83	2 J	ND	0.2	ND	ND	ND	3.4	9.4	ND	ND	1.4	1.6 J	
Pentachlorophenol	See Note 4	ug/l	ND	-	ND	ND	ND	-	ND	ND	-	ND	ND	ND	ND	-	ND	ND	-	ND	ND	-	0.15 J	ND	ND	-	ND	ND	-	-
Phenanthrene	50	ug/l	ND	ND	0.13	-	ND	-	-	48 J	-	19	-	ND	0.42 J	-	ND	0.16	-	ND	0.12 J	-	ND	ND	0.23	-	ND	0.08 J	0.68	-
Phenol	See Note 4	ug/l	150 D	-	ND	ND	53	-	ND	-	-	1.9 J	540	-	84	ND	ND	ND	-	-	ND	-	-	ND	2.2 J	ND	-	ND	ND	
Pyrene	50	ug/l	ND	0.08 J	0.07 J	-	ND	ND	-	ND	2.9 J	-	ND	ND	-	-	-	-	ND	0.1 J	-	-	-	-	-	-	-	-	-	
Pyridine	50	ug/l	4 J	-	-	-	ND	-	-	ND	-	-	200 J	-	-	ND	-	-	-	ND	-	-	ND	-	-	-	-	-	-	-
Total Phenolic Compounds - ug/L																														
Phenolic compounds (total phenols) ^{3,5}	1	ug/l	150	ND	ND	ND	53	-	ND	ND	-	2.62 J	830 J	ND	94.6 J	ND	ND	ND	ND	-	ND	ND	ND	0.81	3.08	ND	ND	ND	ND	ND
1,4-Dioxane (Method 8270-SIM) - ng/L																														
1,4-Dioxane	1000	ng/L	-	-	-	ND	-	-	ND	-	-	99 J	-	-	ND	-	-	ND	-	-	54.1	-	-	-	573	-	-	-	ND	
Perfluorinated Alkyl Acids (Modified 537) - ng/L																														
Perfluorobutanoic Acid (PFBA)	-	-	-	-	-	67.9	-	-	20.2	-	-	14.2	-	-	60.7	-	-	3.67	-	-	4.64	-	-	-	56.5	-	-	-	7.06	
Perfluoropentanoic Acid (PFPeA)	-	-	-	-	-	249	-	-	25.8	-	-	19.5	-	-	206	-	-	1.86	-	-	5.25	-	-	-	17.1	-	-	-	5.57	
Perfluorobutanesulfonic Acid (PFBS)	-	-	-	-	-	1.15 J	-	-	22.1	-	-	1.92	-	-	0.937 J	-	-	0.921 J	-	-	0.0785 J	-	-	-	1.39 J	-	-	-	ND	
Perfluorohexanoic Acid (PFHxA)	-	-	-	-	-	115	-	-	12.1	-	-	9.46	-	-	143	-	-	1.3 J	-	-	2.71	-	-	-	9.66	-	-	-	2.82	
Perfluorooheptanoic Acid (PFHpA)	-	-	-	-	-	70.5	-	-	7.13	-	-	5.62	-	-	75.3	-	-	1.44 J	-	-	1.42 J	-	-	-	4.98	-	-	-	1.6 J	
Perfluorooctanesulfonic Acid (PFHxS)	-	-	-	-	-	1.02 J	-	-	-																					

TABLE 7
GROUNDWATER ANALYTICAL SUMMARY

OU4 ANNUAL REPORT
Tecumseh Redevelopment Inc.
Lackawann, New York



PARAMETER ¹	GWQS/GV ²	Units	Monitoring Well Location and Sample Date(s)																			
			MWN-51AR			MWN-54A			MWN-55A			MWN-66AR			MWN-72AR			OU4PZ-6	OU4PZ-7	OU4PZ-9	OU4PZ-11	
			Dec-2000	Apr-2013	Mar-2020	Mar-2005	Apr-2013	Apr-2020	Mar-2005	Apr-2013	Mar-2020	Jul-2010	Jan-2019	Mar-2020	Jul-2010	Jan-2019	Mar-2020	Apr-2020	Mar-2020	Apr-2020	Apr-2020	
VOCs (Method 8260B) - ug/L																						
1,2-Dichloroethane	0.6	ug/l	ND	-	ND	ND	-	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	50	ug/l	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	ND	ND	4.2 DJ	ND	ND	ND	ND
Acetone	50	ug/l	-	-	ND	-	-	ND	-	-	3.2 J	53 D	ND	ND	ND	7.6 DJ	1.6 J	28 D	ND	4.4 J	ND	ND
Benzene	1	ug/l	2.2 J	1.1	0.77	180000 B	50000	96000 D	2400 DB	700	58	10000 D	6600 D	640	4 D	510 D	9.2	54 D	ND	52	0.71	ND
Bromomethane	5	ug/l	R	-	ND	ND	-	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	1.4 DJ	ND	ND	ND	ND
Cyclohexane	-	ug/l	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5	ug/l	ND	ND	ND	1300 J	450 J	880 DJ	140	62	1.8 J	110 D	100 DJ	28 J	ND	ND	ND	ND	ND	0.87 J	ND	ND
Isopropylbenzene	5	ug/l	-	ND	ND	-	ND	ND	8.2	ND	0.83 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl cyclohexane	-	ug/l	-	-	ND	-	-	ND	4.8 J	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	5	ug/l	-	-	ND	-	-	ND	7.8	ND	-	470 D	410 D	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5	ug/l	ND	ND	ND	9400	200 J	ND	23	ND	2.4 J	3600 D	3200 D	110	ND	ND	ND	13 D	ND	9.6	ND	ND
Xylenes, Total	5	ug/l	ND	ND	ND	ND	ND	1060 J	2360 DJ	340	1250 J	3.5 J	2170 D	2070 D	260	ND	ND	9.7 DJ	ND	3.2 J	ND	ND
TOTAL BTEX	NA	ug/l	2.2	1.1	0.77	190700	51710	99240	2903	2012	65.7	15880	11970	1038	4	510	9.2	76.7	ND	ND	65.67	0.71
SVOCs (Method 8270D) - ug/L																						
2,4-Dimethylphenol	See Note 4	ug/l	R	-	ND	-	-	2.5 J	-	-	ND	-	120 D	2.9 J	-	ND	ND	27	ND	ND	ND	ND
2-Methylphenol	-	ug/l	R	-	ND	-	-	0.59 J	-	-	0.61 J	-	-	4.6 J	-	-	ND	60	ND	ND	ND	ND
2-Methylnaphthalene	See Note 4	ug/l	-	ND	-	-	39	-	22	-	-	470 D	-	-	-	0.43 D	-	-	-	-	-	-
2-Nitrophenol	See Note 4	ug/l	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,4 -Methylphenol (m,p-Cresol)	See Note 4	ug/l	R	-	-	-	-	ND	-	-	0.97 J	-	1100 D	11	-	ND	ND	160	ND	ND	ND	ND
4-Nitrophenol	See Note 4	ug/l	-	-	ND	-	-	ND	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	20	ug/l	-	-	-	-	3.8 J	-	-	5.4 J	-	-	21 D	-	-	12 D	-	-	-	-	-	-
Acenaphthylene	-	ug/l	ND	ND	-	-	21	-	-	8.3 J	-	-	150 D	-	-	0.51 D	-	-	-	-	-	-
Acetophenone	-	ug/l	-	-	ND	-	-	ND	-	-	ND	-	-	-	-	ND	-	-	-	-	-	-
Anthracene	50	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	24 D	-	-	0.86 D	-	-	-	-	-	-
Benzo(a)anthracene	0.002	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	17 DJ	-	-	0.39 D	-	-	-	-	-	-
Benzo(a)pyrene	0 (ND)	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	12 DJ	-	-	0.16 DJ	-	-	-	-	-	-
Benzo(b)fluoranthene	0.002	ug/l	-	ND	-	-	ND	-	-	ND	-	-	14 DJ	-	-	0.22 D	-	-	-	-	-	-
Benzo(ghi)perylene	-	ug/l	-	ND	-	-	ND	-	-	ND	-	-	7 DJ	-	-	0.1 DJ	-	-	-	-	-	-
Benzo(k)fluoranthene	0.002	ug/l	-	-	-	-	ND	-	-	ND	-	-	5.3 DJ	-	-	0.08 DJ	-	-	-	-	-	-
Benzoic acid	-	-	-	-	7.3 J	-	-	ND	-	-	ND	-	ND	-	-	ND	-	21 J	ND	8.9 J	ND	ND
Biphenyl	5	ug/l	-	ND	-	-	4.2	-	-	4.8	-	-	27 DJ	-	-	ND	-	-	-	-	-	-
Bis(2-ethylhexyl)phthalate	5	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	2.8 J	-	-	-	-	-	-
Carbazole	-	ug/l	-	ND	-	-	ND	-	-	ND	-	-	89 D	-	-	2.9	-	-	-	-	-	-
Chrysene	0.002	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	14 DJ	-	-	0.37 D	-	-	-	-	-	-
Dibenzo(a,h)anthracene	-	ug/l	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	0.03 DJ	-	-	-	-	-	-
Dibenzofuran	-	ug/l	-	ND	-	-	ND	-	-	5.4	-	-	41 D	-	-	2.7	-	-	-	-	-	-
Di-n-butyl phthalate	50	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	3 J	-	-	-	-	-	-
Fluoranthene	50	ug/l	ND	ND	-	-	3.5 J	-	-	-	-	-	46 D	-	-	1.1 D	-	-	-	-	-	-
Fluorene	50	ug/l	-	-	-	-	-	-	-	5.8 J	-	-	64 D	-	-	4.3 D	-	-	-	-	-	-
Hexachloroethane	5	ug/l	-	-	-	-	-	-	-	-	-	-	ND	-	-	ND	-	-	-	-	-	-
Indeno(1,2,3-cd)Pyrene	0.002	ug/l	-	ND	-	-	ND	-	-	ND	-	-	6.7 DJ	-	-	0.1 DJ	-	-	-	-	-	-
Naphthalene	10	ug/l	-	-	-	-	2700 D	2200	-	730	-	18000 D **	11000 D	-	7.8 D **	22 D	-	690 D	-	36 **	0.74 J	-
Pentachlorophenol	See Note 4	ug/l	R	-	ND	-	-	ND	-	-	ND	-	ND	ND	-	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	50	ug/l	ND	-	-	-	9.3 J	-	-	3.4 J	-	-	110 D	-	-	4.7 D	-	-	-	-	-	-
Phenol	See Note 4	ug/l	R	-	1.1 J	-	-	94	-	-	4.2 J	-	1200 D	22	-	7.5	ND	170	ND	0.66 J	ND	ND
Pyrene	50	ug/l	ND	ND	-	-	ND	-	-	ND	-	-	34 D	-	-	0.94 D	-	-	-	-	-	-
Pyridine	50	ug/l	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phenolic Compounds - ug/L																						
Phenolic compounds (total phenols) ^{3,5}	1	ug/l	ND	-	1.1	-	-	96.5	-	-	5.2	ND	2400	35.9	ND	7.5	ND	357.0	ND	0.7	ND	ND
1,4-Dioxane (Method 8270-SIM) - ng/L																						
1,4-Dioxane	1000	ng/L	-	-	ND	-	-	109	-	-	151	-	-	ND	-	-	ND	ND	ND	ND	ND	ND
Perfluorinated Alkyl Acids (Modified 537) - ng/L																						
Perfluorobutanoic Acid (PFBA)	-	-	-	-	50.5	-	-	30	-	-	32.4	-	-	ND	-	-	16.3	11.8	30.5	15.5	60.1	ND
Perfluoropentanoic Acid (PFPeA)	-	-	-	-	177	-	-	42.8	-	-	93	-	-	24.7	-	-	11.5	ND	122	32.7	230	ND
Perfluorobutanesulfonic Acid (PFBS)	-	-	-	-	5.34	-	-	10	-	-	1.19 J	-	-	ND	-	-	0.87 J	0.652 J	2.49	0.922 J	ND	ND
Perfluorohexanoic Acid (PFHxA)	-	-	-	-	110	-	-	19.6	-	-	59.4	-	-	7.31	-	-	5.48	2.19	70.5	19	136	ND
Perfluorooctanoic Acid (PFHpA)	-	-	-	-	45	-	-	10.7	-	-	22.7	-	-	4.78	-	-	2.4	1.26 J	30	9.38	65	ND
Perfluorohexanesulfonic Acid (PFHxS)	-	-	-	-	1.41 J	-	-	ND	-	-	0.449 J	-	-	7.32	-	-	ND	ND	1.42 J	0.397 J	5.33	ND
Perfluorooctanoic Acid (PFOA)	10	ng/L	-	-	14.7	-	-	10.4	-	-	5.67	-	-	8.45	-	-	4.05	2.66	17.3	6.55	32.2	ND
1H,1H,2H,2H-Perfluorooctanesulfonic	-	-	-	-	63.6	-	-	18.5	-	-	3.4	-	-	2.6	-	-	ND	ND	70.1	24.5	192	ND
Perfluorononanoic Acid (PFNA)	-	-	-	-	1.04 J	-	-	2.56	-	-	1.78	-	-	0.805 J	-	-	0.314 J	0.805 J	3.2	1.72 J	5.92	ND
Perfluorooctanesulfonic Acid (PFOS)	10	ng/L	-	-	1.59 J	-	-	5.6	-	-	4.95	-	-	15.2	-	-	1.62 J	5.23	8.27	1.66 J	7.53	ND
Perfluorodecanoic Acid (PFDA)	-	-	-	-	ND	-	-	3.5	-	-	1.98	-	-	0.536 J	-	-	ND	0.415 J	0.368 J	0.712 J	0.567 J	ND
1H,1H,2H,2H-Perfluorodecanesulfonic	-	-	-	-	ND	-	-	10.7	-	-	ND	-	-	ND	-	-	ND	ND	ND	2.3	8.17	ND
N-Methyl Perfluorooctanesulfonamidoacetic	-	-	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	0.585 J	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	-	-	-	-	ND	-	-	0.85 J	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (FOSA)	-	-	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	0.702 J	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic	-	-	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	1.27 J	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	-	-	-	-	ND	-	-	0.8 J	-	-	ND	-	-	ND	-	-	ND	ND	ND	ND	ND	ND
PFOA/PFOS, Total	70	ng/L	-	-	16.29	-	-	16	-	-	10.62	-	-	23.65	-	-	5.67	7.89	25.57	8.21 J	39.73	ND
PFAS, Total	500	ng/L	-	-	470.18	-	-	166.01	-	-	226.919	-	-	71.701	-	-	42.534	27.569 J	356.148 J	115.341 J	742.817 J	ND
Field Measurements																						
Dissolved Oxygen (mg/L)	-	MG/L	NA	2.12	0.89	-	1.29	0.65	-	2.25	1.25	1.57	0.85	0.91	2.22	1.07	0.66	2.92	1.18	6.55	0.86	ND
Field pH (S.U.)	12.50	S.U	10.35	11.07	10.86	7.01	7.25	7.70	8.78	8.67	11.40	8.86	9.00	7.30	7.12	7.38	7.26	12.75	7.35	11.68	7.50	ND
Redox Potential (mv)	-	mV	-325	-127	-191	-24	-176	-156	-29	-216	-179	-104	-144	-127	-100	-130	-132	-147	26	-147	-100	ND
Specific Conductance (umhos/cm)	-	UMHOS/CM	6.580	1.083	871.2	947	1.996	1273	2.145	4.682.												



TABLE 8
SUMMARY OF SVE MASS REMOVAL

OU-4 SVE SYSTEM
Tecumseh Redevelopment Inc.
Lackawanna, New York

Date	Elapsed Time (days)	SVE Operation Time (days)	SVE Blower (hours)	Effluent (Treated) PID Reading (ppm)	Influent (Untreated) PID Reading (ppm)	Treatment % Reduction	Calibrated Influent Concentration ¹ (mg/m ³)	Calibrated Influent Concentration ¹ (lb/cf)	Vacuum at Blower (in water)	Air Flow Rate (CFM)	Volume of Air Processed Since Last Monitoring Period (CF)	VOCs Removed Since Last Monitoring Period (lb)	Rate of VOC Removal (lb/day)	Total VOC Removal to Date (lb)	Notes
03/15/19	0	0.0	17260.9	0.3	59	99.5%	217	1.355E-05	72.0	156	0	0	0.0	0	
03/18/19	3.0	3.0	17333.0	0.4	78	99.5%	287	1.792E-05	66.0	168	726768	11.4	3.8	11.44	
03/20/19	5.0	5.0	17381.4	1.1	77	98.6%	283	1.769E-05	66.0	168	487872	8.7	4.3	20.12	
03/22/19	6.7	6.7	17422.2	0.5	105	99.5%	386	2.412E-05	65.0	170	416160	8.7	5.1	28.82	
03/25/19	9.7	9.7	17494.2	0.3	125	99.8%	460	2.872E-05	65.0	170	734400	19.4	6.5	48.23	
03/26/19	10.9	10.9	17523.1	0.3	120	99.8%	442	2.757E-05	65.0	170	294780	8.3	6.9	56.52	
03/29/19	13.8	13.8	17592.7	1.5	160	99.1%	589	3.676E-05	64.0	172	718272	23.1	8.0	79.62	
04/01/19	17.0	17.0	17669.8	0.3	124	99.8%	456	2.849E-05	66.0	168	777168	25.4	7.9	104.98	
04/05/19	21.1	21.1	17766.3	0.7	133	99.5%	489	3.055E-05	65.0	170	984300	29.1	7.2	134.03	
04/11/19	26.7	26.7	17901.4	0.2	160	99.9%	589	3.676E-05	65.0	170	1378020	46.4	8.2	180.41	
04/11/19	26.7	26.7	17901.5	0.2	425	100.0%	1564	9.764E-05	61.0	178	1068	0.1	17.2	180.48	Open SVE-2-2 and SVE-4 valves were frozen shut
04/12/19	27.7	27.7	17924.6	7.4	570	98.7%	2098	1.309E-04	59.0	182	252252	28.8	30.0	209.32	
04/15/19	30.7	30.7	17997.0	2.3	279	99.2%	1027	6.410E-05	60.0	180	781920	76.3	25.3	285.57	
04/19/19	34.7	34.7	18092.8	8.8	635	98.6%	2337	1.459E-04	61.0	178	1023144	107.4	26.9	392.99	
04/22/19	37.8	37.8	18167.2	2.5	562	99.6%	2068	1.291E-04	62.0	176	785664	108.0	34.8	501.02	
04/26/19	41.7	41.7	18260.9	1.1	546	99.8%	2009	1.254E-04	61.0	178	1000716	127.4	32.6	628.38	
04/29/19	44.7	44.7	18333.1	1.0	540	99.8%	1987	1.241E-04	62.0	176	762432	95.1	31.6	723.49	
05/03/19	48.7	48.7	18429.0	2.8	350	99.2%	1288	8.041E-05	62.0	176	1012704	103.5	25.9	827.02	
05/15/19	61.0	50.9	18483.1	0.0	363	100.0%	1336	8.339E-05	61.0	178	577788	47.3	21.0	874.34	Power out from 5-5-19 to 5-15-19
05/17/19	62.8	52.8	18526.9	1.0	517	99.8%	1903	1.188E-04	60.0	180	473040	47.8	26.2	922.16	
05/20/19	65.8	55.7	18598.0	0.3	408	99.9%	1501	9.373E-05	60.0	180	767880	81.6	27.5	1003.75	
05/24/19	69.7	59.6	18691.8	1.0	344	99.7%	1266	7.903E-05	60.0	180	1013040	87.5	22.4	1091.25	
05/31/19	76.8	66.7	18862.1	0.8	400	99.8%	1472	9.189E-05	59.0	182	1859676	158.9	22.4	1250.18	
05/31/19	76.8	66.8	18863.6	0.8	410	99.8%	1509	9.419E-05	59.0	182	16380	1.5	24.4	1251.71	
06/07/19	83.7	72.4	18997.8	1.8	456	99.6%	1678	1.048E-04	58.0	184	1481568	147.4	26.4	1399.09	
06/14/19	90.7	79.4	19167.6	1.2	330	99.6%	1214	7.581E-05	60.0	180	1833840	165.6	23.4	1564.66	
06/21/19	98.0	86.7	19342.1	0.2	227	99.9%	835	5.215E-05	62.0	176	1842720	117.9	16.2	1682.56	
06/28/19	104.7	93.4	19503.6	1.8	175	99.0%	644	4.020E-05	60.0	180	1744200	80.5	12.0	1763.10	
07/03/19	109.7	98.4	19622.2	0.7	157	99.6%	578	3.607E-05	58.0	184	1309344	49.9	10.1	1813.03	
07/12/19	118.9	107.7	19844.5	0.2	185	99.9%	681	4.250E-05	58.0	184	2454192	96.4	10.4	1909.44	
07/19/19	125.7	114.5	20007.8	0.4	177	99.8%	651	4.066E-05	58.0	184	1802832	75.0	11.0	1984.41	
08/02/19	139.7	128.4	20342.2	4.2	145	97.1%	534	3.331E-05	57.0	186	3731904	138.0	9.9	2122.44	Tilled bio-filter
08/09/19	146.7	135.3	20509.2	2.3	280	99.2%	1030	6.433E-05	57.0	186	1863720	91.0	13.1	2213.43	
08/16/19	153.9	142.7	20685.7	5.5	300	98.2%	1104	6.892E-05	57.0	186	1969740	131.2	17.8	2344.66	
08/23/19	160.9	149.6	20850.5	0.9	245	99.6%	902	5.629E-05	63.0	174	1720512	107.7	15.7	2452.37	
08/30/19	167.8	156.5	21016.0	0.4	218	99.8%	802	5.008E-05	60.0	180	1787400	95.1	13.8	2547.43	
09/06/19	174.9	163.6	21187.8	1.2	250	99.5%	920	5.743E-05	60.0	180	1855440	99.7	13.9	2647.17	
09/13/19	182.0	170.7	21358.1	0.2	320.0	99.9%	1178	7.352E-05	60.0	180	1839240	120.4	17.0	2767.60	
09/20/19	188.8	177.5	21520.5	0.1	123.0	99.9%	453	2.826E-05	60.0	180	1753920	89.3	13.2	2856.85	
09/27/19	196.0	184.7	21693.7	0.1	175.5	99.9%	646	4.032E-05	60.0	180	1870560	64.1	8.9	2920.98	
10/04/19	203.0	191.6	21860.0	0.2	151.9	99.9%	559	3.490E-05	62.0	176	1756128	66.0	9.5	2987.03	
10/11/19	210.0	198.7	22030.0	0.2	131.9	99.8%	485	3.030E-05	61.0	178	1815600	59.2	8.4	3046.21	
10/18/19	217.0	205.7	22196.7	0.3	137.4	99.8%	506	3.157E-05	62.0	176	1760352	54.5	7.8	3100.67	
10/25/19	224.0	212.7	22365.6	0.1	125.2	99.9%	461	2.876E-05	62.0	176	1783584	53.8	7.6	3154.47	



TABLE 8
SUMMARY OF SVE MASS REMOVAL

OU-4 SVE SYSTEM
Tecumseh Redevelopment Inc.
Lackawanna, New York

Date	Elapsed Time (days)	SVE Operation Time (days)	SVE Blower (hours)	Effluent (Treated) PID Reading (ppm)	Influent (Untreated) PID Reading (ppm)	Treatment % Reduction	Calibrated Influent Concentration ¹ (mg/m ³)	Calibrated Influent Concentration ¹ (lb/cf)	Vacuum at Blower (in water)	Air Flow Rate (CFM)	Volume of Air Processed Since Last Monitoring Period (CF)	VOCs Removed Since Last Monitoring Period (lb)	Rate of VOC Removal (lb/day)	Total VOC Removal to Date (lb)	Notes
11/01/19	231.0	219.3	22524.8	0.1	104.4	99.9%	384	2.398E-05	68.0	164	1566528	41.3	6.2	3195.78	
11/08/19	237.3	225.6	22675.0	0.3	56.6	99.5%	208	1.300E-05	68.0	164	1477968	27.3	4.4	3223.12	
11/15/19	244.3	232.5	22841.7	0.2	52.6	99.6%	194	1.208E-05	68.0	164	1640328	20.6	3.0	3243.69	
11/22/19	252.0	239.3	23004.0	0.0	55.3	100.0%	204	1.270E-05	68.0	164	1597032	19.8	2.9	3263.49	
11/29/19	259.0	246.3	23172.7	0.0	45.7	100.0%	168	1.050E-05	68.0	164	1660008	19.3	2.7	3282.75	
12/07/19	266.7	252.0	23309.4	0.0	42.6	100.0%	157	9.787E-06	68.0	164	1345128	13.6	2.4	3296.39	
12/14/19	273.8	259.0	23476.2	0.0	24.8	100.0%	91	5.697E-06	68.0	164	1641312	12.7	1.8	3309.10	
12/20/19	280.0	262.9	23569.3	0.0	23.6	100.0%	87	5.422E-06	68.0	164	916104	5.1	1.3	3314.19	
01/03/20	294.0	276.2	23890.7	0.0	25.7	100.0%	95	5.904E-06	68.0	164	3162576	17.9	1.3	3332.10	
01/07/20	297.7	279.9	23979.5	0.0	19.3	100.0%	71	4.434E-06	68.0	164	873792	4.5	1.2	3336.62	After reading turned off SVE-1, 2-1, and F.
01/10/20	301.0	283.1	24056.3	0.0	27.8	100.0%	102	6.387E-06	72.0	156	718848	3.9	1.2	3340.50	
01/17/20	308.0	290.0	24219.8	0.0	0.1	100.0%	0	2.297E-08	88.0	124	1216440	3.9	0.6	3344.40	Turned system off because pipes were frozen
01/24/20	315.0	290.3	24227.8	0.0	36.3	100.0%	134	8.339E-06	70.0	160	76800	0.3	1.0	3344.72	Turned system on at 7:34 AM
01/31/20	322.0	296.6	24378.3	0.0	29.8	100.0%	110	6.846E-06	70.0	160	1444800	11.0	1.7	3355.69	Turned system off 2-14-20 because of frozen pipes
02/26/20	347.7	308.3	24659.6	0.0	25.9	100.0%	95	5.950E-06	70.0	160	2700480	17.3	1.5	3372.97	Turned system on 2-25-20
03/02/20	352.6	308.9	24675.6	0.0	27.1	100.0%	100	6.226E-06	70.0	160	153600	0.9	1.4	3373.91	System Restarted (turned off on 2-28-20)
03/06/20	357.0	313.3	24779.6	0.0	16.2	100.0%	60	3.722E-06	70.0	160	998400	5.0	1.1	3378.87	
03/13/20	363.8	320.0	24941.4	0.0	4.3	100.0%	16	9.879E-07	60.0	180	1747440	4.1	0.6	3382.99	Vacuum low because of a cracked pipe
03/20/20	370.9	327.1	25112.2	0.0	1.4	100.0%	5	3.216E-07	60.0	180	1844640	1.2	0.2	3384.20	Found cracked pipe 3-24-20 turned system off
03/31/20	381.8	330.9	25203.1	0.0	30.5	100.0%	112	7.007E-06	36.0	228	1243512	4.6	1.2	3388.75	Repaired cracked pipe and restarted system
04/03/20	385.0	332.5	25240.4	0.2	30	99.3%	110	6.892E-06	36.0	228	510264	3.5	2.3	3392.30	
04/11/20	392.9	337.9	25370.7	0.1	25.7	99.6%	95	5.904E-06	34.0	232	1813776	11.6	2.1	3403.90	
04/17/20	399.0	342.2	25473.5	0.1	36.1	99.7%	133	8.293E-06	36.0	228	1406304	10.0	2.3	3413.89	
04/24/20	406.0	346.7	25581.4	0.0	35.1	100.0%	129	8.064E-06	34.0	232	1501968	12.3	2.7	3426.17	
Average Reduction:						99.7%									

Notes:

1. The estimated mass of contamination recovered is based on ratio of the sum of the VOCs as measured by a vapor sample collected with a summa canister compared to a contemporaneous PID reading. The average concentration changes on the date of each new sample.
- 2) VOCs = volatile organic compounds; ppm= parts per million; mg/m3 = milligrams per cubic meter; lb/cf = pounds of VOCs per cubic foot; CFM = cubic feet per minute; CF = cubic feet
- March 13, 2019 sample had an average concentration of VOCs = 3.68 mg/m³ per 1 ppm PID reading. This ratio was revised based on the findings included in TurnKey's September 24, 2020 Revised SVE System Mass Removals for the Benzol Yard Area Source Control ICM letter and per comment # 8 in the October 1, 2020 Revised 2020 Annual Summary Report for OU-4 and Benzol Yard Area Source Control ICM and Responses to Comments letter from the DEC.



TABLE 9

SUMMARY OF OU4 VACUUM AND PID MONITORING

OU-4 ANNUAL REPORT (2019/2020)

Tecumseh Redevelopment Inc.

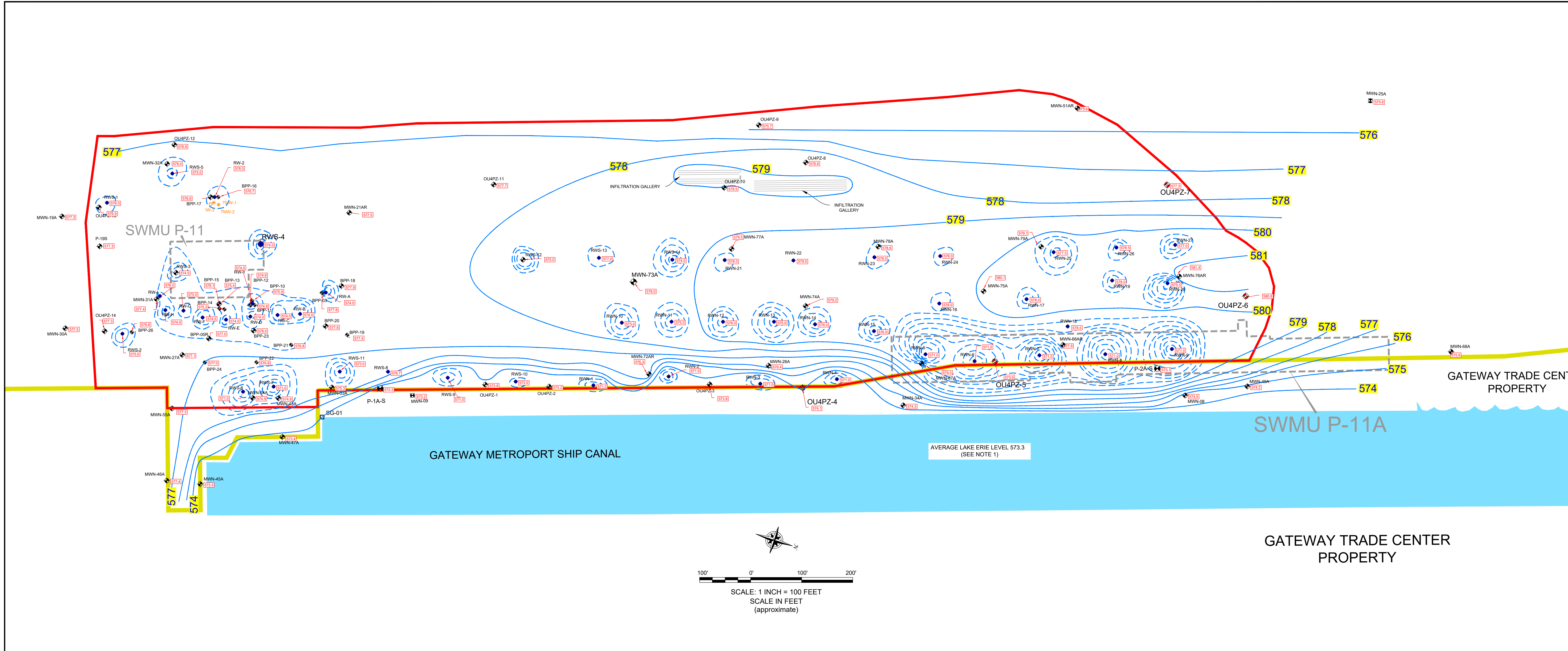
Lackawanna, New York

Well Designation	Vacuum Reading (inches H ₂ O)	PID Reading (ppm)	Vacuum Reading (inches H ₂ O)	PID Reading (ppm)	Vacuum Reading (inches H ₂ O)	PID Reading (ppm)	Vacuum Reading (inches H ₂ O)	PID Reading (ppm)
	5/31/2019		7/18/2019		10/23/2019		1/7/2020	
BPP-10	-	NR	0.1	NR	0.7	NR	0.1	NR
BPP-11	-	NR	0.0	NR	0.2	NR	0.1	NR
BPP-12	-	NR	0.0	NR	0.0	NR	0.0	NR
BPP-13	-	NR	0.0	NR	0.0	NR	0.0	NR
BPP-14	-	NR	0.0	NR	0.0	NR	0.0	NR
BPP-15	-	NR	0.0	NR	0.0	NR	0.0	NR
BPP-16	-	NR	0.0	NR	0.0	NR	0.0	NR
BPP-17	-	NR	0.0	NR	0.6	NR	0.1	NR
BPP-23	-	NR	0.0	NR	0.0	NR	0.0	NR
MWN-31A	0.0	NR	0.0	NR	0.1	NR	0.0	NR
SVE-1	15.5	8.3	15.6	5.5	14.6	20.3	16.5	0.3
SVE-2-1	15.0	21.1	16.0	29.0	16.3	12.8	17.0	0.1
SVE-2-2	15.5	320.0	15.8	150.0	15.3	36.2	16.0	14.0
SVE-3	16.4	930.0	14.4	440.0	16.7	756.0	17.0	66.0
SVE-4	15.5	1,140.0	NA	NA	NA	NA	16.0	60.0
SVE-C	15.5	18.3	14.0	16.3	NA	NA	1.5	6.3
SVE-D	15.5	8.3	14.0	0.0	16.0	4.4	16.0	0.5
SVE-F	15.7	23.5	14.0	0.0	NA	NA	17.0	1.0
SVE-I	15.7	93.0	14.4	12.5	16.1	3.9	17.0	1.5
TMW-1	-	NR	0.0	NR	0.3	NR	0.0	NR
TMW-2	-	NR	0.0	NR	0.1	NR	0.0	NR

Definitions:

- = not measured
 ppm = parts per million
 NA = not available
 NR = not required

FIGURES



GATEWAY TRADE CENTER
PROPERTY

PUMP SET POINTS 4/17/19

LEGEND:

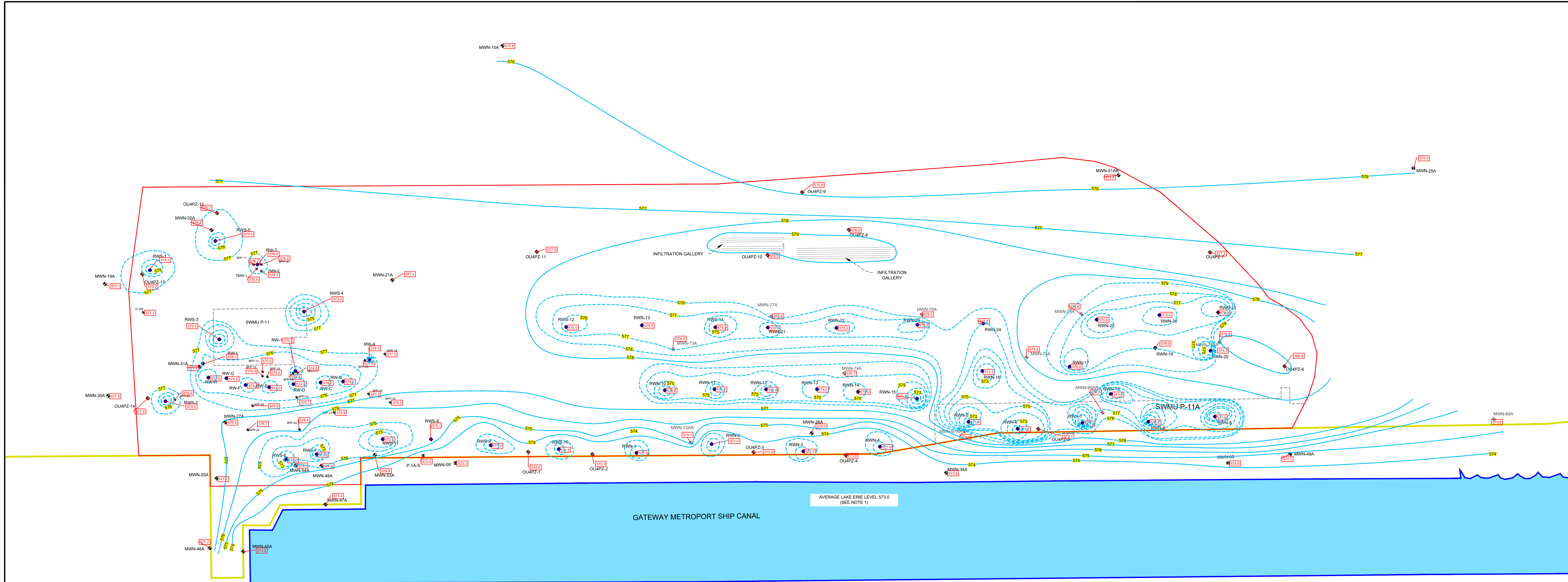
- SG-01 STAFF GAUGE AND SURFACE WATER ELEVATION
- MWN-45A EXISTING MONITORING WELL AND GROUNDWATER ELEVATION
- RWS-2 GROUNDWATER RECOVERY WELL AND MID-POINT OF ON/OFF ELEVATION
- OU4PZ-2 OU-4 BOUNDARY
- P-1A-S PIEZOMETER LOCATION AND GROUNDWATER ELEVATION
- BPP-16 GROUNDWATER ISOPOTENTIAL (1 FOOT INTERVAL)
- GROUNDWATER DEPRESSION CAUSED BY RECOVERY WELL PUMPING (APPROX.)

NOTES:

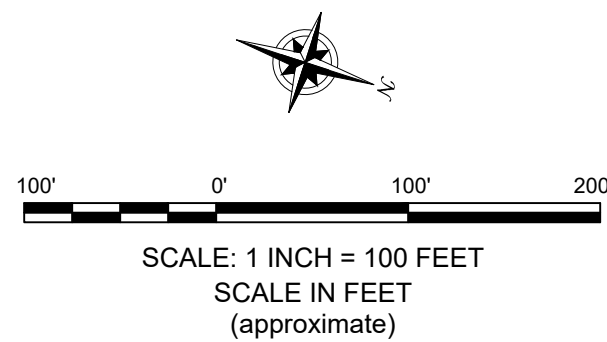
1. THE LAKE ERIE WATER LEVEL USED IN DEVELOPING ISOPOTENTIALS IS THE AVERAGE WATER LEVEL ON 4/16 AND 4/17, 2019 FROM THE BUFFALO, NY STATION 9063020 : <https://tidesandcurrents.noaa.gov/stationhome.html?id=9063020>
2. GROUNDWATER ISOPOTENTIALS SHOWN REPRESENT THE UPPERMOST-SLAG/FILL WATER BEARING ZONE, AND HAVE BEEN INTERPRETED USING THE MEASURED WATER LEVELS AT THE MONITORING WELLS AND THE PIEZOMETERS, AND USING THE MIDPOINT OF THE RECOVERY WELLS ON/OFF SET POINTS.
3. RECOVERY WELL RWS-8 MAY BE INSTALLED IN A BASEMENT OR OTHER STRUCTURE. THE WELL PUMP OPERATES FOR 3 MINUTES AND ONLY LOWERS THE WATER ELEVATION DOWN 0.1'. THE WELL ELEVATION SET POINTS ARE BEING LOWERED METHODICALLY ALBEIT IN SMALL INCREMENTS TO REMOVE THE STORED WATER IN THIS AREA.

Section	Leg	Well	Pump Off	Pump On
			Bottom	Top
			Elevation (ft)	
North Section	Eastern Leg	RWN-1	570.0	572.0
		RWN-2	570.0	572.0
		RWN-3	570.0	572.0
		RWN-4	570.0	572.0
		RWN-5	570.0	572.0
		RWN-6	570.0	572.0
		RWN-7	570.0	572.0
		RWN-8	570.0	572.0
		RWN-9	570.0	572.0
	Central Leg	RWN-10	574.0	576.0
RWN-11		574.0	576.0	
RWN-12		575.0	577.0	
RWN-13		574.0	576.0	
RWN-14		575.0	577.0	
RWN-15		575.0	577.0	
RWN-16		577.0	579.0	
RWN-17		577.0	579.0	
RWN-18		577.0	579.5	
RWN-19		577.0	579.0	
RWN-20	574.5	576.5		
Western Leg	RWN-21	577.0	579.0	
	RWN-22	578.0	580.0	
	RWN-23	577.0	579.0	
	RWN-24	577.0	579.0	
	RWN-25	576.5	578.5	
	RWN-26	577.5	579.5	
RWN-27	576.0	578.0		

F:\CAD\Turnkey\Turnkey Remediation\Conveyance Measures\OU-4\4 Remediation\05-2020 Annual Report\OU4 Figure 4, Groundwater Isopotentials.dwg 09/30/2019 8:14 AM



PLAN VIEW OF OU-4 AREA



LEGEND:

- TECUMSEH PROPERTY BOUNDARY
- SG-01 □ STAFF GAUGE AND SURFACE WATER ELEVATION
- MWN-45A ● 575.0 EXISTING MONITORING WELL AND GROUNDWATER ELEVATION
- RWS-2 ● 575.0 GROUNDWATER RECOVERY WELL AND MID-POINT OF ON/OFF ELEVATION
- OU-4 BOUNDARY
- OU4PZ-2 ● P-1A-S ● BPP-16 575.0 PIEZOMETER LOCATION AND GROUNDWATER ELEVATION
- GROUNDWATER ISOPOTENTIAL (1 FOOT INTERVAL)
- GROUNDWATER DEPRESSION CAUSED BY RECOVERY WELL PUMPING (APPROX.)

- NOTES:
- THE LAKE ERIE WATER LEVEL USED IN DEVELOPING ISOPOTENTIALS IS THE AVERAGE WATER LEVEL ON OCTOBER 9, 2019 FROM THE BUFFALO, NY STATION 9063020 : <https://tidesandcurrents.noaa.gov/stationhome.html?id=9063020>
 - GROUNDWATER ISOPOTENTIALS SHOWN REPRESENT THE UPPERMOST-SLAG/FILL WATER BEARING ZONE, AND HAVE BEEN INTERPRETED USING THE MEASURED WATER LEVELS AT THE MONITORING WELLS AND THE PIEZOMETERS, AND USING THE MIDPOINT OF THE RECOVERY WELLS ON/OFF SET POINTS.
 - RECOVERY WELL RWS-8 MAY BE INSTALLED IN A BASEMENT OR OTHER STRUCTURE. THE WELL PUMP OPERATES FOR 3 MINUTES AND ONLY LOWERS THE WATER ELEVATION DOWN 0.1'. THE WELL ELEVATION SET POINTS ARE BEING LOWERED METHODICALLY ALBEIT IN SMALL INCREMENTS TO REMOVE THE STORED WATER IN THIS AREA.

PUMP SET POINTS ON FROM 9-9-19 TO 10-9-19

Section	Leg	Well	Pump Off	Pump On
			Bottom	Top
			Elevation (ft)	
North Section	Eastern Leg	RWN-1	570.0	572.0
		RWN-2	570.0	572.0
		RWN-3	570.0	572.0
		RWN-4	570.0	572.0
		RWN-5	570.0	572.0
		RWN-6	570.0	572.0
		RWN-7	570.0	572.0
		RWN-8	570.0	572.0
		RWN-9	570.0	572.0
	Central Leg	RWN-10	572.0	574.0
		RWN-11	572.0	574.0
		RWN-12	572.0	574.0
		RWN-13	573.0	575.0
		RWN-14	573.0	575.0
		RWN-15	570.5	572.5
		RWN-16	571.0	573.0
		RWN-17	575.0	577.0
		RWN-18	572.0	574.0
		RWN-19	577.0	579.0
		RWN-20	573.0	575.0
	Western Leg	RWN-21	574.0	576.0
		RWN-22	574.0	576.0
		RWN-23	574.0	576.0
		RWN-24	576.0	578.0
		RWN-25	574.0	576.0
		RWN-26	574.0	576.0
		RWN-27	574.0	576.0

Section	Leg	Well	Pump Off Bottom	Pump On Top
			Elevation (ft)	
South Section	Western Leg	RWS-1	573.0	575.0
		RWS-2	573.0	575.0
		RWS-3	572.0	574.0
		RWS-4	572.0	574.0
		RWS-5	573.0	575.0
		RWS-12	574.0	576.0
		RWS-13	575.5	577.5
		RWS-14	573.0	575.0
	Eastern Leg	RWS-6	570.0	572.0
		RWS-7	570.0	572.0
		RWS-8	575.0	575.2
		RWS-9	570.0	572.0
		RWS-10	570.5	572.5
		RWS-11	571.0	573.0
	BENZOL AREA	RW-1	573.0	575.0
		RW-2	575.0	577.0
		RW-A	573.0	575.0
		RW-B	573.0	575.0
		RW-C	573.0	575.0
		RW-D	573.0	575.0
		RW-E	573.0	575.0
		RW-F	573.5	575.5
		RW-G	574.5	576.5
		RW-H	573.0	575.0
		RW4	575.0	577.0

SLAG/FILL GROUNDWATER ISOPOTENTIALS
10/09/19
ANNUAL SUMMARY REPORT
OPERABLE UNIT 4
CNS AREA - FORMER BETHLEHEM STEEL SITE
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.

FIGURE 4

REVISIONS

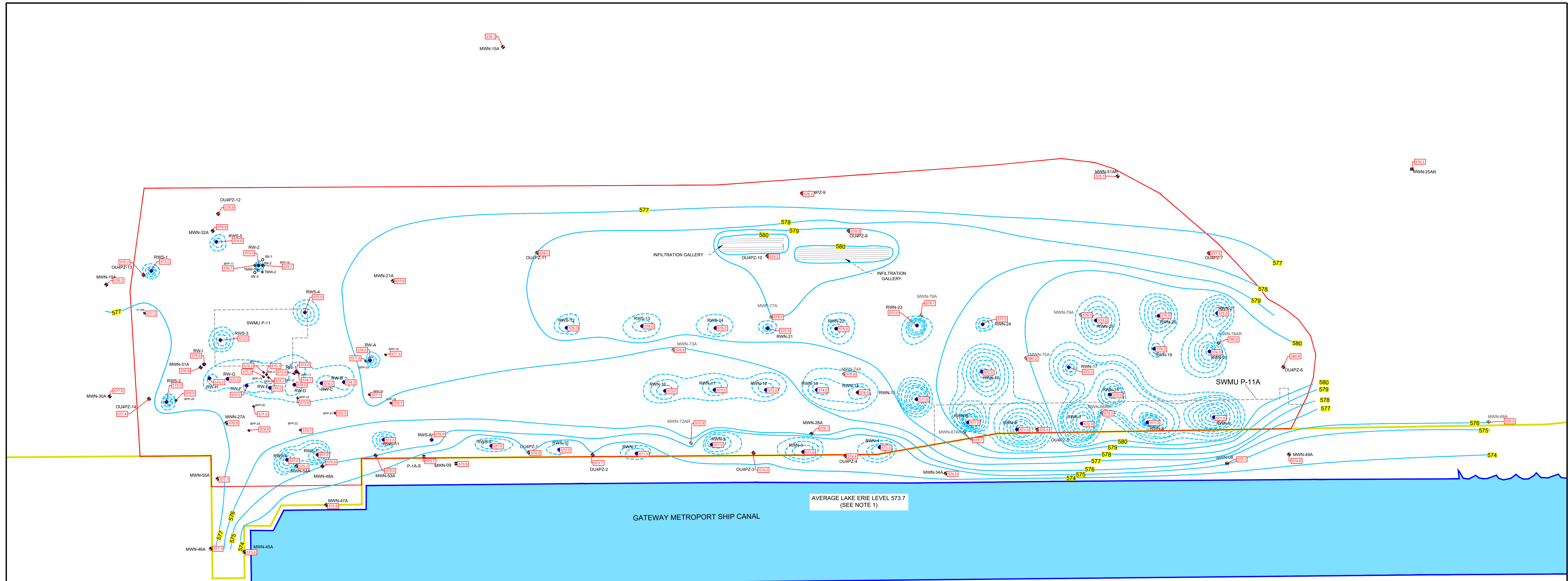
NO.	BY	DATE	REMARKS

SEAL



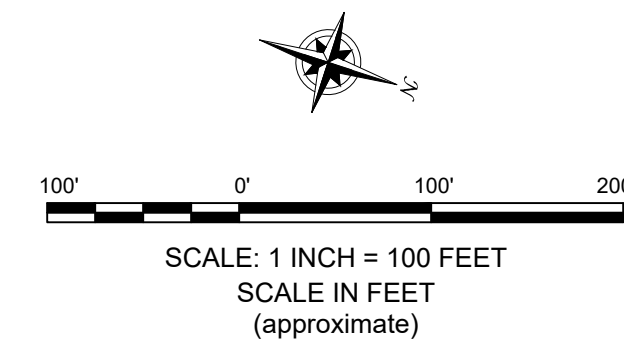
2558 HAMBURG TURNPIKE
SUITE 1300
BUFFALO, NY 14218
(716) 856-0635

JOB NO.: 007-1-016-922



PLAN VIEW OF OU-4 AREA

PUMP SET POINTS 1/29/20



- LEGEND:
- SG-01 STAFF GAUGE AND SURFACE WATER ELEVATION
 - MWN-45A EXISTING MONITORING WELL AND GROUNDWATER ELEVATION
 - RWS-2 GROUNDWATER RECOVERY WELL AND MID-POINT OF ON/OFF ELEVATION
 - OU-4 BOUNDARY
 - OU4PZ-2 P-1A-S BPP-16 PIEZOMETER LOCATION AND GROUNDWATER ELEVATION
 - GROUNDWATER ISOPOTENTIAL (1 FOOT INTERVAL)
 - GROUNDWATER DEPRESSION CAUSED BY RECOVERY WELL PUMPING (APPROX.)

- NOTES:
- THE LAKE ERIE WATER LEVEL USED IN DEVELOPING ISOPOTENTIALS IS THE AVERAGE WATER LEVEL ON 1/28/20 AND 1/29/20 FROM THE BUFFALO, NY STATION 9063020 : <https://tidesandcurrents.noaa.gov/stationhome.html?id=9063020>
 - GROUNDWATER ISOPOTENTIALS SHOWN REPRESENT THE UPPERMOST-SLAG/FILL WATER BEARING ZONE, AND HAVE BEEN INTERPRETED USING THE MEASURED WATER LEVELS AT THE MONITORING WELLS AND THE PIEZOMETERS, AND USING THE MIDPOINT OF THE RECOVERY WELLS ON/OFF SET POINTS.
 - RECOVERY WELL RWS-8 MAY BE INSTALLED IN A BASEMENT OR OTHER STRUCTURE. THE WELL PUMP OPERATES FOR 3 MINUTES AND ONLY LOWERS THE WATER ELEVATION DOWN 0.1'. THE WELL ELEVATION SET POINTS ARE BEING LOWERED METHODICALLY ALBEIT IN SMALL INCREMENTS TO REMOVE THE STORED WATER IN THIS AREA.

Section	Leg	Well	Pump Off	Pump On
			Bottom	Top
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North Section	Eastern Leg	RWN-1	570.0	572.0
		RWN-2	570.0	572.0
		RWN-3	570.0	572.0
		RWN-4	570.0	572.0
		RWN-5	570.0	572.0
		RWN-6	570.0	572.0
		RWN-7	571.0	573.0
		RWN-8	570.0	572.0
		RWN-9	570.0	572.0
	Central Leg	RWN-10	572.0	574.0
		RWN-11	572.0	574.0
		RWN-12	572.0	574.0
		RWN-13	573.0	575.0
		RWN-14	573.0	575.0
		RWN-15	570.5	572.5
		RWN-16	571.0	573.0
		RWN-17	574.5	576.5
		RWN-18	571.0	573.0
		RWN-19	577.0	579.0
		RWN-20	573.0	575.0
	Western Leg	RWN-21	574.0	576.0
		RWN-22	574.0	576.0
		RWN-23	572.0	574.0
		RWN-24	576.0	578.0
		RWN-25	574.0	576.0
		RWN-26	574.0	576.0
		RWN-27	574.0	576.0

Section	Leg	Well	Pump Off	Pump On
			Bottom	Top
			Elevation (ft)	
South Section	Western Leg	RWS-1	572.0	574.0
		RWS-2	572.0	574.0
		RWS-3	572.0	574.0
		RWS-4	572.0	574.0
		RWS-5	573.0	575.0
		RWS-12	575.0	577.0
		RWS-13	575.0	577.0
		RWS-14	575.0	577.0
	Eastern Leg	RWS-6	570.0	572.0
		RWS-7	570.0	572.0
		RWS-8	575.9	576.1
		RWS-9	570.0	572.0
		RWS-10	571.0	573.0
		RWS-11	571.0	573.0
	BENZOL AREA	RW-1	573.0	575.0
		RW-2	573.0	575.0
		RW-A	573.0	575.0
		RW-B	573.0	575.0
		RW-C	573.0	575.0
		RW-D	573.0	575.0
		RW-E	573.0	575.0
		RW-F	573.5	575.5
		RW-G	574.5	576.5
		RW-H	573.0	575.0
RW-I	575.0	577.0		

REVISIONS			REMARKS
NO.	BY	DATE	

SEAL		

DRAWN BY:	RFL
DATE:	MAY 26, 2020
CHECKED BY:	BG
APPROVED BY:	PHW

SLAG/FILL GROUNDWATER ISOPOTENTIALS
1/29/20
ANNUAL SUMMARY REPORT
OPERABLE UNIT 4
CNS AREA - FORMER BETHLEHEM STEEL SITE
LACKAWANNA, NEW YORK
PREPARED FOR
TECUMSEH REDEVELOPMENT INC.

FIGURE 5

FIGURE 7
OU-4 GROUNDWATER TREATMENT SYSTEM MONTHLY FLOW

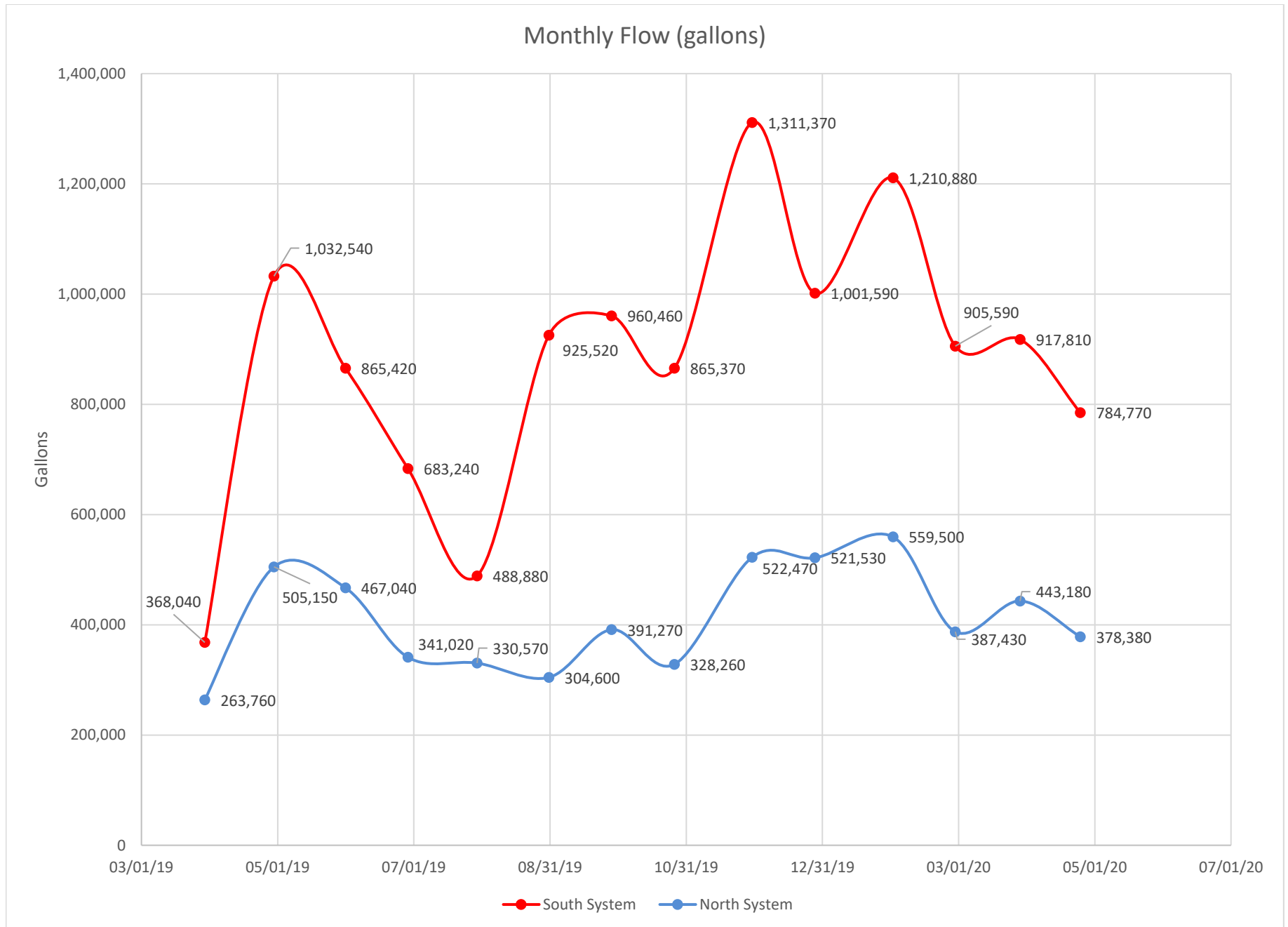
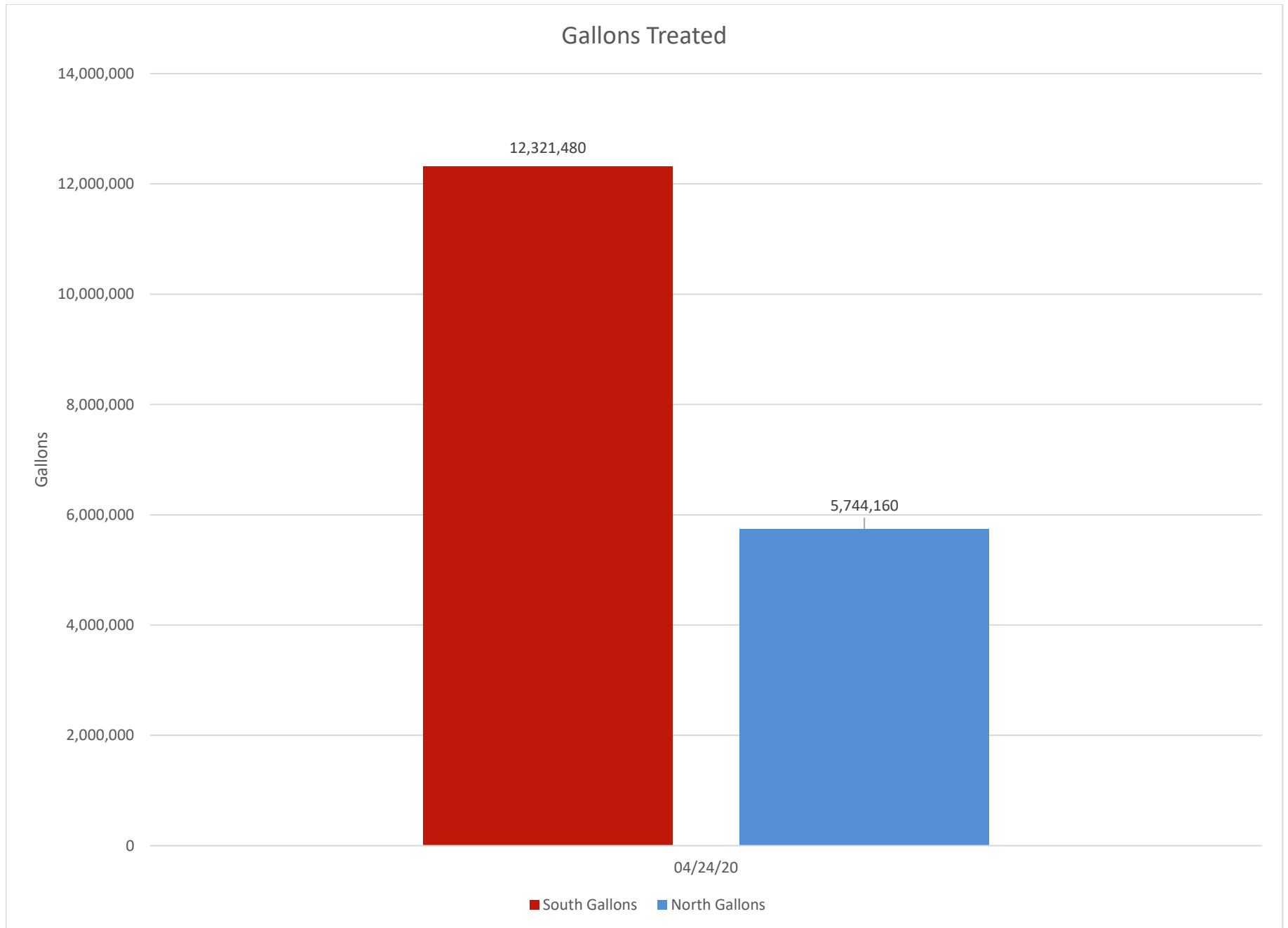


FIGURE 8
OU-4 GROUNDWATER TREATMENT SYSTEM ANNUAL FLOW



ATTACHMENT 1

GROUNDWATER SAMPLING FIELD SHEETS



GROUNDWATER FIELD FORM

Project Name: OU-4 Groundwater Sampling

Date: 4-8-20

Location: Tecumseh

Project No.: T0071-910-001

Field Team: CEH

Well No. <u>MWN-55A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-8-20 / 1015</u>			
Product Depth (ftTOR):			Water Column (ft): <u>9.77</u>			DTW when sampled: <u>3.73</u>			
DTW (static) (ftTOR): <u>7.41</u>			One Well Volume (gal): <u>1.60</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>17.18</u>			Total Volume Purged (gal): <u>2.75</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
0953	Initial	0.00	11.72	9.2	5240		1.52	-130	Turbid, SL Amzi
0955	1 8.43	0.50	11.73	8.7	5130		1.17	-196	Clear, " " "
0958	2 8.73	0.75	11.61	8.4	3615		1.43	-192	" " " "
1000	3 8.73	1.00	11.58	8.1	3320		1.70	-189	" " " "
1002	4 8.73	1.25	11.55	8.1	3457		1.81	-188	" " " "
1004	5 8.73	1.50	11.52	8.1	3643		1.58	-183	" " " "
1006	6 8.73	1.75	11.50	8.0	3834		1.52	-181	" " " "
1007	7 8.73	2.00	11.48	8.0	3946		1.52	-181	" " " "
1009	8 8.73	2.25	11.42	8.0	4036		1.56	-178	" " " "
1011	9 8.73	2.50	11.41	8.0	4086		1.30	-179	" " " "
	10								
Sample Information:									
1015	S1 8.73	2.75	11.40	8.0	4100		1.25	-179	Clear, SL Pptn
1019	S2 8.73	2.75	11.39	8.0	3996		1.27	-177	" " " "

Well No. <u>MWN-40A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-8-20 / 1100</u>			
Product Depth (ftTOR):			Water Column (ft): <u>9.55</u>			DTW when sampled: <u>5.77</u>			
DTW (static) (ftTOR): <u>5.63</u>			One Well Volume (gal): <u>1.56</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>15.18</u>			Total Volume Purged (gal): <u>3.50</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1051	Initial	0.00	9.52	8.5	4530		0.80	-108	Turbid, SL Pptn
1053	1 5.77	1.00	9.64	8.1	4573		1.09	-112	SL Turbid, " " "
1055	2 5.77	1.50	9.45	8.2	4647		1.33	-103	Clear, " " "
1057	3 5.77	2.00	9.42	8.1	4666		1.09	-103	" " " "
1059	4 5.77	2.50	9.41	8.1	4680		1.39	-102	Clear, no odor
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1100	S1 5.77	3.00	9.40	8.2	4686		1.40	-101	Clear, no odor
1112	S2 5.77	3.50	9.34	8.2	4677		1.22	-99	" " " "

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



GROUNDWATER FIELD FORM

Project Name: OU-4 Groundwater Sampling

Date: 4-8-20

Location: Tecumseh

Project No.: T0071-910-001

Field Team: CEH

Well No. MW-47A			Diameter (inches): 2			Sample Date / Time: 4-8-20 / 1150			
Product Depth (ftTOR):			Water Column (ft): 6.68			DTW when sampled: 10.60			
DTW (static) (ftTOR): 10.63			One Well Volume (gal): 1.09			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): 17.31			Total Volume Purged (gal): 3.50			Purge Method: Low Flow			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1139	0 Initial	0.00	12.14	10.7	4914		1.03	-245	Turbid, SL Petrol odor
1141	1 10.60	0.25	12.17	10.5	4884		1.13	-281	SL Turbid, " " "
1143	2 10.60	0.50	12.16	10.4	4802		0.98	-282	" " " " "
1145	3 10.60	1.00	12.18	10.4	4765		1.11	-281	Clear, SL Petrol odor
1147	4 10.60	1.50	12.18	10.4	4739		0.92	-284	" " " " "
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1150	S1 10.60	2.00	12.17	10.4	4720		0.98	-285	Clear, SL Petrol odor
1201	S2 10.60	3.50	12.14	10.7	4678		0.93	-287	" " " " "

Well No. MW-54A			Diameter (inches): 2			Sample Date / Time:			
Product Depth (ftTOR):			Water Column (ft): 8.86			DTW when sampled:			
DTW (static) (ftTOR): 9.46			One Well Volume (gal): 1.44			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): 18.32			Total Volume Purged (gal):			Purge Method: Low Flow			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1326	0 Initial	0.00	8.36	11.3	1372		1.07	-183	Turbid, Petrol odor
1323	1 9.88	0.50	7.82	10.7	1365		0.78	-164	SL Turbid, " " "
1326	2 9.95	1.00	7.70	10.3	1326		0.81	-154	" " " " "
1328	3 9.93	1.50	7.70	10.2	1295		0.61	-156	Clear with black organic matter, Petrol odor
1330	4 9.92	2.00	7.78	10.1	1281		0.68	-157	" " " " "
1332	5 9.92	2.50	7.71	10.1	1274		0.64	-157	" " " " "
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1335	S1 9.92	3.00	7.70	10.1	1273		0.65	-156	Clear w/ black organic matter, Petrol odor
1348	S2 9.93	5.00	7.70	10.8	1266		0.67	-150	" " " " "

Stabilization Criteria

REMARKS: -Treated water w/acid for MW-47A
* For MW-54A black organic like matter in Gw

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

Note: All measurements are in feet, distance from top of riser.

PREPARED BY:



GROUNDWATER FIELD FORM

Project Name: OU-4 Groundwater Sampling

Date: 4-8-2020

Location: Tecumseh

Project No.: T0071-910-001

Field Team: CEH

Well No. MWN-72AR			Diameter (inches): 2			Sample Date / Time: 4-8-20 / 1426			
Product Depth (ftTOR):			Water Column (ft): 8.03			DTW when sampled: 10.75			
DTW (static) (ftTOR): 10.28			One Well Volume (gal): 1.31			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): 18.31			Total Volume Purged (gal): 6.00			Purge Method: Low Flow			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1414	0 Initial	0.00	7.33	10.4	1113		0.24	-137	Turbid, Petrol odor / Green
1417	1 10.60	1.00	7.29	9.9	1079		0.47	-141	" " " " "
1419	2 10.78	2.00	7.29	9.6	1029		0.58	-141	" " " " "
1422	3 10.75	3.00	7.29	9.5	1019		0.77	-141	sl. turbid, Petrol odor
1424	4 10.75	4.00	7.29	9.4	1007		0.72	-140	" " " " "
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1426	S1 10.75	5.00	7.26	9.4	1015		0.66	-132	clear
1435	S2 10.75	6.00	7.25	9.6	1016		0.81	-130	clear, Petrol odor

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (ftTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (ftTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (ftTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV



EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: 04-4 CW sampling

Project No.:

Client:

Date: 7-8-20

Instrument Source: ☒ BM ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☒ pH meter	units	<u>0730</u>	Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6223973 ☒	<u>CEH</u>	4.00 7.00 10.01	<u>3.93</u> <u>7.01</u> <u>10.01</u>	
☐ Turbidity meter	NTU		Hach 2100P or 2100Q Turbidimeter	06120C020523 (P) ☐ 13120C030432 (Q) ☐		< 0.4 or 10 for 2100 Q 20 100 800		
☐ Turbidity meter	NTU		LaMotte 2020	6523-1816 (La) ☐		0.0 NTU 1.0 NTU 10.0 NTU		
☒ Sp. Cond. meter	uS mS	<u>0730</u>	Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6223973 ☒	<u>CEH</u>	<u>7000</u> mS @ 25 °C	<u>6996</u>	
☐ PID	ppm		MinRAE 2000			open air zero _____ ppm Iso. Gas		MIBK response factor = 1.0
☒ Dissolved Oxygen	ppm	<u>0730</u>	HACH Model HQ30d	080700023281 ☐ 100500041867 ☐ 1402000100319 ☐	<u>CEH</u>	100% Saturation	<u>100.0 %</u> <u>103.3 %</u> <u>51022</u>	
☐ Particulate meter	mg/m ³					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY:

Equipment Calibration Log.xls

DATE:



GROUNDWATER FIELD FORM

Project Name: 00-4 Groundwater SamplingDate: 4-9-20

Location:

Project No.:

Field Team: CEH

Well No. <u>MWN-51AR</u>		Diameter (inches): <u>2</u>		Sample Date / Time: <u>4-9-20 / 1330</u>					
Product Depth (ftTOR):		Water Column (ft): <u>6.47</u>		DTW when sampled: <u>16.74</u>					
DTW (static) (ftTOR): <u>16.76</u>		One Well Volume (gal): <u>1.05</u>		Purpose: ☐ Development ☐ Sample ☒ Purge & Sample					
Total Depth (ftTOR): <u>23.17</u>		Total Volume Purged (gal):		Purge Method: <u>Low Flow</u>					
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1319	0 Initial	0.00	10.92	12.5	919.7		0.42	-112	Turbid, no odor
1321	1 16.84	0.75	10.90	12.1	870.0		1.08	-153	SL Turbid, " "
1324	2 16.74	1.25	10.89	12.1	850.0		1.02	-175	" " " "
1326	3 16.74	2.00	10.87	12.0	888.8		1.05	-183	Clear, no odor
1328	4 16.74	3.00	10.88	12.0	866.5		0.97	-183	" " "
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1330	S1 16.74	4.00	10.86	11.9	871.2		0.89	-191	Clear, no odor
1335	S2 16.74	5.00	10.77	12.3	869.0		1.06	-171	" " "

Well No. <u>MWN-66AR</u>		Diameter (inches): <u>2</u>		Sample Date / Time: <u>4-9-20 / 1450</u>					
Product Depth (ftTOR):		Water Column (ft): <u>9.19</u>		DTW when sampled: <u>8.52</u>					
DTW (static) (ftTOR): <u>7.73</u>		One Well Volume (gal): <u>1.50</u>		Purpose: ☐ Development ☐ Sample ☒ Purge & Sample					
Total Depth (ftTOR): <u>16.92</u>		Total Volume Purged (gal):		Purge Method: <u>Low Flow</u>					
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1433	0 Initial	0.00	8.13	10.7	942.2		0.01	-200	Black, Petrol odor
1435	1 8.34	1.00	7.70	9.3	1015		0.54	-167	SL Turbid, " "
1438	2 8.55	2.00	7.53	8.9	1022		0.42	-150	" " " "
1440	3 8.52	3.00	7.48	8.7	1015		0.81	-142	" " " "
1442	4 8.52	4.00	7.37	8.7	1003		0.51	-133	" " " "
1444	5 8.52	5.00	7.34	8.6	1028		0.58	-131	" " " "
1446	6 8.52	6.00	7.31	8.5	1011		0.68	-125	" " " "
	7								
	8								
	9								
	10								
Sample Information:									
1450	S1 8.52	7.00	7.30	8.5	1035		0.91	-127	SL Turbid, Petrol odor
1453	S2 8.52	8.00	7.28	8.7	1002		0.89	-119	" " " "

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



GROUNDWATER FIELD FORM

Project Name: OU-4 Groundwater Sampling

Date: 4-9-20

Location: Tecumseh

Project No.: T0071-910-001

Field Team: CEH

Well No. 0u4pz-9			Diameter (inches): 2			Sample Date / Time: 4-9-20 /			
Product Depth (ftTOR):			Water Column (ft): 2.03			DTW when sampled:			
DTW (static) (ftTOR): 15.20			One Well Volume (gal): 0.33			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): 17.23			Total Volume Purged (gal):			Purge Method: Low Flow			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1047	0 Initial	0.00	11.63	10.5	1160		8.01	4	SL Turbid, no odor
1049	1 Dry	0.50							
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1350	S1 15.21	0.50	11.68	10.6	1157		6.55	-147	SL Turbid, no odor
1400	S2 Dry								

Well No. MWV-32A			Diameter (inches): 2			Sample Date / Time: 4-9-20 / 1130			
Product Depth (ftTOR):			Water Column (ft): 9.38			DTW when sampled: 10.83			
DTW (static) (ftTOR): 10.41			One Well Volume (gal): 1.53			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): 19.79			Total Volume Purged (gal):			Purge Method: Low Flow			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1116	0 Initial	0.00	7.92	11.2	1350		0.17	-59	Turbid, no odor
1118	1 10.80	0.50	6.81	11.2	1365		0.98	-39	" " "
1120	2 10.82	1.00	6.62	11.1	1342		1.11	-56	" " "
1122	3 10.83	1.50	6.61	11.2	1330		1.11	-68	SL Turbid, Petrol odor
1125	4 10.83	2.00	6.65	11.2	1322		1.27	-75	" " " "
1126	5 10.83	2.75	6.65	11.3	1318		1.08	-81	" " " "
1128	6 10.83	3.50	6.66	11.2	1315		0.98	-85	" " " "
	7								
	8								
	9								
	10								
Sample Information:									
1130	S1 10.83	4.00	6.66	11.3	1312		1.07	-90	SL Turbid, Petrol odor
1206	S2 10.92	7.00	6.75	11.5	1288		1.09	-94	Clear, " "

REMARKS: Took MS+MSD For MWV-32A, MWV-32A MS/MSD
Equipment blank taken at 1600
Field Blank taken at 0945

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV



EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: OU-4 Groundwater Sampling

Project No.: T0071-910-001

Client: Tecumseh

Date: 4-9-20

Instrument Source:

☒

BM

☐

Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☒ pH meter	units	1030	Myron L Company Ultra Meter 6P	☐ 6213516 ☐ 6243084 ☐ 6212375 ☒ 6223973	CEH	4.00 7.00 10.01	3.93 7.04 10.08	
☐ Turbidity meter	NTU		Hach 2100P or 2100Q Turbidimeter	☐ 06120C020523 (P) ☐ 13120C030432 (Q)		< 0.4 or 10 for 2100 Q 20 100 800		
☐ Turbidity meter	NTU		LaMotte 2020	☐ 6523-1816 (La)		0.0 NTU 1.0 NTU 10.0 NTU		
☒ Sp. Cond. meter	uS mS	1030	Myron L Company Ultra Meter 6P	☐ 6213516 ☐ 6243084 ☐ 6212375 ☒ 6223973	CEH	700 ms @ 25 °C	7008	
☐ PID	ppm		MinRAE 2000			open air zero _____ ppm Iso. Gas		MIBK response factor = 1.0
☒ Dissolved Oxygen	ppm	1030	HACH Model HQ30d	☐ 080700023281 ☐ 100500041867 ☒ 1402000100319	CEH	100% Saturation	100 % 104.2 % 51092	
☐ Particulate meter	mg/m ³					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY:

Equipment Calibration Log.xls

DATE:



GROUNDWATER FIELD FORM

Project Name: OU-4 Gw Sampling

Date: 4-10-20

Location:

Project No.:

Field Team: CEH

Well No. <u>OU4PZ-6</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-10-20 / 1300</u>			
Product Depth (ftTOR):			Water Column (ft): <u>3.74</u>			DTW when sampled: <u>5.25</u>			
DTW (static) (ftTOR): <u>5.22</u>			One Well Volume (gal): <u>0.61</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>8.96</u>			Total Volume Purged (gal): <u>5.00</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1246	0 Initial	0.00	12.62	8.1	6305		1.97	-140	Turnid, SL Petrol odor
1248	1 5.22	0.25	12.69	8.1	5556		2.66	-159	SL Turbid, " " " "
1250	2 5.25	0.50	12.71	8.2	5078		2.22	-159	" " " " " "
1252	3 5.25	0.75	12.72	8.2	5188		2.65	-157	clear, SL Petrol odor
1254	4 5.25	1.00	12.72	8.3	4948		3.11	-154	" " " " " "
1256	5 5.25	1.50	12.74	8.4	4975		2.67	-151	" " " " " "
1258	6 5.25	2.00	12.75	8.3	5041		2.55	-149	" " " " " "
7									
8									
9									
10									
Sample Information:									
1300	S1 5.25	2.75	12.75	8.3	5048		2.92	-147	clear, SL Petrol odor
1310	S2 5.25	5.00	12.78	8.6	5062		2.37	-134	" " " " " "

Well No. <u>MWV-19A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-10-20 / 1400</u>			
Product Depth (ftTOR):			Water Column (ft): <u>9.99</u>			DTW when sampled: <u>8.66</u>			
DTW (static) (ftTOR): <u>8.26</u>			One Well Volume (gal): <u>1.63</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>18.25</u>			Total Volume Purged (gal): <u>12.00</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1345	0 Initial	0.00	8.60	10.2	1524		1.09	-182	SL Turbid, no odor
1347	1 8.60	1.50	7.70	9.7	1516		0.81	-130	" " " " " "
1349	2 8.58	3.00	7.51	9.5	1511		1.24	-123	clear, no odor
1351	3 8.60	4.50	7.34	9.4	1511		1.54	-119	" " " " " "
1353	4 8.60	6.00	7.25	9.4	1508		1.07	-116	" " " " " "
1355	5 8.60	7.00	7.30	9.4	1509		1.43	-115	" " " " " "
1357	6 8.60	8.00	7.29	9.3	1513		1.40	-112	" " " " " "
7									
8									
9									
10									
Sample Information:									
1400	S1 8.60	10.00	7.25	9.3	1509		1.48	-110	clear, no odor
1407	S2 8.60	12.00	7.20	9.2	1505		1.28	-103	" " " " " "

Stabilization Criteria

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



GROUNDWATER FIELD FORM

Project Name: OU-4 GW Sampling

Date: 4-10-20

Location:

Project No.:

Field Team: CEH

Well No. <u>MWN-34A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-10-20 / 1035</u>			
Product Depth (ftTOR):			Water Column (ft): <u>12.33</u>			DTW when sampled: <u>10.42</u>			
DTW (static) (ftTOR): <u>9.51</u>			One Well Volume (gal): <u>2.01</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>21.84</u>			Total Volume Purged (gal): <u>6.50</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1018	0 Initial	0.00	7.30	7.9	1201		0.25	-128	Turnid, no odor
1020	1 10.28	0.50	7.45	8.2	1193		1.06	-127	SL Turbid, " "
1023	2 10.35	1.00	7.44	7.9	1182		1.30	-113	" " " "
1025	3 10.41	2.00	7.37	7.8	1170		1.01	-103	" " " "
1027	4 10.42	3.00	7.36	7.8	1160		1.29	-97	Clear, no odor
1029	5 10.42	4.00	7.34	7.6	1147		1.33	-94	" " "
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1035	S1 10.42	5.00	7.33	7.7	1135		1.35	-93	clear, no odor
1042	S2 10.42	6.50	7.36	7.4	1077		1.59	-86	" " "

OU4P2-11

Well No. <u>OU4P2-11</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-10-20 / 1205</u>			
Product Depth (ftTOR):			Water Column (ft): <u>9.47</u>			DTW when sampled: <u>7.57</u>			
DTW (static) (ftTOR): <u>7.33</u>			One Well Volume (gal): <u>1.54</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>16.80</u>			Total Volume Purged (gal): <u>5.00</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1153	0 Initial	0.00	7.61	9.3	1372		0.15	-66	Turbid, Petrol odor, Sheen
1156	1 7.57	0.50	7.58	9.5	1409		0.99	-97	" " "
1157	2 7.57	1.00	7.57	9.6	1415		0.82	-93	" " "
1159	3 7.57	1.50	7.51	9.7	1413		0.83	-96	" " "
1200	4 7.57	2.00	7.52	9.6	1411		0.84	-98	SL Turbid, SL Petrol odor
1202	5 7.57	2.50	7.53	9.7	1408		1.02	-100	" " " "
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1205	S1 7.57	3.00	7.50	9.7	1405		0.86	-100	SL Turbid, SL Petrol odor
1215	S2 7.57	5.00	7.51	9.7	1401		0.85	-101	" " " "

REMARKS:

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: 00-4 Gw Sampling

Project No.:

Client:

Date: 4-10-2020

Instrument Source:

☒

BM

☐

Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☒ pH meter	units	<u>1000</u>	Myron L Company Ultra Meter 6P	☐ 6213516 ☐ 6243084 ☐ 6212375 ☒ 6223973	<u>CEH</u>	4.00 7.00 10.01	<u>4.02</u> <u>7.06</u> <u>10.06</u>	
☐ Turbidity meter	NTU		Hach 2100P or 2100Q Turbidimeter	☐ 06120C020523 (P) ☐ 13120C030432 (Q)		< 0.4 or 10 for 2100 Q 20 100 800		
☐ Turbidity meter	NTU		LaMotte 2020	☐ 6523-1816 (La)		0.0 NTU 1.0 NTU 10.0 NTU		
☒ Sp. Cond. meter	uS mS	<u>1000</u>	Myron L Company Ultra Meter 6P	☐ 6213516 ☐ 6243084 ☐ 6212375 ☒ 6223973	<u>CEH</u>	<u>7000</u> mS @ 25 °C	<u>7010</u>	
☐ PID	ppm		MinRAE 2000			open air zero _____ ppm Iso. Gas		MIBK response factor = 1.0
☒ Dissolved Oxygen	ppm	<u>1000</u>	HACH Model HQ30d	☐ 080700023281 ☐ 100500041867 ☒ 1402000100319	<u>CEH</u>	100% Saturation	<u>100%</u> <u>105.3%</u> <u>510%</u>	
☐ Particulate meter	mg/m ³					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY:

Equipment Calibration Log.xls

DATE:



GROUNDWATER FIELD FORM

Project Name: 004 GW Sampling

Date: 4-13-20

Location:

Project No.:

Field Team: CEH

Well No. <u>MWV-30A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-13-20 / 1105</u>			
Product Depth (ftTOR):			Water Column (ft): <u>12.77</u>			DTW when sampled: <u>7.50</u>			
DTW (static) (ftTOR): <u>7.45</u>			One Well Volume (gal): <u>2.08</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>20.22</u>			Total Volume Purged (gal): <u>6.25</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1039	0 Initial	0.00	7.91	13.3	1138	>1000	0.35	-136	Black, Petrol odor, Sheen
1043	1 7.51	0.75	7.90	12.0	1128	76.0	0.84	-172	sl turbid, 11 11
1047	2 7.50	1.50	7.95	12.1	1131	39.9	0.90	-204	clear, 11 11
1050	3 7.50	2.25	7.99	11.9	1132	15.7	0.81	-216	11 11 11
1053	4 7.50	3.00	8.01	11.0	1143	8.80	1.15	-223	11 11 11
1056	5 7.50	3.75	8.04	11.7	1151	7.25	0.76	-231	11 11 11
1059	6 7.50	4.50	8.05	11.6	1168	6.45	0.80	-243	
7									
8									
9									
10									
Sample Information:									
1165	S1 7.50	5.25	8.01	11.6	1179	8.04	0.74	-238	clear, Petrol odor, Sheen
1120	S2 7.50	6.35	8.10	12.4	1195	3.86	1.02	-240	11 11 11

Well No. <u>MWV-49A</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-13-20 / 1300</u>			
Product Depth (ftTOR):			Water Column (ft): <u>11.4</u>			DTW when sampled: <u>12.89</u>			
DTW (static) (ftTOR): <u>9.84</u>			One Well Volume (gal): <u>1.85</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>21.24</u>			Total Volume Purged (gal): <u>8.00</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1220	0 Initial	0.00	7.23	13.2	1303	>1000	0.63	-98	Turbid, Petrol odor
1224	1 11.83	0.50	7.01	12.2	1332	765	1.23	-87	11 11 11
1228	2 11.91	1.00	6.98	11.9	1323	>1000	0.93	-87	11 11 11
1231	3 12.72	1.50	7.01	11.7	1332	349	1.00	-85	sl turbid, 11 11
1235	4 12.87	2.50	7.02	11.6	1336	183	1.17	-87	11 11 11
1238	5 12.83	3.00	7.00	11.6	1341	138	1.02	-88	11 11 11
1241	6 12.87	4.00	7.08	11.5	1344	104	1.20	-88	11 11 11
1244	7 12.91	4.50	7.01	11.5	1346	81.6	1.04	-83	11 11 11
1255	8 13.16	5.50	7.10	11.8	1345	67.5	1.24	-84	clear, Petrol odor
9									
10									
Sample Information:									
1300	S1 12.89	6.50	7.09	11.6	1357	49.1	1.12	-88	clear, Petrol odor
1320	S2 12.93	8.00	7.11	11.6	1361	22.4	1.21	-88	11 11 11

REMARKS: 004 BD-1 taken at MWV-49A
on chain taken at "0800"

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



GROUNDWATER FIELD FORM

Project Name: OU4 Gw Sampling

Date: 4-13-20

Location:

Project No.:

Field Team: CEH

Well No. <u>MWU-09</u>			Diameter (inches): <u>4</u>			Sample Date / Time: <u>4-13-20 / 1430</u>			
Product Depth (ftTOR):			Water Column (ft): <u>8.67</u>			DTW when sampled: <u>10.20</u>			
DTW (static) (ftTOR): <u>10.10</u>			One Well Volume (gal): <u>5.66</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>18.77</u>			Total Volume Purged (gal): <u>9.00</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1400	Initial	0.00	7.64	11.1	852.2	88.2	0.73	-95	SL Turbid, Petrol odor
1402	10.22	1.00	7.53	10.4	849.9	67.3	0.82	-101	" " " "
1404	10.20	2.00	7.51	10.2	836.5	70.4	0.71	-90	" " " "
1406	10.26	3.00	7.48	10.2	883.4	51.4	0.86	-89	" " " "
1409	10.20	4.00	7.47	10.1	860.9	35.9	0.73	-95	Clear, Petrol odor
1411	10.20	5.00	7.45	10.1	841.3	28.2	0.99	-101	" " " "
1414	10.20	6.00	7.45	10.0	864.4	24.5	0.79	-105	" " " "
1416	10.30	7.00	7.45	10.0	853.6	17.8	0.96	-106	" " " "
8									
9									
10									
Sample Information:									
1430	S1 10.20	8.00	7.45	9.9	886.7	14.2	0.95	-107	Clear, Petrol odor
1433	S2 10.18	9.00	7.46	10.1	858.4	10.2	1.23	-110	" " " "

Well No. <u>OU4PZ-7</u>			Diameter (inches): <u>2</u>			Sample Date / Time: <u>4-13-20 / 1515</u>			
Product Depth (ftTOR):			Water Column (ft): <u>1.36</u>			DTW when sampled: <u>TOP</u>			
DTW (static) (ftTOR): <u>9.49</u>			One Well Volume (gal): <u>0.22</u>			Purpose: ☐ Development ☐ Sample ☒ Purge & Sample			
Total Depth (ftTOR): <u>10.85</u>			Total Volume Purged (gal): <u>5.50</u>			Purge Method: <u>Low Flow</u>			
Time	Water Level (ftTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1454	Initial	0.00	7.58	10.1	1023	17.5	2.12	13	Clear, no odor
1457	TOP	0.50	7.36	9.5	1191	148	1.42	20	SL Turbid, " " "
1459	TOP	1.50	7.28	9.2	1142	17.5	1.22	20	Clear, no odor
1501	TOP	2.50	7.34	9.1	1157	10.4	1.34	24	" " " "
1503	TOP	3.50	7.35	9.0	1169	6.05	1.41	26	" " " "
5									
6									
7									
8									
9									
10									
Sample Information:									
1515	S1 TOP	4.50	7.35	8.9	1175	5.76	1.18	26	Clear, no odor
1519	S2 TOP	5.50	7.33	9.0	1189	17.5	1.38	25	" " " "

REMARKS:

- Hit TOP OF PUMP at 1457 @ 84 fbgS

Note: All measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY:



EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name:

Project No.:

Client:

Date: 4-13-20

Instrument Source:

☒

BM

☐

Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☒ pH meter	units	1000	Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6223973 ☒	CEH	4.00 7.00 10.01	4.03 7.05 9.96	
☒ Turbidity meter	NTU	1000	Hach 2100P or 2100Q Turbidimeter	06120C020523 (P) ☐ 17110C060619 (A) ☒ 13120C030432 (Q) ☐	CEH	< 0.4 or 10 for 2100 Q 20 100 800	10.9	
☐ Turbidity meter	NTU		LaMotte 2020	6523-1816 (La) ☐		0.0 NTU 1.0 NTU 10.0 NTU		
☒ Sp. Cond. meter	uS mS	1000	Myron L Company Ultra Meter 6P	6213516 ☐ 6243084 ☐ 6212375 ☐ 6223973 ☒	CEH	7000 mS @ 25 °C	7010	
☐ PID	ppm		MinRAE 2000			open air zero ppm Iso. Gas		MIBK response factor = 1.0
☒ Dissolved Oxygen	ppm	1000	HACH Model HQ30d	080700023281 ☐ 100500041867 ☐ 1402000100319 ☒	CEH	100% Saturation	100% 102.3% 510pc	
☐ Particulate meter	mg/m ³					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		

ADDITIONAL REMARKS:

PREPARED BY:
Equipment Calibration Log.xls

DATE:

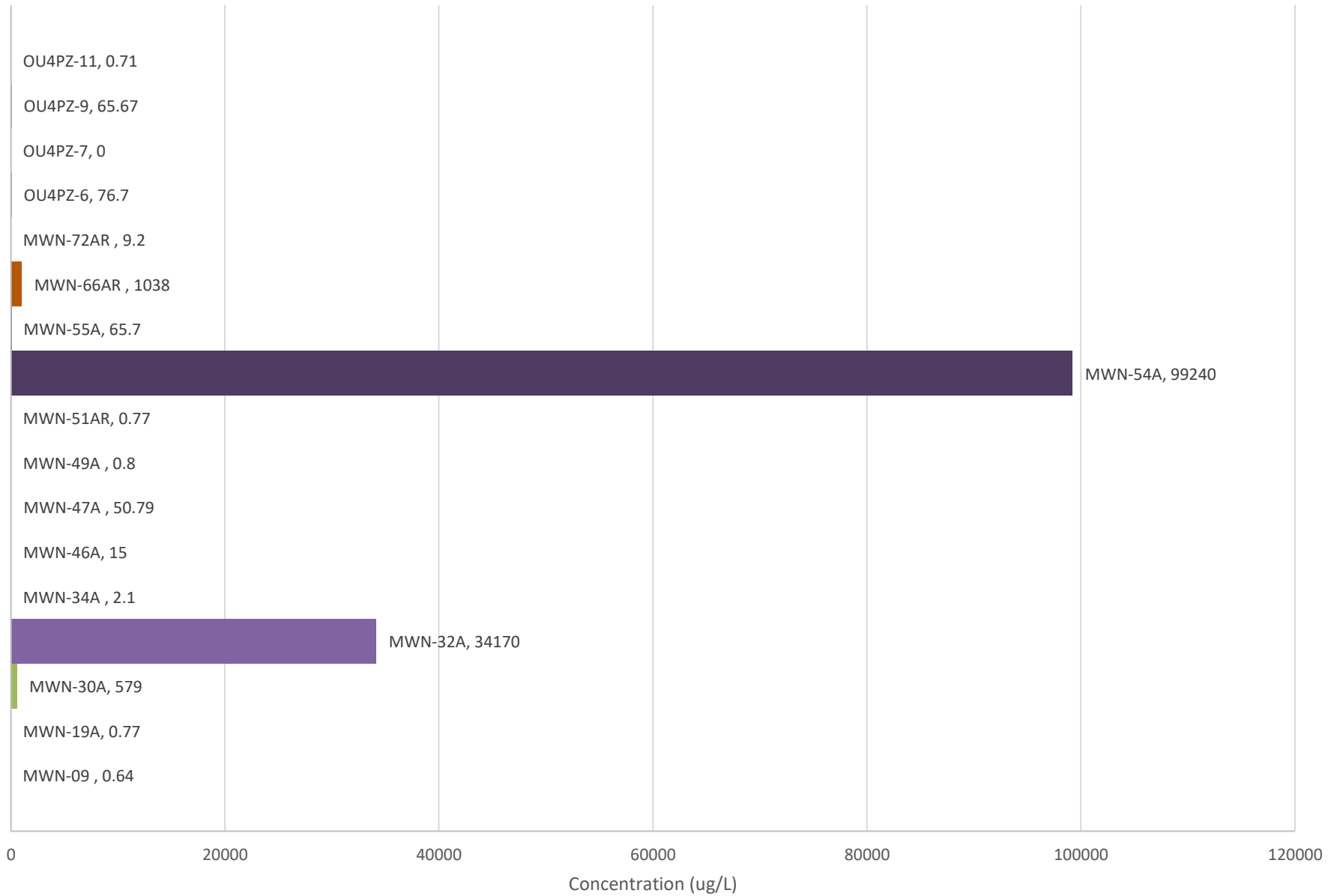
ATTACHMENT 2

GROUNDWATER QUALITY TRENDS

ATTACHMENT 2

OU-4 AREA GROUNDWATER QUALITY TRENDS

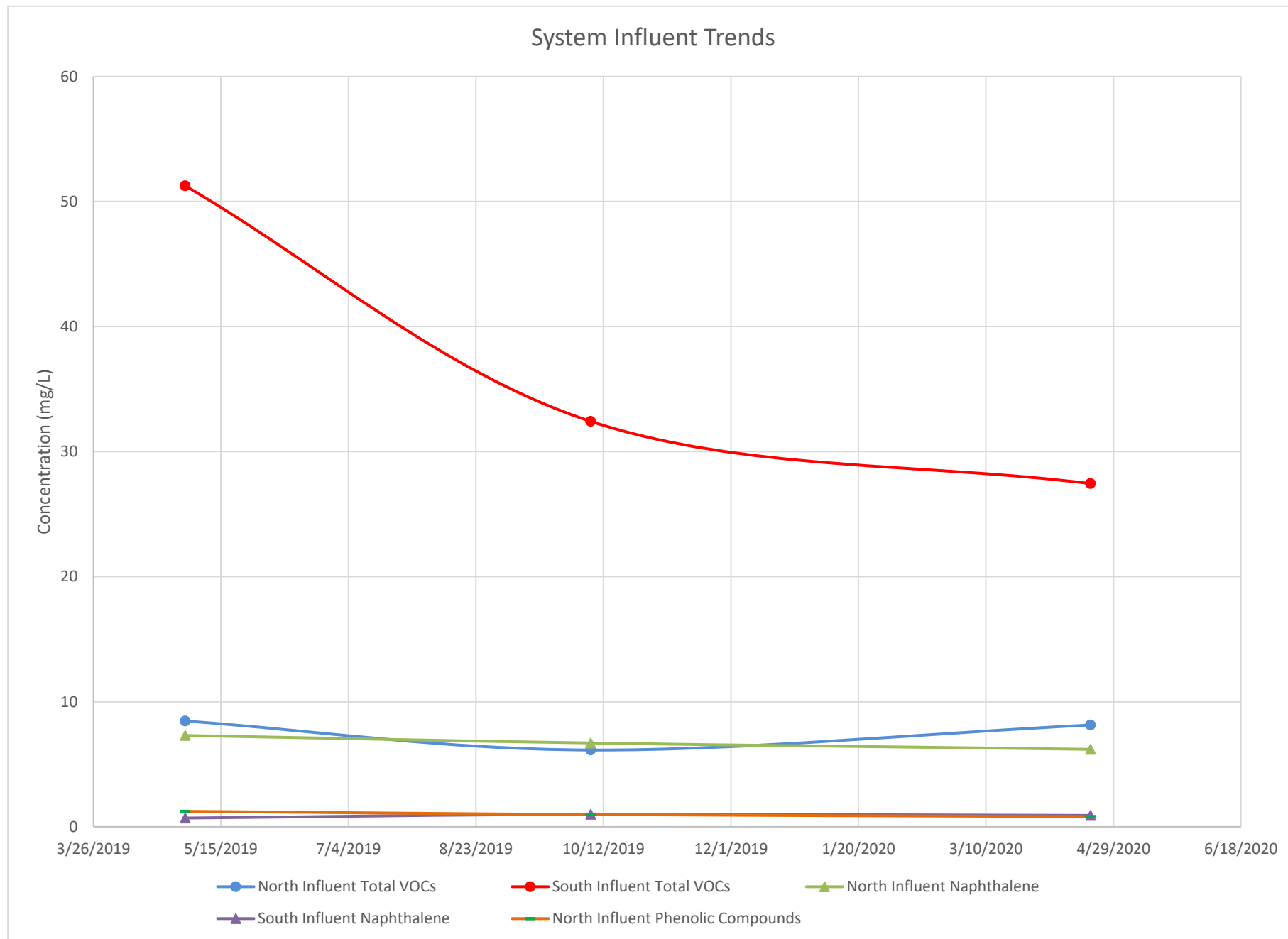
Total BETX (March-April 2020)



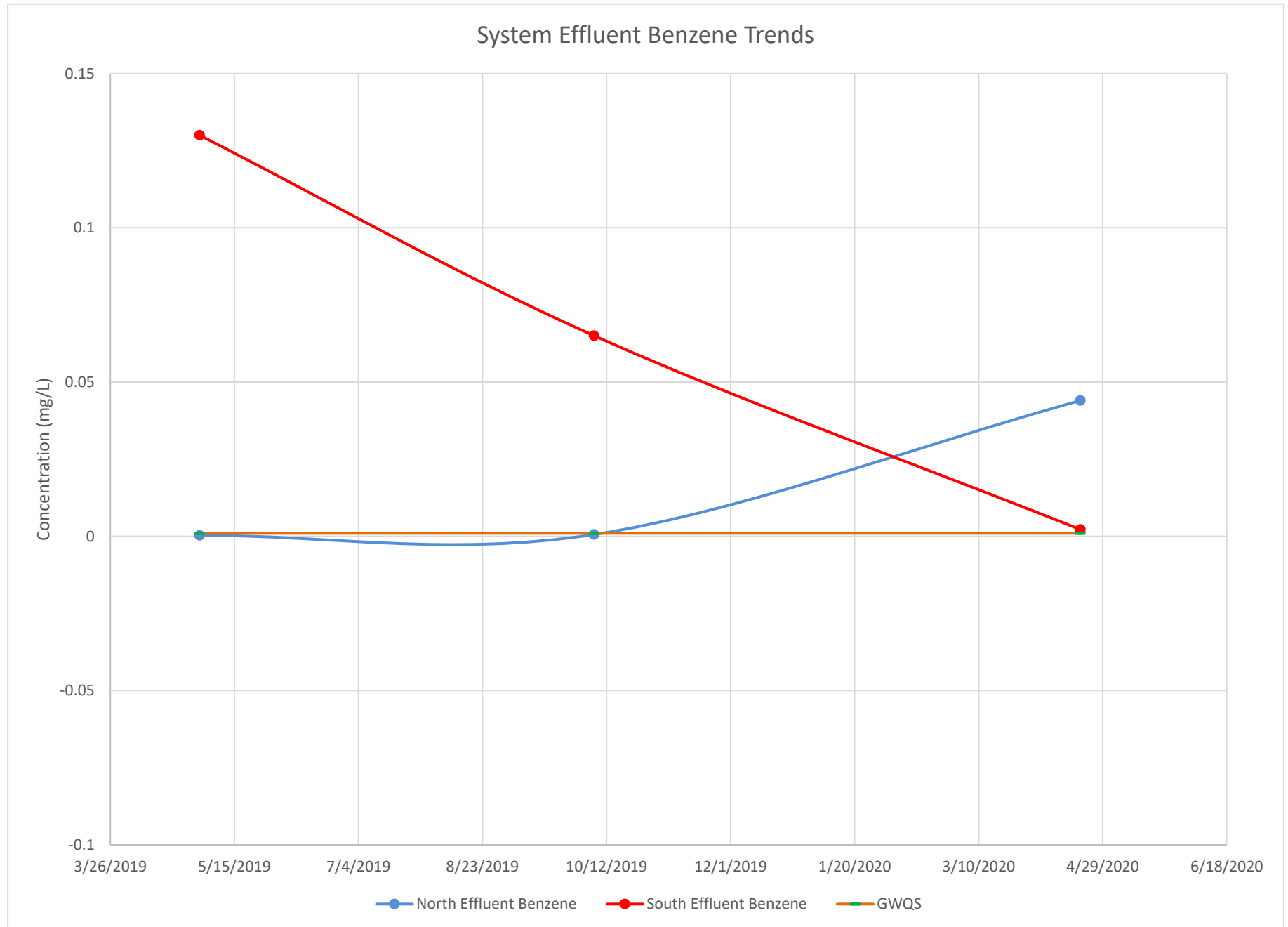
ATTACHMENT 3

GROUNDWATER INFLUENT AND EFFLUENT TRENDS

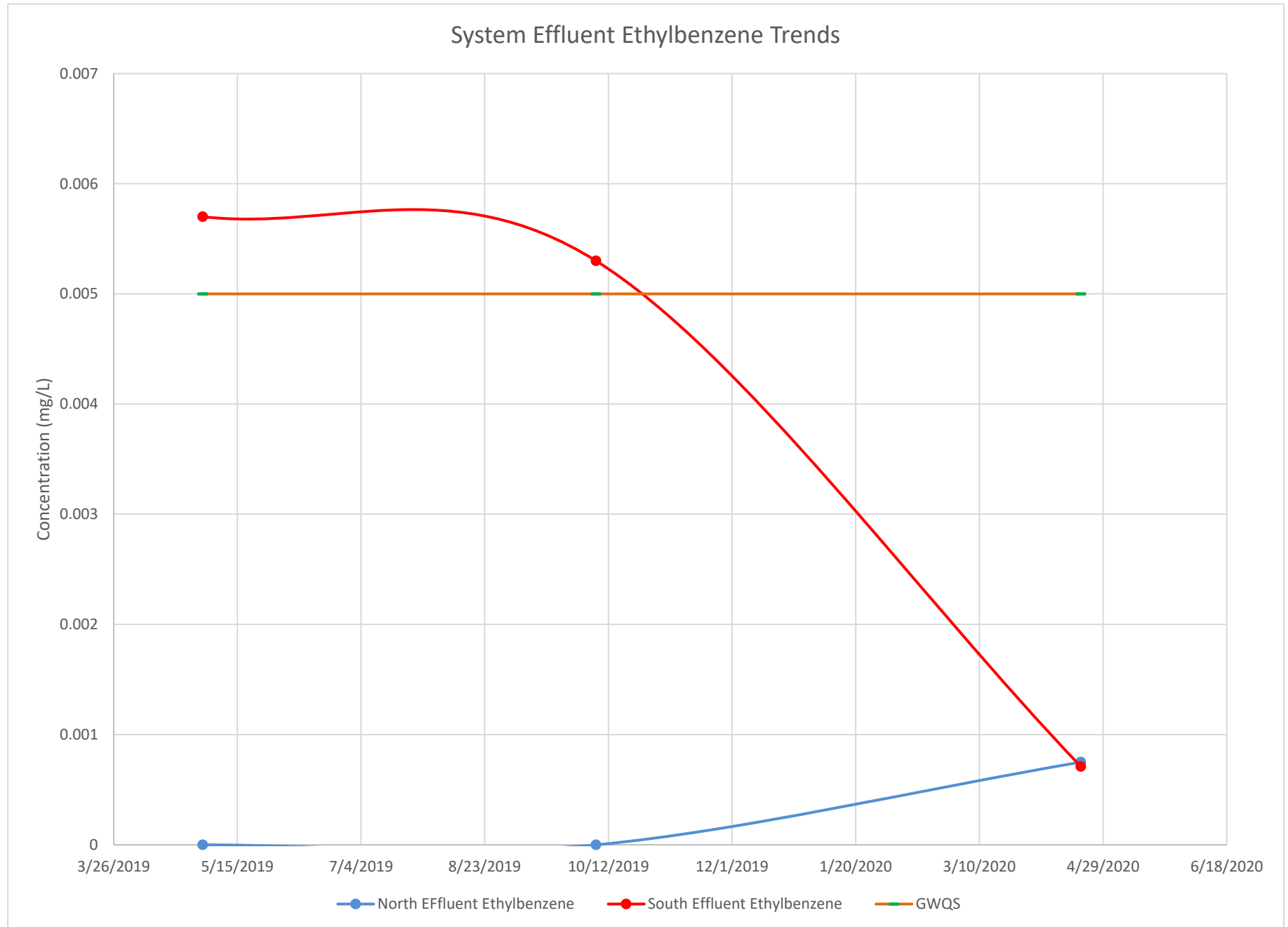
ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM INFLUENT TRENDS



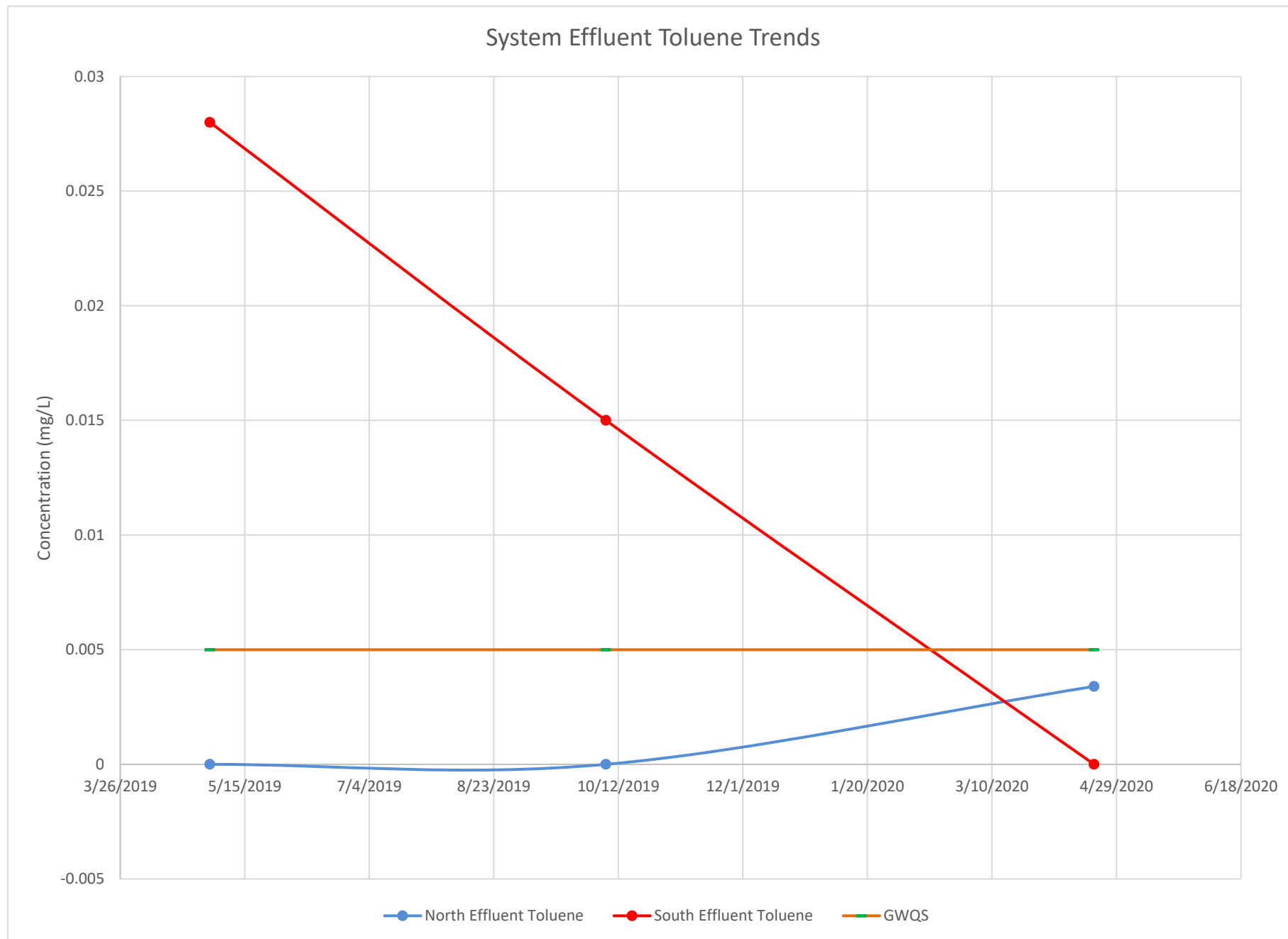
ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS



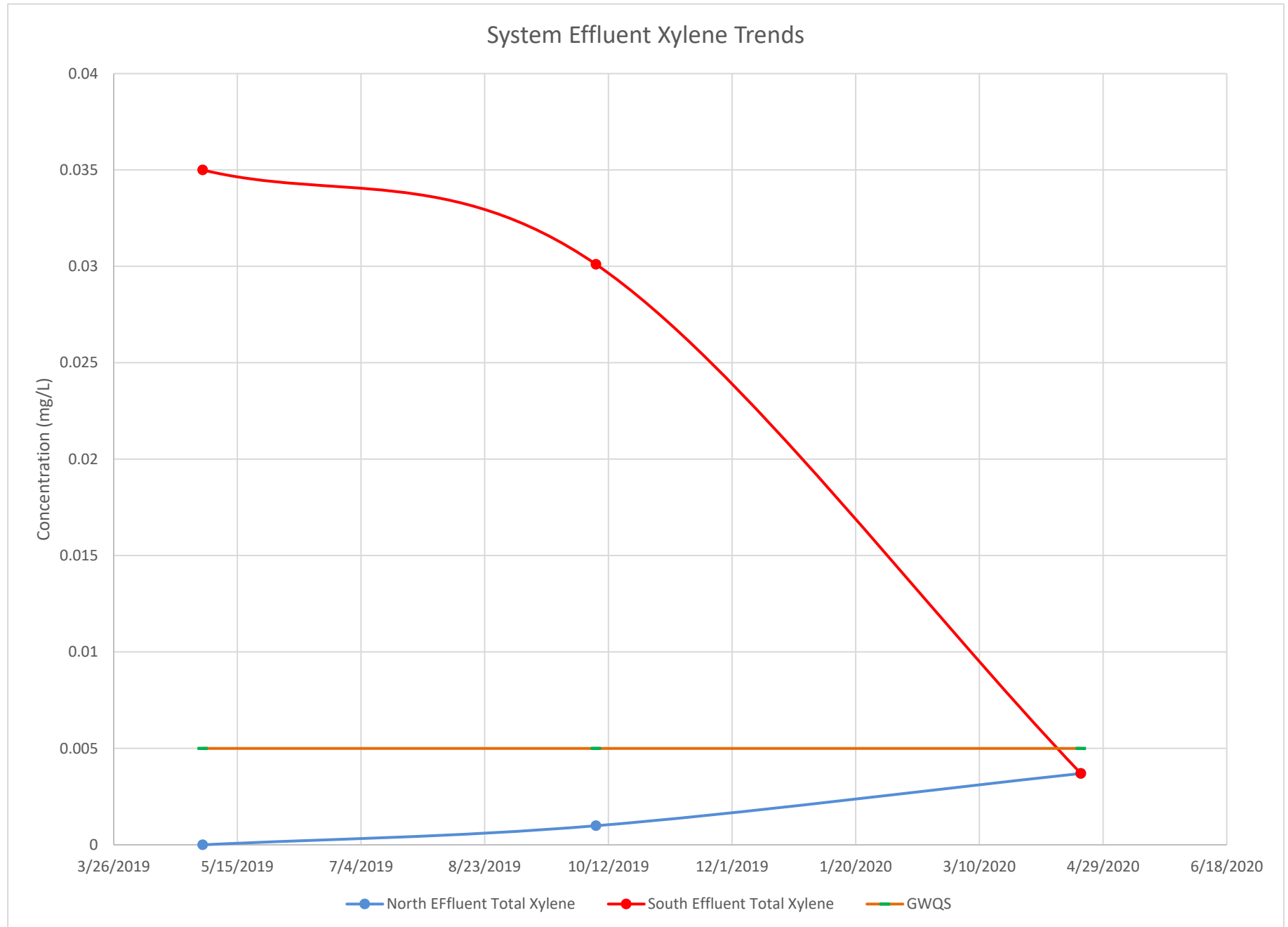
ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS



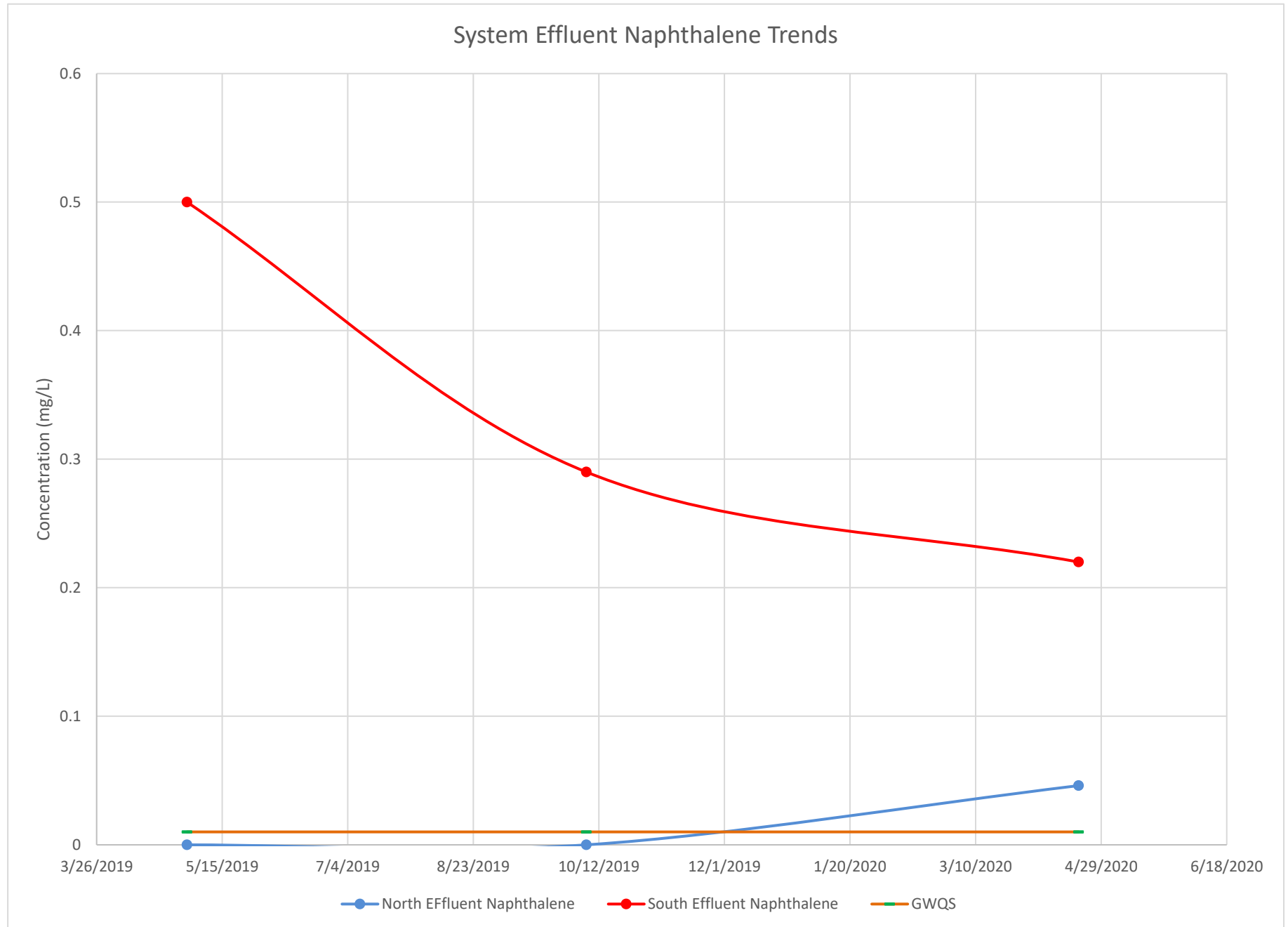
ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS



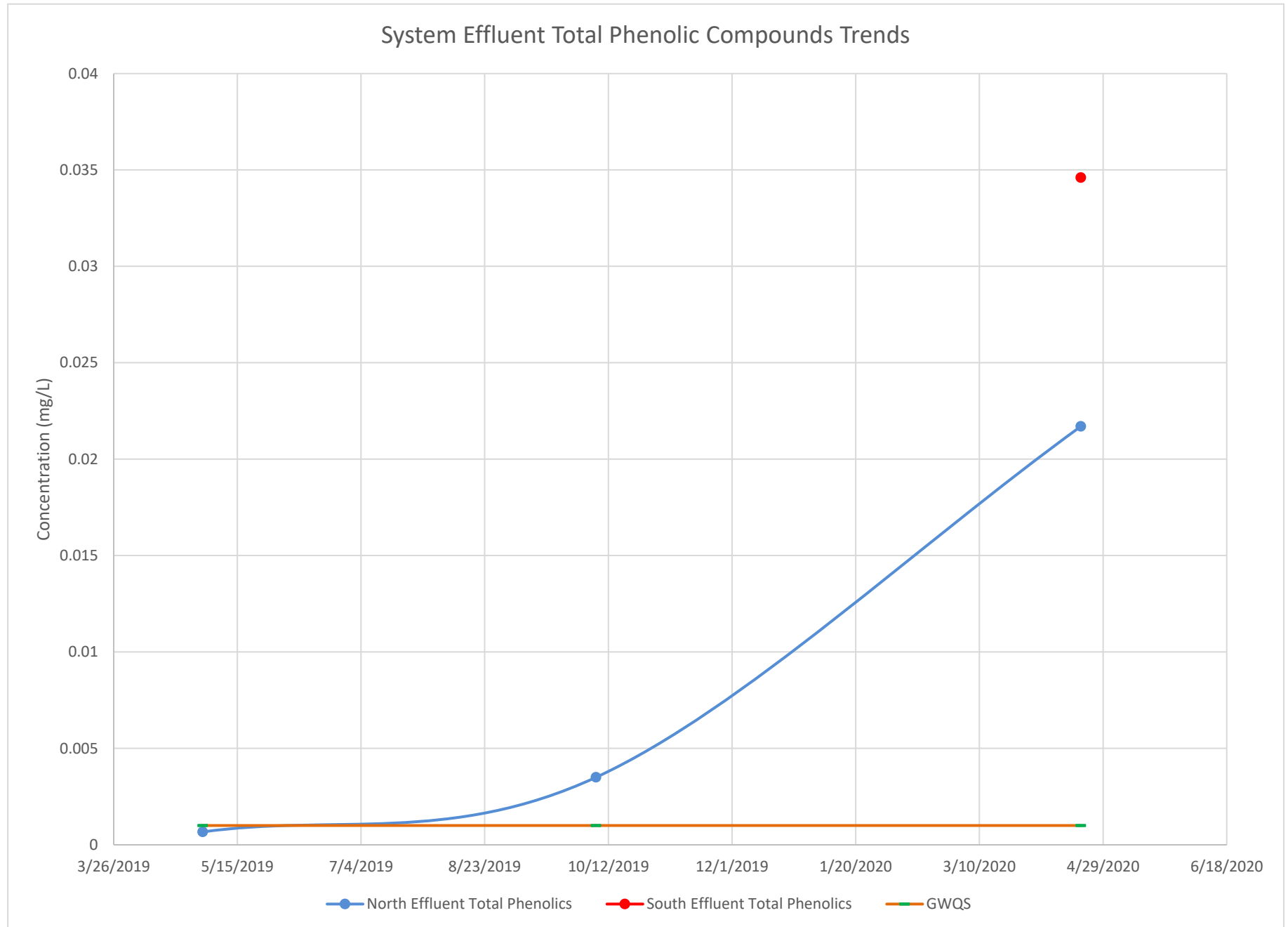
ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS



ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS



ATTACHMENT 3
OU-4 GROUNDWATER TREATMENT SYSTEM EFFLUENT TRENDS

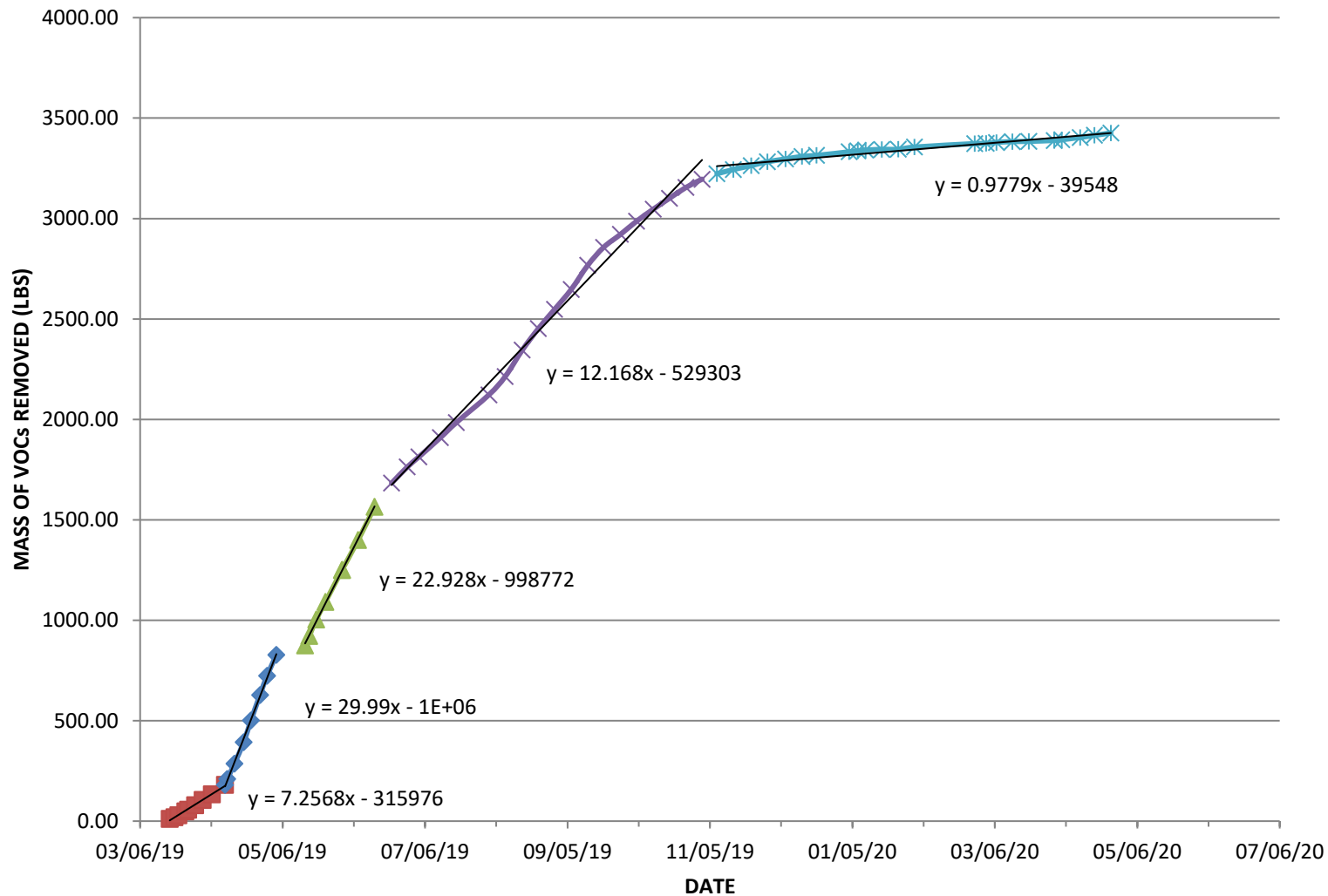


ATTACHMENT 4

SVE MASS REMOVAL TRENDS

ATTACHMENT 4
OU-4 SVE MASS REMOVAL TRENDS

OU-4 SVE Estimated Mass Removal



Mass Removal 1 Mass Removal 2 Mass Removal 3 M.R. 4 M.R. 5

Linear (Mass Removal 1) Linear (Mass Removal 2) Linear (Mass Removal 3) Linear (M.R. 4) Linear (M.R. 5)

ATTACHMENT 5

LABORATORY DATA REPORTS



ANALYTICAL REPORT

Lab Number:	L1918026
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0071-019-910
Report Date:	05/17/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1918026-01	NORTH INFLUENT	WATER	BUFFALO, NY	05/01/19 08:55	05/01/19
L1918026-02	NORTH EFFLUENT	WATER	BUFFALO, NY	05/01/19 08:35	05/01/19
L1918026-03	SOUTH INFLUENT	WATER	BUFFALO, NY	05/01/19 08:45	05/01/19
L1918026-04	SOUTH EFFLUENT	WATER	BUFFALO, NY	05/01/19 08:30	05/01/19

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Case Narrative (continued)

Report Revision

May 17, 2019: The Semivolatile Organics reporting list has been amended.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Kelly Stenstrom

Title: Technical Director/Representative

Date: 05/17/19

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-01 D

Date Collected: 05/01/19 08:55

Client ID: NORTH INFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 05/06/19 16:50

Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	5900		ug/l	25	8.0	50
Toluene	1500		ug/l	120	35.	50
Ethylbenzene	120		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	ND		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	ND		ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50
Trichloroethene	ND		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50

Project Name: OU-4 SYSTEM

Lab Number: L1918026

Project Number: T0071-019-910

Report Date: 05/17/19

SAMPLE RESULTS

Lab ID: L1918026-01 D

Date Collected: 05/01/19 08:55

Client ID: NORTH INFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	570		ug/l	120	35.	50
o-Xylene	230		ug/l	120	35.	50
cis-1,2-Dichloroethene	ND		ug/l	120	35.	50
Styrene	52	J	ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	82	J	ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
Naphthalene	7300		ug/l	120	35.	50
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
Methyl Acetate	ND		ug/l	100	12.	50
Cyclohexane	ND		ug/l	500	14.	50
1,4-Dioxane	ND		ug/l	12000	3000	50
Freon-113	ND		ug/l	120	35.	50
Methyl cyclohexane	ND		ug/l	500	20.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: OU-4 SYSTEM

Lab Number: L1918026

Project Number: T0071-019-910

Report Date: 05/17/19

SAMPLE RESULTS

Lab ID: L1918026-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 05/01/19 08:35
 Date Received: 05/01/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 05/06/19 16:04
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.29	J	ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L1918026

Project Number: T0071-019-910

Report Date: 05/17/19

SAMPLE RESULTS

Lab ID: L1918026-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 05/01/19 08:35
 Date Received: 05/01/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	5.2		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	108		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-03 D

Date Collected: 05/01/19 08:45

Client ID: SOUTH INFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 05/06/19 22:01

Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	620	180	250
1,1-Dichloroethane	ND		ug/l	620	180	250
Chloroform	ND		ug/l	620	180	250
Carbon tetrachloride	ND		ug/l	120	34.	250
1,2-Dichloropropane	ND		ug/l	250	34.	250
Dibromochloromethane	ND		ug/l	120	37.	250
1,1,2-Trichloroethane	ND		ug/l	380	120	250
Tetrachloroethene	ND		ug/l	120	45.	250
Chlorobenzene	ND		ug/l	620	180	250
Trichlorofluoromethane	ND		ug/l	620	180	250
1,2-Dichloroethane	ND		ug/l	120	33.	250
1,1,1-Trichloroethane	ND		ug/l	620	180	250
Bromodichloromethane	ND		ug/l	120	48.	250
trans-1,3-Dichloropropene	ND		ug/l	120	41.	250
cis-1,3-Dichloropropene	ND		ug/l	120	36.	250
Bromoform	ND		ug/l	500	160	250
1,1,2,2-Tetrachloroethane	ND		ug/l	120	42.	250
Benzene	42000		ug/l	120	40.	250
Toluene	6600		ug/l	620	180	250
Ethylbenzene	510	J	ug/l	620	180	250
Chloromethane	ND		ug/l	620	180	250
Bromomethane	ND		ug/l	620	180	250
Vinyl chloride	ND		ug/l	250	18.	250
Chloroethane	ND		ug/l	620	180	250
1,1-Dichloroethene	ND		ug/l	120	42.	250
trans-1,2-Dichloroethene	ND		ug/l	620	180	250
Trichloroethene	ND		ug/l	120	44.	250
1,2-Dichlorobenzene	ND		ug/l	620	180	250

Project Name: OU-4 SYSTEM

Lab Number: L1918026

Project Number: T0071-019-910

Report Date: 05/17/19

SAMPLE RESULTS

Lab ID: L1918026-03 D

Date Collected: 05/01/19 08:45

Client ID: SOUTH INFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	620	180	250
1,4-Dichlorobenzene	ND		ug/l	620	180	250
Methyl tert butyl ether	ND		ug/l	620	180	250
p/m-Xylene	1500		ug/l	620	180	250
o-Xylene	640		ug/l	620	180	250
cis-1,2-Dichloroethene	ND		ug/l	620	180	250
Styrene	ND		ug/l	620	180	250
Dichlorodifluoromethane	ND		ug/l	1200	250	250
Acetone	ND		ug/l	1200	360	250
Carbon disulfide	ND		ug/l	1200	250	250
2-Butanone	ND		ug/l	1200	480	250
4-Methyl-2-pentanone	ND		ug/l	1200	250	250
2-Hexanone	ND		ug/l	1200	250	250
Bromochloromethane	ND		ug/l	620	180	250
1,2-Dibromoethane	ND		ug/l	500	160	250
1,2-Dibromo-3-chloropropane	ND		ug/l	620	180	250
Isopropylbenzene	ND		ug/l	620	180	250
Naphthalene	700		ug/l	620	180	250
1,2,3-Trichlorobenzene	ND		ug/l	620	180	250
1,2,4-Trichlorobenzene	ND		ug/l	620	180	250
Methyl Acetate	ND		ug/l	500	58.	250
Cyclohexane	ND		ug/l	2500	68.	250
1,4-Dioxane	ND		ug/l	62000	15000	250
Freon-113	ND		ug/l	620	180	250
Methyl cyclohexane	ND		ug/l	2500	99.	250

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	89		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-04 D

Date Collected: 05/01/19 08:30

Client ID: SOUTH EFFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 05/06/19 16:27

Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	130		ug/l	1.2	0.40	2.5
Toluene	28		ug/l	6.2	1.8	2.5
Ethylbenzene	5.7	J	ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
Trichloroethene	ND		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5

Project Name: OU-4 SYSTEM

Lab Number: L1918026

Project Number: T0071-019-910

Report Date: 05/17/19

SAMPLE RESULTS

Lab ID: L1918026-04 D

Date Collected: 05/01/19 08:30

Client ID: SOUTH EFFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	24		ug/l	6.2	1.8	2.5
o-Xylene	11		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	6.4	J	ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	ND		ug/l	6.2	1.8	2.5
Naphthalene	500		ug/l	6.2	1.8	2.5
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl Acetate	ND		ug/l	5.0	0.58	2.5
Cyclohexane	ND		ug/l	25	0.68	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5
Freon-113	ND		ug/l	6.2	1.8	2.5
Methyl cyclohexane	ND		ug/l	25	0.99	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	106		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/06/19 10:48
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02,04 Batch: WG1234061-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/06/19 10:48
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02,04 Batch: WG1234061-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/06/19 10:48
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02,04 Batch: WG1234061-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	103		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/06/19 20:08
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1234459-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 05/06/19 20:08
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1234459-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 05/06/19 20:08
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1234459-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1234061-3 WG1234061-4								
Methylene chloride	99		95		70-130	4		20
1,1-Dichloroethane	120		100		70-130	18		20
Chloroform	100		98		70-130	2		20
Carbon tetrachloride	94		84		63-132	11		20
1,2-Dichloropropane	110		100		70-130	10		20
Dibromochloromethane	100		100		63-130	0		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	99		92		62-150	7		20
1,2-Dichloroethane	97		97		70-130	0		20
1,1,1-Trichloroethane	100		95		67-130	5		20
Bromodichloromethane	99		96		67-130	3		20
trans-1,3-Dichloropropene	94		95		70-130	1		20
cis-1,3-Dichloropropene	100		98		70-130	2		20
Bromoform	100		98		54-136	2		20
1,1,2,2-Tetrachloroethane	100		99		67-130	1		20
Benzene	110		100		70-130	10		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		99		70-130	1		20
Chloromethane	120		110		64-130	9		20
Bromomethane	120		110		39-139	9		20
Vinyl chloride	130		110		55-140	17		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1234061-3 WG1234061-4								
Chloroethane	110		93		55-138	17		20
1,1-Dichloroethene	92		81		61-145	13		20
trans-1,2-Dichloroethene	97		95		70-130	2		20
Trichloroethene	110		100		70-130	10		20
1,2-Dichlorobenzene	100		100		70-130	0		20
1,3-Dichlorobenzene	110		100		70-130	10		20
1,4-Dichlorobenzene	110		99		70-130	11		20
Methyl tert butyl ether	90		83		63-130	8		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	110		98		70-130	12		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	91		79		36-147	14		20
Acetone	120		110		58-148	9		20
Carbon disulfide	100		93		51-130	7		20
2-Butanone	110		95		63-138	15		20
4-Methyl-2-pentanone	100		100		59-130	0		20
2-Hexanone	85		90		57-130	6		20
Bromochloromethane	120		100		70-130	18		20
1,2-Dibromoethane	98		100		70-130	2		20
1,2-Dibromo-3-chloropropane	100		95		41-144	5		20
Isopropylbenzene	110		100		70-130	10		20
Naphthalene	99		96		70-130	3		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1234061-3 WG1234061-4								
1,2,3-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trichlorobenzene	110		100		70-130	10		20
Methyl Acetate	110		97		70-130	13		20
Cyclohexane	120		100		70-130	18		20
1,4-Dioxane	168	Q	160		56-162	5		20
Freon-113	110		100		70-130	10		20
Methyl cyclohexane	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		90		70-130
Toluene-d8	95		97		70-130
4-Bromofluorobenzene	98		94		70-130
Dibromofluoromethane	100		98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1234459-3 WG1234459-4								
Methylene chloride	90		90		70-130	0		20
1,1-Dichloroethane	97		98		70-130	1		20
Chloroform	92		88		70-130	4		20
Carbon tetrachloride	91		95		63-132	4		20
1,2-Dichloropropane	97		100		70-130	3		20
Dibromochloromethane	88		89		63-130	1		20
1,1,2-Trichloroethane	99		100		70-130	1		20
Tetrachloroethene	93		94		70-130	1		20
Chlorobenzene	96		97		75-130	1		20
Trichlorofluoromethane	94		95		62-150	1		20
1,2-Dichloroethane	95		96		70-130	1		20
1,1,1-Trichloroethane	91		93		67-130	2		20
Bromodichloromethane	89		91		67-130	2		20
trans-1,3-Dichloropropene	95		96		70-130	1		20
cis-1,3-Dichloropropene	91		92		70-130	1		20
Bromoform	84		87		54-136	4		20
1,1,2,2-Tetrachloroethane	100		110		67-130	10		20
Benzene	93		95		70-130	2		20
Toluene	97		97		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	82		84		64-130	2		20
Bromomethane	35	Q	42		39-139	18		20
Vinyl chloride	95		96		55-140	1		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1234459-3 WG1234459-4								
Chloroethane	100		100		55-138	0		20
1,1-Dichloroethene	91		93		61-145	2		20
trans-1,2-Dichloroethene	90		94		70-130	4		20
Trichloroethene	92		94		70-130	2		20
1,2-Dichlorobenzene	99		100		70-130	1		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	100		100		70-130	0		20
Methyl tert butyl ether	92		92		63-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	89		92		70-130	3		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	89		90		36-147	1		20
Acetone	87		86		58-148	1		20
Carbon disulfide	93		95		51-130	2		20
2-Butanone	99		93		63-138	6		20
4-Methyl-2-pentanone	95		98		59-130	3		20
2-Hexanone	110		110		57-130	0		20
Bromochloromethane	93		92		70-130	1		20
1,2-Dibromoethane	95		94		70-130	1		20
1,2-Dibromo-3-chloropropane	80		84		41-144	5		20
Isopropylbenzene	110		110		70-130	0		20
Naphthalene	89		90		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1234459-3 WG1234459-4								
1,2,3-Trichlorobenzene	84		89		70-130	6		20
1,2,4-Trichlorobenzene	91		95		70-130	4		20
Methyl Acetate	98		98		70-130	0		20
Cyclohexane	100		110		70-130	10		20
1,4-Dioxane	74		84		56-162	13		20
Freon-113	97		99		70-130	2		20
Methyl cyclohexane	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		103		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	94		94		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-01
 Client ID: NORTH INFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 05/01/19 08:55
 Date Received: 05/01/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 05/07/19 05:17
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 05/04/19 15:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	300	E	ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	160		ug/l	5.0	0.57	1
2-Methylphenol	350	E	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	570	E	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	61		21-120
Phenol-d6	43		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	65		15-120
2,4,6-Tribromophenol	75		10-120
4-Terphenyl-d14	72		41-149

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-01 D

Date Collected: 05/01/19 08:55

Client ID: NORTH INFLUENT

Date Received: 05/01/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: EPA 3510C

Analytical Method: 1,8270D

Extraction Date: 05/04/19 15:33

Analytical Date: 05/17/19 03:35

Analyst: JG

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

2,4-Dimethylphenol	260		ug/l	25	8.9	5
2-Methylphenol	310		ug/l	25	2.4	5
3-Methylphenol/4-Methylphenol	510		ug/l	25	2.4	5

Project Name: OU-4 SYSTEM**Lab Number:** L1918026**Project Number:** T0071-019-910**Report Date:** 05/17/19**SAMPLE RESULTS**

Lab ID: L1918026-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 05/01/19 08:35
 Date Received: 05/01/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 05/07/19 05:43
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 05/04/19 15:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	0.67	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	55		21-120
Phenol-d6	43		10-120
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	67		15-120
2,4,6-Tribromophenol	62		10-120
4-Terphenyl-d14	72		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 05/07/19 03:59
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 05/04/19 01:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1233537-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	73		21-120
Phenol-d6	61		10-120
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	91		15-120
2,4,6-Tribromophenol	74		10-120
4-Terphenyl-d14	94		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1233537-2 WG1233537-3								
2,4,6-Trichlorophenol	97		92		30-130	5		30
p-Chloro-m-cresol	104	Q	96		23-97	8		30
2-Chlorophenol	96		87		27-123	10		30
2,4-Dichlorophenol	100		97		30-130	3		30
2,4-Dimethylphenol	86		76		30-130	12		30
2-Nitrophenol	97		92		30-130	5		30
4-Nitrophenol	86	Q	76		10-80	12		30
2,4-Dinitrophenol	100		95		20-130	5		30
4,6-Dinitro-o-cresol	99		93		20-164	6		30
Pentachlorophenol	99		93		9-103	6		30
Phenol	79		71		12-110	11		30
2-Methylphenol	93		87		30-130	7		30
3-Methylphenol/4-Methylphenol	98		92		30-130	6		30
2,4,5-Trichlorophenol	100		97		30-130	3		30
Benzoic Acid	78		77		10-164	1		30
Benzyl Alcohol	89		85		26-116	5		30

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1918026

Report Date: 05/17/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1233537-2 WG1233537-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	81		74		21-120
Phenol-d6	70		66		10-120
Nitrobenzene-d5	95		88		23-120
2-Fluorobiphenyl	96		90		15-120
2,4,6-Tribromophenol	93		87		10-120
4-Terphenyl-d14	97		90		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:05171911:33
Lab Number: L1918026
Report Date: 05/17/19

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1918026-01A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-01B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-01C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-01D	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		NYTCL-8270-LVI(7)
L1918026-01E	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		NYTCL-8270-LVI(7)
L1918026-02A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-02B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-02C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-02D	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		NYTCL-8270-LVI(7)
L1918026-02E	Amber 250ml unpreserved	A	7	7	2.4	Y	Absent		NYTCL-8270-LVI(7)
L1918026-03A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-03B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-03C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-04A	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-04B	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)
L1918026-04C	Vial HCl preserved	A	NA		2.4	Y	Absent		NYTCL-8260-R2(14)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1918026
Report Date: 05/17/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.

ID No.:17873

Facility: **Company-wide**

Revision 12

Department: **Quality Assurance**

Published Date: 10/9/2018 4:58:19 PM

Title: **Certificate/Approval Program Summary**

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**EPA 6860:** SCM: Perchlorate**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.****EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1 Hg.****SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

5/2/19

21918026

Page 39 of 39



ANALYTICAL REPORT

Lab Number:	L1946740
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0071-019-910
Report Date:	10/14/19

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1946740-01	NORTH INFLUENT	WATER	BUFFALO, NY	10/07/19 10:45	10/07/19
L1946740-02	NORTH EFFLUENT	WATER	BUFFALO, NY	10/07/19 11:00	10/07/19
L1946740-03	SOUTH INFLUENT	WATER	BUFFALO, NY	10/07/19 10:15	10/07/19
L1946740-04	SOUTH EFFLUENT	WATER	BUFFALO, NY	10/07/19 10:30	10/07/19

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Cristin Walker

Title: Technical Director/Representative

Date: 10/14/19

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L1946740**Project Number:** T0071-019-910**Report Date:** 10/14/19**SAMPLE RESULTS**

Lab ID: L1946740-01 D

Date Collected: 10/07/19 10:45

Client ID: NORTH INFLUENT

Date Received: 10/07/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 10/11/19 16:00

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	120	35.	50
1,1-Dichloroethane	ND		ug/l	120	35.	50
Chloroform	ND		ug/l	120	35.	50
Carbon tetrachloride	ND		ug/l	25	6.7	50
1,2-Dichloropropane	ND		ug/l	50	6.8	50
Dibromochloromethane	ND		ug/l	25	7.4	50
1,1,2-Trichloroethane	ND		ug/l	75	25.	50
Tetrachloroethene	ND		ug/l	25	9.0	50
Chlorobenzene	ND		ug/l	120	35.	50
Trichlorofluoromethane	ND		ug/l	120	35.	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
1,1,1-Trichloroethane	ND		ug/l	120	35.	50
Bromodichloromethane	ND		ug/l	25	9.6	50
trans-1,3-Dichloropropene	ND		ug/l	25	8.2	50
cis-1,3-Dichloropropene	ND		ug/l	25	7.2	50
Bromoform	ND		ug/l	100	32.	50
1,1,2,2-Tetrachloroethane	ND		ug/l	25	8.4	50
Benzene	4300		ug/l	25	8.0	50
Toluene	1000		ug/l	120	35.	50
Ethylbenzene	140		ug/l	120	35.	50
Chloromethane	ND		ug/l	120	35.	50
Bromomethane	ND		ug/l	120	35.	50
Vinyl chloride	ND		ug/l	50	3.6	50
Chloroethane	ND		ug/l	120	35.	50
1,1-Dichloroethene	ND		ug/l	25	8.4	50
trans-1,2-Dichloroethene	ND		ug/l	120	35.	50
Trichloroethene	ND		ug/l	25	8.8	50
1,2-Dichlorobenzene	ND		ug/l	120	35.	50

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-01 D

Date Collected: 10/07/19 10:45

Client ID: NORTH INFLUENT

Date Received: 10/07/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	120	35.	50
1,4-Dichlorobenzene	ND		ug/l	120	35.	50
Methyl tert butyl ether	ND		ug/l	120	35.	50
p/m-Xylene	500		ug/l	120	35.	50
o-Xylene	200		ug/l	120	35.	50
cis-1,2-Dichloroethene	ND		ug/l	120	35.	50
Styrene	ND		ug/l	120	35.	50
Dichlorodifluoromethane	ND		ug/l	250	50.	50
Acetone	ND		ug/l	250	73.	50
Carbon disulfide	ND		ug/l	250	50.	50
2-Butanone	ND		ug/l	250	97.	50
4-Methyl-2-pentanone	ND		ug/l	250	50.	50
2-Hexanone	ND		ug/l	250	50.	50
Bromochloromethane	ND		ug/l	120	35.	50
1,2-Dibromoethane	ND		ug/l	100	32.	50
1,2-Dibromo-3-chloropropane	ND		ug/l	120	35.	50
Isopropylbenzene	ND		ug/l	120	35.	50
Naphthalene	6700		ug/l	120	35.	50
1,2,3-Trichlorobenzene	ND		ug/l	120	35.	50
1,2,4-Trichlorobenzene	ND		ug/l	120	35.	50
Methyl Acetate	ND		ug/l	100	12.	50
Cyclohexane	ND		ug/l	500	14.	50
1,4-Dioxane	ND		ug/l	12000	3000	50
Freon-113	ND		ug/l	120	35.	50
Methyl cyclohexane	ND		ug/l	500	20.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	106		70-130

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 10/07/19 11:00
 Date Received: 10/07/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/12/19 16:06
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.59		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	2.9		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 10/07/19 11:00
 Date Received: 10/07/19
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	0.99	J	ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	96		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L1946740**Project Number:** T0071-019-910**Report Date:** 10/14/19**SAMPLE RESULTS**

Lab ID: L1946740-03 D

Date Collected: 10/07/19 10:15

Client ID: SOUTH INFLUENT

Date Received: 10/07/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 10/11/19 16:25

Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	620	180	250
1,1-Dichloroethane	ND		ug/l	620	180	250
Chloroform	ND		ug/l	620	180	250
Carbon tetrachloride	ND		ug/l	120	34.	250
1,2-Dichloropropane	ND		ug/l	250	34.	250
Dibromochloromethane	ND		ug/l	120	37.	250
1,1,2-Trichloroethane	ND		ug/l	380	120	250
Tetrachloroethene	ND		ug/l	120	45.	250
Chlorobenzene	ND		ug/l	620	180	250
Trichlorofluoromethane	ND		ug/l	620	180	250
1,2-Dichloroethane	ND		ug/l	120	33.	250
1,1,1-Trichloroethane	ND		ug/l	620	180	250
Bromodichloromethane	ND		ug/l	120	48.	250
trans-1,3-Dichloropropene	ND		ug/l	120	41.	250
cis-1,3-Dichloropropene	ND		ug/l	120	36.	250
Bromoform	ND		ug/l	500	160	250
1,1,2,2-Tetrachloroethane	ND		ug/l	120	42.	250
Benzene	27000		ug/l	120	40.	250
Toluene	3700		ug/l	620	180	250
Ethylbenzene	340	J	ug/l	620	180	250
Chloromethane	ND		ug/l	620	180	250
Bromomethane	ND		ug/l	620	180	250
Vinyl chloride	ND		ug/l	250	18.	250
Chloroethane	ND		ug/l	620	180	250
1,1-Dichloroethene	ND		ug/l	120	42.	250
trans-1,2-Dichloroethene	ND		ug/l	620	180	250
Trichloroethene	ND		ug/l	120	44.	250
1,2-Dichlorobenzene	ND		ug/l	620	180	250

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-03 D

Date Collected: 10/07/19 10:15

Client ID: SOUTH INFLUENT

Date Received: 10/07/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	620	180	250
1,4-Dichlorobenzene	ND		ug/l	620	180	250
Methyl tert butyl ether	ND		ug/l	620	180	250
p/m-Xylene	960		ug/l	620	180	250
o-Xylene	420	J	ug/l	620	180	250
cis-1,2-Dichloroethene	ND		ug/l	620	180	250
Styrene	ND		ug/l	620	180	250
Dichlorodifluoromethane	ND		ug/l	1200	250	250
Acetone	ND		ug/l	1200	360	250
Carbon disulfide	ND		ug/l	1200	250	250
2-Butanone	ND		ug/l	1200	480	250
4-Methyl-2-pentanone	ND		ug/l	1200	250	250
2-Hexanone	ND		ug/l	1200	250	250
Bromochloromethane	ND		ug/l	620	180	250
1,2-Dibromoethane	ND		ug/l	500	160	250
1,2-Dibromo-3-chloropropane	ND		ug/l	620	180	250
Isopropylbenzene	ND		ug/l	620	180	250
Naphthalene	1000		ug/l	620	180	250
1,2,3-Trichlorobenzene	ND		ug/l	620	180	250
1,2,4-Trichlorobenzene	ND		ug/l	620	180	250
Methyl Acetate	ND		ug/l	500	58.	250
Cyclohexane	ND		ug/l	2500	68.	250
1,4-Dioxane	ND		ug/l	62000	15000	250
Freon-113	ND		ug/l	620	180	250
Methyl cyclohexane	ND		ug/l	2500	99.	250

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	106		70-130

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-04
 Client ID: SOUTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 10/07/19 10:30
 Date Received: 10/07/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 10/11/19 15:34
 Analyst: PK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	65		ug/l	0.50	0.16	1
Toluene	15		ug/l	2.5	0.70	1
Ethylbenzene	5.3		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L1946740

Project Number: T0071-019-910

Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-04

Date Collected: 10/07/19 10:30

Client ID: SOUTH EFFLUENT

Date Received: 10/07/19

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	21		ug/l	2.5	0.70	1
o-Xylene	9.1		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	340	E	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

SAMPLE RESULTS

Lab ID: L1946740-04 D
Client ID: SOUTH EFFLUENT
Sample Location: BUFFALO, NY

Date Collected: 10/07/19 10:30
Date Received: 10/07/19
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/12/19 17:15
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	290		ug/l	12	3.5	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	110		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/12/19 09:20
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1295224-10					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/12/19 09:20
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1295224-10					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/12/19 09:20
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1295224-10					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	108		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/11/19 08:52
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03-04 Batch: WG1295224-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/11/19 08:52
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03-04 Batch: WG1295224-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/11/19 08:52
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01,03-04 Batch: WG1295224-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	109		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/12/19 09:10
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1295719-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 10/12/19 09:10
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1295719-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/12/19 09:10
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1295719-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1295224-3 WG1295224-4								
Methylene chloride	85		82		70-130	4		20
1,1-Dichloroethane	89		85		70-130	5		20
Chloroform	89		88		70-130	1		20
Carbon tetrachloride	100		98		63-132	2		20
1,2-Dichloropropane	79		78		70-130	1		20
Dibromochloromethane	95		95		63-130	0		20
1,1,2-Trichloroethane	88		87		70-130	1		20
Tetrachloroethene	97		93		70-130	4		20
Chlorobenzene	94		92		75-130	2		20
Trichlorofluoromethane	100		98		62-150	2		20
1,2-Dichloroethane	86		88		70-130	2		20
1,1,1-Trichloroethane	99		96		67-130	3		20
Bromodichloromethane	83		86		67-130	4		20
trans-1,3-Dichloropropene	94		95		70-130	1		20
cis-1,3-Dichloropropene	94		90		70-130	4		20
Bromoform	92		93		54-136	1		20
1,1,2,2-Tetrachloroethane	87		90		67-130	3		20
Benzene	89		86		70-130	3		20
Toluene	93		91		70-130	2		20
Ethylbenzene	97		94		70-130	3		20
Chloromethane	72		71		64-130	1		20
Bromomethane	80		87		39-139	8		20
Vinyl chloride	90		84		55-140	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1295224-3 WG1295224-4								
Chloroethane	93		91		55-138	2		20
1,1-Dichloroethene	94		90		61-145	4		20
trans-1,2-Dichloroethene	90		89		70-130	1		20
Trichloroethene	91		89		70-130	2		20
1,2-Dichlorobenzene	93		95		70-130	2		20
1,3-Dichlorobenzene	99		98		70-130	1		20
1,4-Dichlorobenzene	94		96		70-130	2		20
Methyl tert butyl ether	87		90		63-130	3		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	90		89		70-130	1		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	91		87		36-147	4		20
Acetone	66		70		58-148	6		20
Carbon disulfide	88		85		51-130	3		20
2-Butanone	74		77		63-138	4		20
4-Methyl-2-pentanone	80		83		59-130	4		20
2-Hexanone	74		78		57-130	5		20
Bromochloromethane	88		89		70-130	1		20
1,2-Dibromoethane	89		90		70-130	1		20
1,2-Dibromo-3-chloropropane	89		91		41-144	2		20
Isopropylbenzene	100		100		70-130	0		20
Naphthalene	92		96		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,03-04 Batch: WG1295224-3 WG1295224-4								
1,2,3-Trichlorobenzene	88		90		70-130	2		20
1,2,4-Trichlorobenzene	93		96		70-130	3		20
Methyl Acetate	84		85		70-130	1		20
Cyclohexane	88		86		70-130	2		20
1,4-Dioxane	72		80		56-162	11		20
Freon-113	97		93		70-130	4		20
Methyl cyclohexane	90		87		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		106		70-130
Toluene-d8	110		107		70-130
4-Bromofluorobenzene	108		106		70-130
Dibromofluoromethane	107		104		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1295224-8 WG1295224-9								
Methylene chloride	90		79		70-130	13		20
1,1-Dichloroethane	90		78		70-130	14		20
Chloroform	98		87		70-130	12		20
Carbon tetrachloride	100		94		63-132	6		20
1,2-Dichloropropane	84		77		70-130	9		20
Dibromochloromethane	100		91		63-130	9		20
1,1,2-Trichloroethane	93		86		70-130	8		20
Tetrachloroethene	100		88		70-130	13		20
Chlorobenzene	99		89		75-130	11		20
Trichlorofluoromethane	100		91		62-150	9		20
1,2-Dichloroethane	94		85		70-130	10		20
1,1,1-Trichloroethane	100		92		67-130	8		20
Bromodichloromethane	92		83		67-130	10		20
trans-1,3-Dichloropropene	96		86		70-130	11		20
cis-1,3-Dichloropropene	100		89		70-130	12		20
Bromoform	97		91		54-136	6		20
1,1,2,2-Tetrachloroethane	91		86		67-130	6		20
Benzene	94		86		70-130	9		20
Toluene	96		85		70-130	12		20
Ethylbenzene	100		88		70-130	13		20
Chloromethane	76		66		64-130	14		20
Bromomethane	73		56		39-139	26	Q	20
Vinyl chloride	83		74		55-140	11		20

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1295224-8 WG1295224-9								
Chloroethane	98		86		55-138	13		20
1,1-Dichloroethene	98		88		61-145	11		20
trans-1,2-Dichloroethene	97		88		70-130	10		20
Trichloroethene	95		86		70-130	10		20
1,2-Dichlorobenzene	100		94		70-130	6		20
1,3-Dichlorobenzene	100		95		70-130	5		20
1,4-Dichlorobenzene	100		92		70-130	8		20
Methyl tert butyl ether	79		71		63-130	11		20
p/m-Xylene	105		90		70-130	15		20
o-Xylene	105		90		70-130	15		20
cis-1,2-Dichloroethene	100		89		70-130	12		20
Styrene	105		95		70-130	10		20
Dichlorodifluoromethane	92		81		36-147	13		20
Acetone	100		89		58-148	12		20
Carbon disulfide	93		80		51-130	15		20
2-Butanone	86		76		63-138	12		20
4-Methyl-2-pentanone	90		84		59-130	7		20
2-Hexanone	84		77		57-130	9		20
Bromochloromethane	99		88		70-130	12		20
1,2-Dibromoethane	99		87		70-130	13		20
1,2-Dibromo-3-chloropropane	100		92		41-144	8		20
Isopropylbenzene	100		96		70-130	4		20
Naphthalene	100		93		70-130	7		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1295224-8 WG1295224-9								
1,2,3-Trichlorobenzene	100		86		70-130	15		20
1,2,4-Trichlorobenzene	100		92		70-130	8		20
Methyl Acetate	93		84		70-130	10		20
Cyclohexane	89		78		70-130	13		20
1,4-Dioxane	126		108		56-162	15		20
Freon-113	100		86		70-130	15		20
Methyl cyclohexane	90		80		70-130	12		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		108		70-130
Toluene-d8	106		105		70-130
4-Bromofluorobenzene	108		108		70-130
Dibromofluoromethane	108		107		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1295719-3 WG1295719-4								
Methylene chloride	100		92		70-130	8		20
1,1-Dichloroethane	120		100		70-130	18		20
Chloroform	100		89		70-130	12		20
Carbon tetrachloride	95		84		63-132	12		20
1,2-Dichloropropane	110		98		70-130	12		20
Dibromochloromethane	92		83		63-130	10		20
1,1,2-Trichloroethane	99		92		70-130	7		20
Tetrachloroethene	110		96		70-130	14		20
Chlorobenzene	100		88		75-130	13		20
Trichlorofluoromethane	78		71		62-150	9		20
1,2-Dichloroethane	90		83		70-130	8		20
1,1,1-Trichloroethane	99		89		67-130	11		20
Bromodichloromethane	92		82		67-130	11		20
trans-1,3-Dichloropropene	88		79		70-130	11		20
cis-1,3-Dichloropropene	91		82		70-130	10		20
Bromoform	92		86		54-136	7		20
1,1,2,2-Tetrachloroethane	92		87		67-130	6		20
Benzene	100		93		70-130	7		20
Toluene	110		94		70-130	16		20
Ethylbenzene	110		93		70-130	17		20
Chloromethane	130		110		64-130	17		20
Bromomethane	77		69		39-139	11		20
Vinyl chloride	110		92		55-140	18		20

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1295719-3 WG1295719-4								
Chloroethane	97		83		55-138	16		20
1,1-Dichloroethene	100		93		61-145	7		20
trans-1,2-Dichloroethene	110		94		70-130	16		20
Trichloroethene	100		92		70-130	8		20
1,2-Dichlorobenzene	99		89		70-130	11		20
1,3-Dichlorobenzene	100		92		70-130	8		20
1,4-Dichlorobenzene	100		88		70-130	13		20
Methyl tert butyl ether	82		76		63-130	8		20
p/m-Xylene	110		90		70-130	20		20
o-Xylene	100		90		70-130	11		20
cis-1,2-Dichloroethene	120		100		70-130	18		20
Styrene	100		90		70-130	11		20
Dichlorodifluoromethane	90		79		36-147	13		20
Acetone	93		91		58-148	2		20
Carbon disulfide	100		90		51-130	11		20
2-Butanone	130		120		63-138	8		20
4-Methyl-2-pentanone	87		83		59-130	5		20
2-Hexanone	79		76		57-130	4		20
Bromochloromethane	100		94		70-130	6		20
1,2-Dibromoethane	92		84		70-130	9		20
1,2-Dibromo-3-chloropropane	79		77		41-144	3		20
Isopropylbenzene	100		93		70-130	7		20
Naphthalene	76		72		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1295719-3 WG1295719-4								
1,2,3-Trichlorobenzene	92		83		70-130	10		20
1,2,4-Trichlorobenzene	92		82		70-130	11		20
Methyl Acetate	120		110		70-130	9		20
Cyclohexane	110		95		70-130	15		20
1,4-Dioxane	96		94		56-162	2		20
Freon-113	96		83		70-130	15		20
Methyl cyclohexane	89		77		70-130	14		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		90		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	94		97		70-130
Dibromofluoromethane	103		101		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L1946740**Project Number:** T0071-019-910**Report Date:** 10/14/19**SAMPLE RESULTS**

Lab ID: L1946740-01
 Client ID: NORTH INFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 10/07/19 10:45
 Date Received: 10/07/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 10/11/19 14:29
 Analyst: SZ

Extraction Method: EPA 3510C
 Extraction Date: 10/11/19 00:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	150		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	410	E	ug/l	5.0	0.57	1
2-Methylphenol	200	E	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	390	E	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	56.		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	85		21-120
Phenol-d6	59		10-120
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	65		15-120
2,4,6-Tribromophenol	114		10-120
4-Terphenyl-d14	81		41-149

Project Name: OU-4 SYSTEM**Project Number:** T0071-019-910**Lab Number:** L1946740**Report Date:** 10/14/19**SAMPLE RESULTS**

Lab ID: L1946740-01 D

Client ID: NORTH INFLUENT

Sample Location: BUFFALO, NY

Date Collected: 10/07/19 10:45

Date Received: 10/07/19

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8270D

Analytical Date: 10/14/19 14:01

Analyst: SZ

Extraction Method: EPA 3510C

Extraction Date: 10/11/19 00:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Phenol	400		ug/l	25	2.8	5
2-Methylphenol	200		ug/l	25	2.4	5
3-Methylphenol/4-Methylphenol	380		ug/l	25	2.4	5

Project Name: OU-4 SYSTEM**Lab Number:** L1946740**Project Number:** T0071-019-910**Report Date:** 10/14/19**SAMPLE RESULTS**

Lab ID: L1946740-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 10/07/19 11:00
 Date Received: 10/07/19
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 10/11/19 14:55
 Analyst: SZ

Extraction Method: EPA 3510C
 Extraction Date: 10/11/19 00:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	3.5	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	69		21-120
Phenol-d6	55		10-120
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	67		15-120
2,4,6-Tribromophenol	112		10-120
4-Terphenyl-d14	82		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 10/11/19 11:57
Analyst: SZ

Extraction Method: EPA 3510C
Extraction Date: 10/11/19 00:29

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1294867-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		21-120
Phenol-d6	48		10-120
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	64		15-120
2,4,6-Tribromophenol	60		10-120
4-Terphenyl-d14	67		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1294867-2 WG1294867-3								
2,4,6-Trichlorophenol	89		89		30-130	0		30
p-Chloro-m-cresol	93		93		23-97	0		30
2-Chlorophenol	77		78		27-123	1		30
2,4-Dichlorophenol	86		85		30-130	1		30
2,4-Dimethylphenol	82		81		30-130	1		30
2-Nitrophenol	76		76		30-130	0		30
4-Nitrophenol	79		74		10-80	7		30
2,4-Dinitrophenol	91		93		20-130	2		30
4,6-Dinitro-o-cresol	101		99		20-164	2		30
Pentachlorophenol	91		92		9-103	1		30
Phenol	62		61		12-110	2		30
2-Methylphenol	76		77		30-130	1		30
3-Methylphenol/4-Methylphenol	78		82		30-130	5		30
2,4,5-Trichlorophenol	90		90		30-130	0		30
Benzoic Acid	72		64		10-164	12		30
Benzyl Alcohol	68		70		26-116	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L1946740

Report Date: 10/14/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1294867-2 WG1294867-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	63		65		21-120
Phenol-d6	57		56		10-120
Nitrobenzene-d5	63		65		23-120
2-Fluorobiphenyl	67		70		15-120
2,4,6-Tribromophenol	102		100		10-120
4-Terphenyl-d14	78		74		41-149

Project Name: OU-4 SYSTEM**Lab Number:** L1946740**Project Number:** T0071-019-910**Report Date:** 10/14/19**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1946740-01A	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-01B	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-01C	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-01D	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		NYTCL-8270-LVI(7)
L1946740-01E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		NYTCL-8270-LVI(7)
L1946740-02A	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-02B	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-02C	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-02D	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		NYTCL-8270-LVI(7)
L1946740-02E	Amber 250ml unpreserved	A	7	7	2.2	Y	Absent		NYTCL-8270-LVI(7)
L1946740-03A	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-03B	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-03C	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-04A	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-04B	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)
L1946740-04C	Vial HCl preserved	A	NA		2.2	Y	Absent		NYTCL-8260-R2(14)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L1946740
Report Date: 10/14/19

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 15

Published Date: 8/15/2019 9:53:42 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

10/8/19

11946740

Form No. 01-25 (rev. 30-Sept-2013)



ANALYTICAL REPORT

Lab Number:	L2010632
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0021-019-910
Report Date:	05/07/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2010632-01	MWN-09	WATER	BUFFALO, NY	03/09/20 10:18	03/10/20
L2010632-02	MWN-51AR	WATER	BUFFALO, NY	03/09/20 13:50	03/10/20
L2010632-03	MWN-55A	WATER	BUFFALO, NY	03/09/20 09:30	03/10/20
L2010632-04	MWN-66AR	WATER	BUFFALO, NY	03/09/20 12:50	03/10/20
L2010632-05	MWN-72AR	WATER	BUFFALO, NY	03/09/20 11:10	03/10/20
L2010632-06	OU4PZ-7	WATER	BUFFALO, NY	03/09/20 14:58	03/10/20
L2010632-07	BLIND	WATER	BUFFALO, NY	03/09/20 08:00	03/10/20

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Case Narrative (continued)

Report Revision

May 07, 2020: The Volatile Organics analyte list has been amended on L2010632-01 through -07 to include naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2010632-01: The collection date and time on the chain of custody was 09-MAR-20 10:24; however, the collection date/time on the container label was 09-MAR-20 10:18. At the client's request, the collection date/time is reported as 09-MAR-20 10:18.

Volatile Organics

L2010632-04: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 05/07/20

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-01
Client ID: MWN-09
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 10:18
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 15:39
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.64		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L2010632

Project Number: T0021-019-910

Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-01

Date Collected: 03/09/20 10:18

Client ID: MWN-09

Date Received: 03/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-02
Client ID: MWN-51AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 13:50
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 16:01
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.77		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-02
Client ID: MWN-51AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 13:50
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	2.0	J	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	112		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-03
Client ID: MWN-55A
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 09:30
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 16:23
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	58		ug/l	0.50	0.16	1
Toluene	2.4	J	ug/l	2.5	0.70	1
Ethylbenzene	1.8	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-03
Client ID: MWN-55A
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 09:30
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	2.2	J	ug/l	2.5	0.70	1
o-Xylene	1.3	J	ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.2	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	0.83	J	ug/l	2.5	0.70	1
Naphthalene	12		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	113		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2010632**Project Number:** T0021-019-910**Report Date:** 05/07/20**SAMPLE RESULTS**

Lab ID: L2010632-04 D

Date Collected: 03/09/20 12:50

Client ID: MWN-66AR

Date Received: 03/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 03/15/20 16:45

Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	640		ug/l	20	6.4	40
Toluene	110		ug/l	100	28.	40
Ethylbenzene	28	J	ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	ND		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	ND		ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40
Trichloroethene	ND		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-04 D
Client ID: MWN-66AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 12:50
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	160		ug/l	100	28.	40
o-Xylene	100		ug/l	100	28.	40
cis-1,2-Dichloroethene	ND		ug/l	100	28.	40
Styrene	ND		ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Isopropylbenzene	ND		ug/l	100	28.	40
Naphthalene	4100		ug/l	100	28.	40
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
Methyl Acetate	ND		ug/l	80	9.4	40
Cyclohexane	ND		ug/l	400	11.	40
1,4-Dioxane	ND		ug/l	10000	2400	40
Freon-113	ND		ug/l	100	28.	40
Methyl cyclohexane	ND		ug/l	400	16.	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	109		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-05
Client ID: MWN-72AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 11:10
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 17:07
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	9.2		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-05
Client ID: MWN-72AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 11:10
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	1.2	J	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	109		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-06
Client ID: OU4PZ-7
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 14:58
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 17:29
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-06
Client ID: OU4PZ-7
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 14:58
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-07
Client ID: BLIND
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 08:00
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 03/15/20 17:51
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	13		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-07
Client ID: BLIND
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 08:00
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	109		70-130

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/15/20 14:33
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1351709-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 03/15/20 14:33
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1351709-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 03/15/20 14:33
Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1351709-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	114		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0021-019-910

Lab Number: L2010632

Report Date: 05/07/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1351709-3 WG1351709-4								
Methylene chloride	100		99		70-130	1		20
1,1-Dichloroethane	110		100		70-130	10		20
Chloroform	120		110		70-130	9		20
Carbon tetrachloride	120		110		63-132	9		20
1,2-Dichloropropane	100		98		70-130	2		20
Dibromochloromethane	100		100		63-130	0		20
1,1,2-Trichloroethane	89		92		70-130	3		20
Tetrachloroethene	94		94		70-130	0		20
Chlorobenzene	98		98		75-130	0		20
Trichlorofluoromethane	130		130		62-150	0		20
1,2-Dichloroethane	110		120		70-130	9		20
1,1,1-Trichloroethane	130		120		67-130	8		20
Bromodichloromethane	110		110		67-130	0		20
trans-1,3-Dichloropropene	94		99		70-130	5		20
cis-1,3-Dichloropropene	100		100		70-130	0		20
Bromoform	96		100		54-136	4		20
1,1,2,2-Tetrachloroethane	83		93		67-130	11		20
Benzene	100		100		70-130	0		20
Toluene	95		96		70-130	1		20
Ethylbenzene	99		99		70-130	0		20
Chloromethane	110		100		64-130	10		20
Bromomethane	140	Q	130		39-139	7		20
Vinyl chloride	110		110		55-140	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0021-019-910

Lab Number: L2010632

Report Date: 05/07/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1351709-3 WG1351709-4								
Chloroethane	120		120		55-138	0		20
1,1-Dichloroethene	110		110		61-145	0		20
trans-1,2-Dichloroethene	110		100		70-130	10		20
Trichloroethene	120		120		70-130	0		20
1,2-Dichlorobenzene	99		100		70-130	1		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	96		100		70-130	4		20
Methyl tert butyl ether	100		110		63-130	10		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	110		100		70-130	10		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	130		130		36-147	0		20
Acetone	88		100		58-148	13		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	90		110		63-138	20		20
4-Methyl-2-pentanone	75		88		59-130	16		20
2-Hexanone	74		86		57-130	15		20
Bromochloromethane	120		120		70-130	0		20
1,2-Dibromoethane	94		100		70-130	6		20
1,2-Dibromo-3-chloropropane	86		100		41-144	15		20
Isopropylbenzene	100		100		70-130	0		20
Naphthalene	77		87		70-130	12		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0021-019-910

Lab Number: L2010632

Report Date: 05/07/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1351709-3 WG1351709-4								
1,2,3-Trichlorobenzene	91		100		70-130	9		20
1,2,4-Trichlorobenzene	94		100		70-130	6		20
Methyl Acetate	91		97		70-130	6		20
Cyclohexane	99		96		70-130	3		20
1,4-Dioxane	90		96		56-162	6		20
Freon-113	120		110		70-130	9		20
Methyl cyclohexane	98		97		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	94		95		70-130
4-Bromofluorobenzene	97		99		70-130
Dibromofluoromethane	112		110		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-01
Client ID: MWN-09
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 10:18
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/14/20 07:03
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	69		21-120
Phenol-d6	60		10-120
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	63		15-120
2,4,6-Tribromophenol	86		10-120
4-Terphenyl-d14	70		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-02
Client ID: MWN-51AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 13:50
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/14/20 07:30
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	1.1	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	7.3	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	73		21-120
Phenol-d6	61		10-120
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	62		15-120
2,4,6-Tribromophenol	104		10-120
4-Terphenyl-d14	69		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-03
Client ID: MWN-55A
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 09:30
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/14/20 07:56
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	4.2	J	ug/l	5.0	0.57	1
2-Methylphenol	0.61	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	0.97	J	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	67		21-120
Phenol-d6	56		10-120
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	52		15-120
2,4,6-Tribromophenol	92		10-120
4-Terphenyl-d14	62		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-04
Client ID: MWN-66AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 12:50
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/16/20 18:56
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	2.9	J	ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	22.		ug/l	5.0	0.57	1
2-Methylphenol	4.6	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	11.		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		21-120
Phenol-d6	58		10-120
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	60		15-120
2,4,6-Tribromophenol	87		10-120
4-Terphenyl-d14	64		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-05
Client ID: MWN-72AR
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 11:10
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/16/20 19:20
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	61		21-120
Phenol-d6	50		10-120
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	60		15-120
2,4,6-Tribromophenol	92		10-120
4-Terphenyl-d14	70		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-06
Client ID: OU4PZ-7
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 14:58
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/14/20 08:23
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	46		21-120
Phenol-d6	49		10-120
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	56		15-120
2,4,6-Tribromophenol	46		10-120
4-Terphenyl-d14	60		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

SAMPLE RESULTS

Lab ID: L2010632-07
Client ID: BLIND
Sample Location: BUFFALO, NY

Date Collected: 03/09/20 08:00
Date Received: 03/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 03/14/20 08:50
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/12/20 01:47

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	0.60	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	69		21-120
Phenol-d6	57		10-120
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	60		15-120
2,4,6-Tribromophenol	89		10-120
4-Terphenyl-d14	64		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 03/13/20 01:27
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 03/11/20 17:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-07 Batch: WG1349924-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	35		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	57		15-120
2,4,6-Tribromophenol	26		10-120
4-Terphenyl-d14	65		41-149

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0021-019-910

Lab Number: L2010632

Report Date: 05/07/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1349924-2 WG1349924-3								
2,4,6-Trichlorophenol	72		75		30-130	4		30
p-Chloro-m-cresol	76		83		23-97	9		30
2-Chlorophenol	73		74		27-123	1		30
2,4-Dichlorophenol	71		78		30-130	9		30
2,4-Dimethylphenol	37		30		30-130	21		30
2-Nitrophenol	69		72		30-130	4		30
4-Nitrophenol	72		81	Q	10-80	12		30
2,4-Dinitrophenol	75		80		20-130	6		30
4,6-Dinitro-o-cresol	72		82		20-164	13		30
Pentachlorophenol	63		71		9-103	12		30
Phenol	63		65		12-110	3		30
2-Methylphenol	66		68		30-130	3		30
3-Methylphenol/4-Methylphenol	76		76		30-130	0		30
2,4,5-Trichlorophenol	69		77		30-130	11		30
Benzoic Acid	49		54		10-164	10		30
Benzyl Alcohol	70		77		26-116	10		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0021-019-910

Lab Number: L2010632

Report Date: 05/07/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-07 Batch: WG1349924-2 WG1349924-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	65		65		21-120
Phenol-d6	56		60		10-120
Nitrobenzene-d5	59		60		23-120
2-Fluorobiphenyl	54		59		15-120
2,4,6-Tribromophenol	68		74		10-120
4-Terphenyl-d14	62		69		41-149

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Serial_No:05072012:45
Lab Number: L2010632
Report Date: 05/07/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler **Custody Seal**
A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2010632-01A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-01B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-01C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-01D	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-01E	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-02A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-02B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-02C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-02D	Amber 250ml unpreserved	A	11	11	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-02E	Amber 250ml unpreserved	A	11	11	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-03A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-03B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-03C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-03D	Amber 250ml unpreserved	A	11	11	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-03E	Amber 250ml unpreserved	A	11	11	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-04A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-04B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-04C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-04D	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-04E	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-05A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-05B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-05C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Serial_No:05072012:45
Lab Number: L2010632
Report Date: 05/07/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2010632-05D	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-05E	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-06A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-06B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-06C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-06D	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-06E	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-07A	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-07B	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-07C	Vial HCl preserved	A	NA		2.8	Y	Absent		NYTCL-8260-R2(14)
L2010632-07D	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)
L2010632-07E	Amber 250ml unpreserved	A	7	7	2.8	Y	Absent		NYTCL-8270-LVI(7)

Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0021-019-910

Lab Number: L2010632
Report Date: 05/07/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 3/11/20		ALPHA Job # C2016632	
		Project Information Project Name: <u>OU-4 System</u> Project Location: <u>Buffalo, NY</u> Project # <u>T0071-019-910</u> (Use Project name as Project #) ☐		Deliverables ☐ ASP-A ☐ ASP-B ☐ EQUIS (1 File) ☐ EQUIS (4 File) ☐ Other		Billing Information ☐ Same as Client Info PO #			
Client Information Client: <u>Benchmark Environmental</u> Address: <u>2558 Hamburg Turnpike</u> <u>Sle 300 Buffalo, NY 14218</u> Phone: <u>716-850-0599</u> Fax: <u>716-850-0599</u> Email: <u>BGreene@BU-TK.com</u>		Project Manager: ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		Regulatory Requirement ☐ NY TOGS ☐ NY Part 375 ☐ AWQ Standards ☐ NY CP-51 ☐ NY Restricted Use ☐ Other ☐ NY Unrestricted Use ☐ NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: ☐ NJ ☐ NY ☐ Other:			
These samples have been previously analyzed by Alpha ☐ Other project specific requirements/comments:		ANALYSIS NY TLL-9260 NY TLL-9270 Pending		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)		Total Bottles			
Please specify Metals or TAL.		ALPHA Lab ID (Lab Use Only) Sample ID Collection Date Time Sample Matrix Sampler's Initials		Sample Specific Comments					
10632 01 02 03 04 05 06 07		MW N-09 MW N-51 AR MW N-55A MW N-66 AR MW N-72 AR OU 4P2-7 Blind		3/19/20 1024 3/19/20 1350 3/19/20 0930 3/19/20 1250 3/19/20 1110 3/19/20 1458 3/19/20 0800		water CEH water CEH water CEH water CEH water CEH water CEH water CEH		X X X X X X X X X X X X X X	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type V A Preservative B A		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)	
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By: <u>Cherie Horvath</u> <u>[Signature]</u>		Date/Time 3-9-20/1600 3/10/20 1400		Received By: <u>[Signature]</u> <u>[Signature]</u>		Date/Time 3/10/20 1315 3/11/20 0045	



ANALYTICAL REPORT

Lab Number:	L2015300
Client:	Turnkey Environmental Restoration, LLC 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0071-019-910
Report Date:	04/30/20

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2015300-01	MWN-46A	WATER	BUFFALO, NY	04/08/20 11:00	04/09/20
L2015300-02	MWN-47A	WATER	BUFFALO, NY	04/08/20 11:50	04/09/20
L2015300-03	MWN-54A	WATER	BUFFALO, NY	04/08/20 13:35	04/09/20
L2015300-04	MWN-55A	WATER	BUFFALO, NY	04/08/20 10:15	04/09/20
L2015300-05	MWN-72AR	WATER	BUFFALO, NY	04/08/20 14:26	04/09/20

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Case Narrative (continued)

Report Revision

April 30, 2020: The Volatile Organics compound list has been amended to include naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2015300-03, -04 and -05: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1360631-3 LCSD recovery, associated with L2015300-01 through -05, is above the acceptance criteria for perfluorodecanesulfonic acid (pfd) (170%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Kelly Stenstrom

Title: Technical Director/Representative

Date: 04/30/20

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L2015300**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015300-01
 Client ID: MWN-46A
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/14/20 02:44
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	15		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-01
Client ID: MWN-46A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	3.0	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-02
Client ID: MWN-47A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/14/20 03:07
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	43		ug/l	0.50	0.16	1
Toluene	0.89	J	ug/l	2.5	0.70	1
Ethylbenzene	0.90	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-02
Client ID: MWN-47A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	3.7		ug/l	2.5	0.70	1
o-Xylene	2.3	J	ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	6.5		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	9.4		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2015300**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015300-03 D

Date Collected: 04/08/20 13:35

Client ID: MWN-54A

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/14/20 03:31

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1200	350	500
1,1-Dichloroethane	ND		ug/l	1200	350	500
Chloroform	ND		ug/l	1200	350	500
Carbon tetrachloride	ND		ug/l	250	67.	500
1,2-Dichloropropane	ND		ug/l	500	68.	500
Dibromochloromethane	ND		ug/l	250	74.	500
1,1,2-Trichloroethane	ND		ug/l	750	250	500
Tetrachloroethene	ND		ug/l	250	90.	500
Chlorobenzene	ND		ug/l	1200	350	500
Trichlorofluoromethane	ND		ug/l	1200	350	500
1,2-Dichloroethane	ND		ug/l	250	66.	500
1,1,1-Trichloroethane	ND		ug/l	1200	350	500
Bromodichloromethane	ND		ug/l	250	96.	500
trans-1,3-Dichloropropene	ND		ug/l	250	82.	500
cis-1,3-Dichloropropene	ND		ug/l	250	72.	500
Bromoform	ND		ug/l	1000	320	500
1,1,2,2-Tetrachloroethane	ND		ug/l	250	84.	500
Benzene	96000		ug/l	250	80.	500
Toluene	ND		ug/l	1200	350	500
Ethylbenzene	880	J	ug/l	1200	350	500
Chloromethane	ND		ug/l	1200	350	500
Bromomethane	ND		ug/l	1200	350	500
Vinyl chloride	ND		ug/l	500	36.	500
Chloroethane	ND		ug/l	1200	350	500
1,1-Dichloroethene	ND		ug/l	250	84.	500
trans-1,2-Dichloroethene	ND		ug/l	1200	350	500
Trichloroethene	ND		ug/l	250	88.	500
1,2-Dichlorobenzene	ND		ug/l	1200	350	500

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-03 D
Client ID: MWN-54A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 13:35
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	1200	350	500
1,4-Dichlorobenzene	ND		ug/l	1200	350	500
Methyl tert butyl ether	ND		ug/l	1200	350	500
p/m-Xylene	1700		ug/l	1200	350	500
o-Xylene	660	J	ug/l	1200	350	500
cis-1,2-Dichloroethene	ND		ug/l	1200	350	500
Styrene	ND		ug/l	1200	350	500
Dichlorodifluoromethane	ND		ug/l	2500	500	500
Acetone	ND		ug/l	2500	730	500
Carbon disulfide	ND		ug/l	2500	500	500
2-Butanone	ND		ug/l	2500	970	500
4-Methyl-2-pentanone	ND		ug/l	2500	500	500
2-Hexanone	ND		ug/l	2500	500	500
Bromochloromethane	ND		ug/l	1200	350	500
1,2-Dibromoethane	ND		ug/l	1000	320	500
1,2-Dibromo-3-chloropropane	ND		ug/l	1200	350	500
Isopropylbenzene	ND		ug/l	1200	350	500
Naphthalene	2200		ug/l	1200	350	500
1,2,3-Trichlorobenzene	ND		ug/l	1200	350	500
1,2,4-Trichlorobenzene	ND		ug/l	1200	350	500
Methyl Acetate	ND		ug/l	1000	120	500
Cyclohexane	ND		ug/l	5000	140	500
1,4-Dioxane	ND		ug/l	120000	30000	500
Freon-113	ND		ug/l	1200	350	500
Methyl cyclohexane	ND		ug/l	5000	200	500

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/13/20 19:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1360937-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/13/20 19:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1360937-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/13/20 19:44
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1360937-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1360937-3 WG1360937-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	98		100		63-132	2		20
1,2-Dichloropropane	100		110		70-130	10		20
Dibromochloromethane	95		98		63-130	3		20
1,1,2-Trichloroethane	120		120		70-130	0		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	120		120		62-150	0		20
1,2-Dichloroethane	120		120		70-130	0		20
1,1,1-Trichloroethane	110		110		67-130	0		20
Bromodichloromethane	100		99		67-130	1		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	94		95		70-130	1		20
Bromoform	95		97		54-136	2		20
1,1,2,2-Tetrachloroethane	110		110		67-130	0		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		110		70-130	10		20
Chloromethane	99		100		64-130	1		20
Bromomethane	54		59		39-139	9		20
Vinyl chloride	110		110		55-140	0		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1360937-3 WG1360937-4								
Chloroethane	100		100		55-138	0		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	97		97		70-130	0		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	98		97		70-130	1		20
1,3-Dichlorobenzene	96		94		70-130	2		20
1,4-Dichlorobenzene	98		97		70-130	1		20
Methyl tert butyl ether	98		100		63-130	2		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		100		70-130	5		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	110		110		36-147	0		20
Acetone	120		140		58-148	15		20
Carbon disulfide	91		92		51-130	1		20
2-Butanone	140	Q	140	Q	63-138	0		20
4-Methyl-2-pentanone	98		100		59-130	2		20
2-Hexanone	100		110		57-130	10		20
Bromochloromethane	100		100		70-130	0		20
1,2-Dibromoethane	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	90		91		41-144	1		20
Isopropylbenzene	96		95		70-130	1		20
Naphthalene	95		97		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1360937-3 WG1360937-4								
1,2,3-Trichlorobenzene	96		97		70-130	1		20
1,2,4-Trichlorobenzene	88		89		70-130	1		20
Methyl Acetate	120		130		70-130	8		20
Cyclohexane	110		120		70-130	9		20
1,4-Dioxane	132		128		56-162	3		20
Freon-113	120		120		70-130	0		20
Methyl cyclohexane	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	127		126		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	108		108		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-01
Client ID: MWN-46A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 01:32
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	66		21-120
Phenol-d6	55		10-120
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	73		15-120
2,4,6-Tribromophenol	64		10-120
4-Terphenyl-d14	79		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-01
Client ID: MWN-46A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 01:50
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	54.1	J	ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	48			15-110		

Project Name: OU-4 SYSTEM

Lab Number: L2015300

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-01
 Client ID: MWN-46A
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 14:42
 Analyst: JW

Extraction Method: ALPHA 23528

Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	4.64		ng/l	1.79	0.366	1
Perfluoropentanoic Acid (PFPeA)	5.25		ng/l	1.79	0.355	1
Perfluorobutanesulfonic Acid (PFBS)	0.785	J	ng/l	1.79	0.213	1
Perfluorohexanoic Acid (PFHxA)	2.71		ng/l	1.79	0.294	1
Perfluoroheptanoic Acid (PFHpA)	1.42	J	ng/l	1.79	0.202	1
Perfluorohexanesulfonic Acid (PFHxS)	2.60		ng/l	1.79	0.337	1
Perfluorooctanoic Acid (PFOA)	2.82		ng/l	1.79	0.211	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.79	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.79	0.616	1
Perfluorononanoic Acid (PFNA)	1.04	J	ng/l	1.79	0.280	1
Perfluorooctanesulfonic Acid (PFOS)	5.36		ng/l	1.79	0.452	1
Perfluorodecanoic Acid (PFDA)	0.656	J	ng/l	1.79	0.272	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.79	1.09	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.79	0.581	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.233	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.79	0.878	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.79	0.520	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.79	0.720	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.333	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.293	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.222	1
PFOA/PFOS, Total	8.18		ng/l	1.79	0.211	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-01
Client ID: MWN-46A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:00
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	66		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	56		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	65		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	52		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	63		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	78		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	66		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	129		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	65		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	62		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	60		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	84		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	41		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	55		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	26		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	51		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	45		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	38		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-02
Client ID: MWN-47A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 01:56
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	2.2	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	0.88	J	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	10.	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	61		21-120
Phenol-d6	50		10-120
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	65		15-120
2,4,6-Tribromophenol	67		10-120
4-Terphenyl-d14	71		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-02
Client ID: MWN-47A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 02:17
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	573.		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015300**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015300-02
 Client ID: MWN-47A
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 14:58
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	56.5		ng/l	1.77	0.360	1
Perfluoropentanoic Acid (PFPeA)	17.1		ng/l	1.77	0.350	1
Perfluorobutanesulfonic Acid (PFBS)	1.39	J	ng/l	1.77	0.210	1
Perfluorohexanoic Acid (PFHxA)	9.66		ng/l	1.77	0.290	1
Perfluoroheptanoic Acid (PFHpA)	4.89		ng/l	1.77	0.199	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.77	0.332	1
Perfluorooctanoic Acid (PFOA)	5.53		ng/l	1.77	0.208	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	19.2		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.608	1
Perfluorononanoic Acid (PFNA)	2.24		ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	8.88		ng/l	1.77	0.445	1
Perfluorodecanoic Acid (PFDA)	1.79		ng/l	1.77	0.268	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	4.88		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.572	1
Perfluoroundecanoic Acid (PFUnA)	0.403	J	ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.866	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.512	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.710	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.329	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.289	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.219	1
PFOA/PFOS, Total	14.4		ng/l	1.77	0.208	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-02
Client ID: MWN-47A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 11:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	60		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	59		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	66		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	48		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	58		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	77		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	64		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	135		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	65		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	66		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	63		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	90		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	46		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	63		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	17		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	52		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	48		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	42		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-03
Client ID: MWN-54A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 13:35
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 07:00
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	2.5	J	ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	94.		ug/l	5.0	0.57	1
2-Methylphenol	0.59	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		21-120
Phenol-d6	49		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	61		15-120
2,4,6-Tribromophenol	56		10-120
4-Terphenyl-d14	64		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-03
Client ID: MWN-54A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 13:35
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 02:45
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	109.	J	ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	51			15-110		

Project Name: OU-4 SYSTEM

Lab Number: L2015300

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-03

Date Collected: 04/08/20 13:35

Client ID: MWN-54A

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: ALPHA 23528

Analytical Method: 134,LCMSMS-ID

Extraction Date: 04/13/20 08:00

Analytical Date: 04/14/20 15:15

Analyst: JW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	30.0		ng/l	1.78	0.364	1
Perfluoropentanoic Acid (PFPeA)	42.8		ng/l	1.78	0.354	1
Perfluorobutanesulfonic Acid (PFBS)	10.0		ng/l	1.78	0.212	1
Perfluorohexanoic Acid (PFHxA)	19.6		ng/l	1.78	0.293	1
Perfluoroheptanoic Acid (PFHpA)	10.7		ng/l	1.78	0.201	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.336	1
Perfluorooctanoic Acid (PFOA)	10.4		ng/l	1.78	0.211	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	18.5		ng/l	1.78	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.614	1
Perfluorononanoic Acid (PFNA)	2.56		ng/l	1.78	0.278	1
Perfluorooctanesulfonic Acid (PFOS)	5.60		ng/l	1.78	0.450	1
Perfluorodecanoic Acid (PFDA)	3.50		ng/l	1.78	0.271	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	10.7		ng/l	1.78	1.08	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.578	1
Perfluoroundecanoic Acid (PFUnA)	0.850	J	ng/l	1.78	0.232	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.875	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.518	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.718	1
Perfluorododecanoic Acid (PFDoA)	0.800	J	ng/l	1.78	0.332	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.292	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.221	1
PFOA/PFOS, Total	16.0		ng/l	1.78	0.211	1

Project Name: OU-4 SYSTEM

Lab Number: L2015300

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-03

Date Collected: 04/08/20 13:35

Client ID: MWN-54A

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	73		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	55		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	71		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	49		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	67		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	76		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	253	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	71		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	79		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	72		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	143		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	65		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	75		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	29		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	72		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	66		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-04
 Client ID: MWN-55A
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 10:15
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 04/16/20 03:12
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	151.		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015300**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015300-04
 Client ID: MWN-55A
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 10:15
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 15:31
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	32.4		ng/l	1.77	0.360	1
Perfluoropentanoic Acid (PFPeA)	93.0		ng/l	1.77	0.350	1
Perfluorobutanesulfonic Acid (PFBS)	1.19	J	ng/l	1.77	0.210	1
Perfluorohexanoic Acid (PFHxA)	59.4		ng/l	1.77	0.290	1
Perfluoroheptanoic Acid (PFHpA)	22.7		ng/l	1.77	0.199	1
Perfluorohexanesulfonic Acid (PFHxS)	0.449	J	ng/l	1.77	0.332	1
Perfluorooctanoic Acid (PFOA)	5.67		ng/l	1.77	0.208	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	3.40		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.608	1
Perfluorononanoic Acid (PFNA)	1.78		ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	4.95		ng/l	1.77	0.445	1
Perfluorodecanoic Acid (PFDA)	1.98		ng/l	1.77	0.268	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.572	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.866	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.512	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.710	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.329	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.289	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.219	1
PFOA/PFOS, Total	10.6		ng/l	1.77	0.208	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-04
Client ID: MWN-55A
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 10:15
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	95		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	80		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	71		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	86		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	121		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	218		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	115		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	177	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	104		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	25		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	89		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-05
Client ID: MWN-72AR
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 14:26
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 03:40
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU-4 SYSTEM

Lab Number: L2015300

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-05
 Client ID: MWN-72AR
 Sample Location: BUFFALO, NY

Date Collected: 04/08/20 14:26
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 15:48
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	16.3		ng/l	1.96	0.400	1
Perfluoropentanoic Acid (PFPeA)	11.5		ng/l	1.96	0.388	1
Perfluorobutanesulfonic Acid (PFBS)	0.870	J	ng/l	1.96	0.233	1
Perfluorohexanoic Acid (PFHxA)	5.48		ng/l	1.96	0.322	1
Perfluoroheptanoic Acid (PFHpA)	2.40		ng/l	1.96	0.221	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.96	0.369	1
Perfluorooctanoic Acid (PFOA)	4.05		ng/l	1.96	0.231	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.96	1.30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.96	0.674	1
Perfluorononanoic Acid (PFNA)	0.314	J	ng/l	1.96	0.306	1
Perfluorooctanesulfonic Acid (PFOS)	1.62	J	ng/l	1.96	0.494	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.96	0.298	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.96	1.19	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.96	0.635	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.96	0.255	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.96	0.961	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.96	0.569	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.96	0.788	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.96	0.365	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.96	0.321	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.96	0.243	1
PFOA/PFOS, Total	5.67	J	ng/l	1.96	0.231	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015300-05
Client ID: MWN-72AR
Sample Location: BUFFALO, NY

Date Collected: 04/08/20 14:26
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate (Extracted Internal Standard)	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	93				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	69				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	84				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	61				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	108				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	252			Q	1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	186			Q	7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70				1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	84				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	31				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79				23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	70				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61				33-143	

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/15/20 17:46
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/10/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-05 Batch: WG1360287-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	50		15-110

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/14/20 13:52
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-05 Batch: WG1360631-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.384	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/14/20 13:52
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-05 Batch: WG1360631-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	76		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	78		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	76		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	82		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	78		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	67		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	76		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	76		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	64		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	67		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	76		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	64		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	58		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 04/15/20 23:11
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1361431-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		21-120
Phenol-d6	42		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	58		15-120
2,4,6-Tribromophenol	41		10-120
4-Terphenyl-d14	59		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360287-2 WG1360287-3								
1,4-Dioxane	106		105		40-140	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	48		53		15-110

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360631-2 WG1360631-3								
Perfluorobutanoic Acid (PFBA)	127		139		67-148	9		30
Perfluoropentanoic Acid (PFPeA)	138		149		63-161	8		30
Perfluorobutanesulfonic Acid (PFBS)	113		123		65-157	8		30
Perfluorohexanoic Acid (PFHxA)	127		139		69-168	9		30
Perfluoroheptanoic Acid (PFHpA)	130		140		58-159	7		30
Perfluorohexanesulfonic Acid (PFHxS)	120		134		69-177	11		30
Perfluorooctanoic Acid (PFOA)	134		145		63-159	8		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	142		171		49-187	19		30
Perfluoroheptanesulfonic Acid (PFHpS)	144		157		61-179	9		30
Perfluorononanoic Acid (PFNA)	130		141		68-171	8		30
Perfluorooctanesulfonic Acid (PFOS)	125		145		52-151	15		30
Perfluorodecanoic Acid (PFDA)	125		144		63-171	14		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	152		159		56-173	5		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	152		150		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	132		134		60-153	2		30
Perfluorodecanesulfonic Acid (PFDS)	134		170	Q	38-156	24		30
Perfluorooctanesulfonamide (FOSA)	132		134		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	137		150		45-170	9		30
Perfluorododecanoic Acid (PFDoA)	137		147		67-153	7		30
Perfluorotridecanoic Acid (PFTrDA)	122		136		48-158	11		30
Perfluorotetradecanoic Acid (PFTA)	140		150		59-182	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360631-2 WG1360631-3

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	73		72		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	72		71		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		77		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	70		69		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	76		75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	83		85		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	74		73		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	63		62		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	72		72		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	78		75		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74		70		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	62		65		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	54		56		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		79		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		45		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		84		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		75		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		57		33-143

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1361431-2 WG1361431-3								
2,4,6-Trichlorophenol	55		62		30-130	12		30
p-Chloro-m-cresol	59		68		23-97	14		30
2-Chlorophenol	58		68		27-123	16		30
2,4-Dichlorophenol	58		66		30-130	13		30
2,4-Dimethylphenol	53		66		30-130	22		30
2-Nitrophenol	54		65		30-130	18		30
4-Nitrophenol	50		62		10-80	21		30
2,4-Dinitrophenol	55		61		20-130	10		30
4,6-Dinitro-o-cresol	62		67		20-164	8		30
Pentachlorophenol	42		52		9-103	21		30
Phenol	43		49		12-110	13		30
2-Methylphenol	57		68		30-130	18		30
3-Methylphenol/4-Methylphenol	57		67		30-130	16		30
2,4,5-Trichlorophenol	56		63		30-130	12		30
Benzoic Acid	56		62		10-164	10		30
Benzyl Alcohol	54		63		26-116	15		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015300

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1361431-2 WG1361431-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		61		21-120
Phenol-d6	44		50		10-120
Nitrobenzene-d5	59		68		23-120
2-Fluorobiphenyl	55		63		15-120
2,4,6-Tribromophenol	51		57		10-120
4-Terphenyl-d14	52		59		41-149

Project Name: OU-4 SYSTEM**Lab Number:** L2015300**Project Number:** T0071-019-910**Report Date:** 04/30/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
C	Absent
E	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015300-01A	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-01B	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-01C	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-01D	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-01E	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-01F	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-01G	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-01H	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-01I	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-02A	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-02B	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-02C	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-02D	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-02E	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-02F	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-02G	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-02H	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-02I	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-03A	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-03B	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-03C	Vial HCl preserved	E	NA		3.4	Y	Absent		NYTCL-8260-R2(14)
L2015300-03D	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04302014:51
Lab Number: L2015300
Report Date: 04/30/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015300-03E	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-03F	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-03G	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		NYTCL-8270-LVI(7)
L2015300-03H	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-03I	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-04A	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-04B	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-04C	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-04D	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-05A	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-05B	Plastic 250ml unpreserved	C	NA		5.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015300-05C	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015300-05D	Amber 250ml unpreserved	E	7	7	3.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04302014:51
Lab Number: L2015300
Report Date: 04/30/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015300
Report Date: 04/30/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

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Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2015307
Client:	Turnkey Environmental Restoration, LLC 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0071-019-910
Report Date:	04/30/20

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2015307-01	MWN-32A	WATER	BUFFALO, NY	04/09/20 11:30	04/09/20
L2015307-02	MWN-51AR	WATER	BUFFALO, NY	04/09/20 13:30	04/09/20
L2015307-03	MWN-66AR	WATER	BUFFALO, NY	04/09/20 14:50	04/09/20
L2015307-04	OU4PZ-9	WATER	BUFFALO, NY	04/09/20 13:50	04/09/20
L2015307-05	EQUIPMENT BLANK	WATER	BUFFALO, NY	04/09/20 10:00	04/09/20
L2015307-06	FIELD BLANK	WATER	BUFFALO, NY	04/09/20 09:45	04/09/20

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Case Narrative (continued)

Report Revision

April 30, 2020: The Volatile Organics compound list has been amended to include naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2015307-01: Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

The WG1361689-6/-7 MS/MSD recoveries, performed on L2015307-01, are outside the acceptance criteria for benzene (0%/0%). The unacceptable percent recoveries are attributed to the elevated concentration of target compound present in the native sample.

Semivolatile Organics

The WG1361431-4/-5 MS/MSD recoveries, performed on L2015307-01, are outside the acceptance criteria for phenol (0%/0%). The unacceptable percent recoveries are attributed to the elevated concentration of target compound present in the native sample.

Perfluorinated Alkyl Acids by Isotope Dilution

L2015307-01, -03, -05, WG1360499-6, and WG1360499-7: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1360499-7 MSD recoveries, performed on L2015307-01, are outside the acceptance criteria for perfluorobutanoic acid (pfba) (156%), perfluoropentanoic acid (pfpea) (188%), perfluoroheptanoic acid (pfhpa) (163%), 1h,1h,2h,2h-perfluorooctanesulfonic acid (6:2fts) (296%), and 1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2fts) (348%). The MS/MSD RPD is outside the acceptance criteria for 1h,1h,2h,2h-

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Case Narrative (continued)

perfluorodecanesulfonic acid (8:2fts) (31%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 04/30/20

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-01 D2
 Client ID: MWN-32A
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 11:30
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/16/20 10:29
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab						

Benzene	26000		ug/l	250	80.	500

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-01 D

Date Collected: 04/09/20 11:30

Client ID: MWN-32A

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/15/20 20:19

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	500	140	200
1,1-Dichloroethane	ND		ug/l	500	140	200
Chloroform	ND		ug/l	500	140	200
Carbon tetrachloride	ND		ug/l	100	27.	200
1,2-Dichloropropane	ND		ug/l	200	27.	200
Dibromochloromethane	ND		ug/l	100	30.	200
1,1,2-Trichloroethane	ND		ug/l	300	100	200
Tetrachloroethene	ND		ug/l	100	36.	200
Chlorobenzene	ND		ug/l	500	140	200
Trichlorofluoromethane	ND		ug/l	500	140	200
1,2-Dichloroethane	ND		ug/l	100	26.	200
1,1,1-Trichloroethane	ND		ug/l	500	140	200
Bromodichloromethane	ND		ug/l	100	38.	200
trans-1,3-Dichloropropene	ND		ug/l	100	33.	200
cis-1,3-Dichloropropene	ND		ug/l	100	29.	200
Bromoform	ND		ug/l	400	130	200
1,1,2,2-Tetrachloroethane	ND		ug/l	100	33.	200
Benzene	49000	E	ug/l	100	32.	200
Toluene	5800		ug/l	500	140	200
Ethylbenzene	530		ug/l	500	140	200
Chloromethane	ND		ug/l	500	140	200
Bromomethane	ND		ug/l	500	140	200
Vinyl chloride	ND		ug/l	200	14.	200
Chloroethane	ND		ug/l	500	140	200
1,1-Dichloroethene	ND		ug/l	100	34.	200
trans-1,2-Dichloroethene	ND		ug/l	500	140	200
Trichloroethene	ND		ug/l	100	35.	200
1,2-Dichlorobenzene	ND		ug/l	500	140	200

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-01 D

Date Collected: 04/09/20 11:30

Client ID: MWN-32A

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	500	140	200
1,4-Dichlorobenzene	ND		ug/l	500	140	200
Methyl tert butyl ether	ND		ug/l	500	140	200
p/m-Xylene	1400		ug/l	500	140	200
o-Xylene	440	J	ug/l	500	140	200
cis-1,2-Dichloroethene	ND		ug/l	500	140	200
Styrene	ND		ug/l	500	140	200
Dichlorodifluoromethane	ND		ug/l	1000	200	200
Acetone	ND		ug/l	1000	290	200
Carbon disulfide	ND		ug/l	1000	200	200
2-Butanone	ND		ug/l	1000	390	200
4-Methyl-2-pentanone	ND		ug/l	1000	200	200
2-Hexanone	ND		ug/l	1000	200	200
Bromochloromethane	ND		ug/l	500	140	200
1,2-Dibromoethane	ND		ug/l	400	130	200
1,2-Dibromo-3-chloropropane	ND		ug/l	500	140	200
Isopropylbenzene	ND		ug/l	500	140	200
Naphthalene	190	J	ug/l	500	140	200
1,2,3-Trichlorobenzene	ND		ug/l	500	140	200
1,2,4-Trichlorobenzene	ND		ug/l	500	140	200
Methyl Acetate	ND		ug/l	400	47.	200
Cyclohexane	ND		ug/l	2000	54.	200
1,4-Dioxane	ND		ug/l	50000	12000	200
Freon-113	ND		ug/l	500	140	200
Methyl cyclohexane	ND		ug/l	2000	79.	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-04
Client ID: OU4PZ-9
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/14/20 01:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	52		ug/l	0.50	0.16	1
Toluene	9.6		ug/l	2.5	0.70	1
Ethylbenzene	0.87	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-04
Client ID: OU4PZ-9
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	2.3	J	ug/l	2.5	0.70	1
o-Xylene	0.90	J	ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	4.4	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	36		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-05
 Client ID: EQUIPMENT BLANK
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 10:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/14/20 02:20
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-05
 Client ID: EQUIPMENT BLANK
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 10:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	25		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	3.5	J	ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	2.2	J	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/13/20 19:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04-05 Batch: WG1360937-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/13/20 19:44
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04-05 Batch: WG1360937-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/13/20 19:44
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04-05 Batch: WG1360937-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/15/20 19:32
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361689-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/15/20 19:32
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361689-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/15/20 19:32
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361689-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/16/20 10:07
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361736-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/16/20 10:07
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361736-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 10:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1361736-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	95		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-05 Batch: WG1360937-3 WG1360937-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	98		100		63-132	2		20
1,2-Dichloropropane	100		110		70-130	10		20
Dibromochloromethane	95		98		63-130	3		20
1,1,2-Trichloroethane	120		120		70-130	0		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	120		120		62-150	0		20
1,2-Dichloroethane	120		120		70-130	0		20
1,1,1-Trichloroethane	110		110		67-130	0		20
Bromodichloromethane	100		99		67-130	1		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	94		95		70-130	1		20
Bromoform	95		97		54-136	2		20
1,1,2,2-Tetrachloroethane	110		110		67-130	0		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		110		70-130	10		20
Chloromethane	99		100		64-130	1		20
Bromomethane	54		59		39-139	9		20
Vinyl chloride	110		110		55-140	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-05 Batch: WG1360937-3 WG1360937-4								
Chloroethane	100		100		55-138	0		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	97		97		70-130	0		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	98		97		70-130	1		20
1,3-Dichlorobenzene	96		94		70-130	2		20
1,4-Dichlorobenzene	98		97		70-130	1		20
Methyl tert butyl ether	98		100		63-130	2		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		100		70-130	5		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	110		110		36-147	0		20
Acetone	120		140		58-148	15		20
Carbon disulfide	91		92		51-130	1		20
2-Butanone	140	Q	140	Q	63-138	0		20
4-Methyl-2-pentanone	98		100		59-130	2		20
2-Hexanone	100		110		57-130	10		20
Bromochloromethane	100		100		70-130	0		20
1,2-Dibromoethane	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	90		91		41-144	1		20
Isopropylbenzene	96		95		70-130	1		20
Naphthalene	95		97		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-05 Batch: WG1360937-3 WG1360937-4								
1,2,3-Trichlorobenzene	96		97		70-130	1		20
1,2,4-Trichlorobenzene	88		89		70-130	1		20
Methyl Acetate	120		130		70-130	8		20
Cyclohexane	110		120		70-130	9		20
1,4-Dioxane	132		128		56-162	3		20
Freon-113	120		120		70-130	0		20
Methyl cyclohexane	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	127		126		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	95		95		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361689-3 WG1361689-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	95		94		63-132	1		20
1,2-Dichloropropane	100		100		70-130	0		20
Dibromochloromethane	92		96		63-130	4		20
1,1,2-Trichloroethane	110		110		70-130	0		20
Tetrachloroethene	100		98		70-130	2		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	110		110		62-150	0		20
1,2-Dichloroethane	120		120		70-130	0		20
1,1,1-Trichloroethane	110		100		67-130	10		20
Bromodichloromethane	100		99		67-130	1		20
trans-1,3-Dichloropropene	100		98		70-130	2		20
cis-1,3-Dichloropropene	93		91		70-130	2		20
Bromoform	84		86		54-136	2		20
1,1,2,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	99		96		70-130	3		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	94		94		64-130	0		20
Bromomethane	45		48		39-139	6		20
Vinyl chloride	100		98		55-140	2		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361689-3 WG1361689-4								
Chloroethane	100		110		55-138	10		20
1,1-Dichloroethene	98		97		61-145	1		20
trans-1,2-Dichloroethene	94		93		70-130	1		20
Trichloroethene	100		98		70-130	2		20
1,2-Dichlorobenzene	92		93		70-130	1		20
1,3-Dichlorobenzene	94		93		70-130	1		20
1,4-Dichlorobenzene	96		94		70-130	2		20
Methyl tert butyl ether	95		96		63-130	1		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		95		70-130	0		20
cis-1,2-Dichloroethene	110		100		70-130	10		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	94		91		36-147	3		20
Acetone	110		120		58-148	9		20
Carbon disulfide	87		86		51-130	1		20
2-Butanone	110		130		63-138	17		20
4-Methyl-2-pentanone	92		97		59-130	5		20
2-Hexanone	96		100		57-130	4		20
Bromochloromethane	100		100		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	77		77		41-144	0		20
Isopropylbenzene	93		92		70-130	1		20
Naphthalene	86		88		70-130	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361689-3 WG1361689-4								
1,2,3-Trichlorobenzene	84		88		70-130	5		20
1,2,4-Trichlorobenzene	85		85		70-130	0		20
Methyl Acetate	110		120		70-130	9		20
Cyclohexane	100		98		70-130	2		20
1,4-Dioxane	106		110		56-162	4		20
Freon-113	110		110		70-130	0		20
Methyl cyclohexane	94		92		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	123		125		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	95		97		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361736-3 WG1361736-4								
Methylene chloride	95		97		70-130	2		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	98		100		70-130	2		20
Carbon tetrachloride	88		88		63-132	0		20
1,2-Dichloropropane	100		110		70-130	10		20
Dibromochloromethane	95		100		63-130	5		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	89		95		70-130	7		20
Chlorobenzene	96		100		75-130	4		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	99		100		70-130	1		20
1,1,1-Trichloroethane	89		91		67-130	2		20
Bromodichloromethane	95		98		67-130	3		20
trans-1,3-Dichloropropene	92		97		70-130	5		20
cis-1,3-Dichloropropene	90		94		70-130	4		20
Bromoform	90		97		54-136	7		20
1,1,2,2-Tetrachloroethane	95		110		67-130	15		20
Benzene	98		100		70-130	2		20
Toluene	96		100		70-130	4		20
Ethylbenzene	97		100		70-130	3		20
Chloromethane	110		110		64-130	0		20
Bromomethane	110		110		39-139	0		20
Vinyl chloride	100		110		55-140	10		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361736-3 WG1361736-4								
Chloroethane	120		120		55-138	0		20
1,1-Dichloroethene	92		96		61-145	4		20
trans-1,2-Dichloroethene	93		97		70-130	4		20
Trichloroethene	93		97		70-130	4		20
1,2-Dichlorobenzene	95		100		70-130	5		20
1,3-Dichlorobenzene	96		100		70-130	4		20
1,4-Dichlorobenzene	95		100		70-130	5		20
Methyl tert butyl ether	86		92		63-130	7		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	97		100		70-130	3		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	81		86		36-147	6		20
Acetone	110		120		58-148	9		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	100		98		63-138	2		20
4-Methyl-2-pentanone	91		100		59-130	9		20
2-Hexanone	91		110		57-130	19		20
Bromochloromethane	90		95		70-130	5		20
1,2-Dibromoethane	94		99		70-130	5		20
1,2-Dibromo-3-chloropropane	81		94		41-144	15		20
Isopropylbenzene	96		100		70-130	4		20
Naphthalene	78		87		70-130	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1361736-3 WG1361736-4								
1,2,3-Trichlorobenzene	82		89		70-130	8		20
1,2,4-Trichlorobenzene	82		90		70-130	9		20
Methyl Acetate	94		100		70-130	6		20
Cyclohexane	99		100		70-130	1		20
1,4-Dioxane	106		112		56-162	6		20
Freon-113	92		96		70-130	4		20
Methyl cyclohexane	92		93		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		102		70-130
Toluene-d8	101		106		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		94		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1361689-6 WG1361689-7 QC Sample: L2015307-01 Client ID: MWN-32A												
Methylene chloride	ND	2000	2600	130		2200	110		70-130	17		20
1,1-Dichloroethane	ND	2000	2900	145	Q	2400	120		70-130	19		20
Chloroform	ND	2000	2800	140	Q	2400	120		70-130	15		20
Carbon tetrachloride	ND	2000	2400	120		2000	100		63-132	18		20
1,2-Dichloropropane	ND	2000	2700	135	Q	2200	110		70-130	20		20
Dibromochloromethane	ND	2000	2200	110		1800	90		63-130	20		20
1,1,2-Trichloroethane	ND	2000	2800	140	Q	2400	120		70-130	15		20
Tetrachloroethene	ND	2000	2200	110		1900	95		70-130	15		20
Chlorobenzene	ND	2000	2500	125		2100	105		75-130	17		20
Trichlorofluoromethane	ND	2000	2800	140		2400	120		62-150	15		20
1,2-Dichloroethane	ND	2000	3000	150	Q	2400	120		70-130	22	Q	20
1,1,1-Trichloroethane	ND	2000	2800	140	Q	2300	115		67-130	20		20
Bromodichloromethane	ND	2000	2500	125		2100	105		67-130	17		20
trans-1,3-Dichloropropene	ND	2000	2300	115		1900	95		70-130	19		20
cis-1,3-Dichloropropene	ND	2000	2200	110		1800	90		70-130	20		20
Bromoform	ND	2000	2100	105		1700	85		54-136	21	Q	20
1,1,1,2-Tetrachloroethane	ND	2000	2500	125		2100	105		67-130	17		20
Benzene	49000E	2000	38000	0	Q	49000E	0	Q	70-130	25	Q	20
Toluene	5800	2000	6700	45	Q	7600	90		70-130	13		20
Ethylbenzene	530	2000	2900	119		2600	104		70-130	11		20
Chloromethane	ND	2000	2600	130		2200	110		64-130	17		20
Bromomethane	ND	2000	920	46		950	48		39-139	3		20
Vinyl chloride	ND	2000	2700	135		2300	115		55-140	16		20

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1361689-6 WG1361689-7 QC Sample: L2015307-01 Client ID: MWN-32A												
Chloroethane	ND	2000	2400	120		2100	105		55-138	13		20
1,1-Dichloroethene	ND	2000	2500	125		2200	110		61-145	13		20
trans-1,2-Dichloroethene	ND	2000	2300	115		2000	100		70-130	14		20
Trichloroethene	ND	2000	2500	125		2100	105		70-130	17		20
1,2-Dichlorobenzene	ND	2000	2100	105		1800	90		70-130	15		20
1,3-Dichlorobenzene	ND	2000	2000	100		1800	90		70-130	11		20
1,4-Dichlorobenzene	ND	2000	2100	105		1800	90		70-130	15		20
Methyl tert butyl ether	ND	2000	2200	110		1900	95		63-130	15		20
p/m-Xylene	1400	4000	5800	110		5400	100		70-130	7		20
o-Xylene	440J	4000	5100	128		4400	110		70-130	15		20
cis-1,2-Dichloroethene	ND	2000	2600	130		2300	115		70-130	12		20
Styrene	ND	4000	5000	125		4100	103		70-130	20		20
Dichlorodifluoromethane	ND	2000	2200	110		2000	100		36-147	10		20
Acetone	ND	2000	3000	150	Q	2500	125		58-148	18		20
Carbon disulfide	ND	2000	2200	110		1900	95		51-130	15		20
2-Butanone	ND	2000	2900	145	Q	2500	125		63-138	15		20
4-Methyl-2-pentanone	ND	2000	2000	100		1800	90		59-130	11		20
2-Hexanone	ND	2000	2000	100		1800	90		57-130	11		20
Bromochloromethane	ND	2000	2500	125		2200	110		70-130	13		20
1,2-Dibromoethane	ND	2000	2500	125		2100	105		70-130	17		20
1,2-Dibromo-3-chloropropane	ND	2000	1700	85		1400	70		41-144	19		20
Isopropylbenzene	ND	2000	2200	110		1800	90		70-130	20		20
Naphthalene	190J	2000	1700	85		1800	90		70-130	6		20

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1361689-6 WG1361689-7 QC Sample: L2015307-01 Client ID: MWN-32A												
1,2,3-Trichlorobenzene	ND	2000	1500	75		1500	75		70-130	0		20
1,2,4-Trichlorobenzene	ND	2000	1500	75		1500	75		70-130	0		20
Methyl Acetate	ND	2000	2600	130		2200	110		70-130	17		20
Cyclohexane	ND	2000	2400	120		2100	105		70-130	13		20
1,4-Dioxane	ND	100000	120000	120		99000	99		56-162	19		20
Freon-113	ND	2000	2500	125		2300	115		70-130	8		20
Methyl cyclohexane	ND	2000	2000	100		1900J	95		70-130	5		20

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		121		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	109		105		70-130
Toluene-d8	103		103		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-01
Client ID: MWN-32A
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 11:30
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 05:26
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	3.0	J	ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	84.		ug/l	5.0	0.57	1
2-Methylphenol	4.5	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	7.6		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	12.	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		21-120
Phenol-d6	48		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	63		15-120
2,4,6-Tribromophenol	68		10-120
4-Terphenyl-d14	68		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-01
Client ID: MWN-32A
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 11:30
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 14:36
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/11/20 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	45			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-01
 Client ID: MWN-32A
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 11:30
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/13/20 03:49
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	60.7		ng/l	1.74	0.355	1
Perfluoropentanoic Acid (PFPeA)	206		ng/l	1.74	0.345	1
Perfluorobutanesulfonic Acid (PFBS)	0.937	J	ng/l	1.74	0.207	1
Perfluorohexanoic Acid (PFHxA)	143		ng/l	1.74	0.286	1
Perfluoroheptanoic Acid (PFHpA)	75.3		ng/l	1.74	0.196	1
Perfluorohexanesulfonic Acid (PFHxS)	1.70	J	ng/l	1.74	0.328	1
Perfluorooctanoic Acid (PFOA)	45.8		ng/l	1.74	0.206	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	375		ng/l	1.74	1.16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.74	0.599	1
Perfluorononanoic Acid (PFNA)	18.2		ng/l	1.74	0.272	1
Perfluorooctanesulfonic Acid (PFOS)	4.19		ng/l	1.74	0.439	1
Perfluorodecanoic Acid (PFDA)	20.2		ng/l	1.74	0.265	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	134		ng/l	1.74	1.06	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.74	0.564	1
Perfluoroundecanoic Acid (PFUnA)	0.536	J	ng/l	1.74	0.226	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.74	0.854	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.74	0.505	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.74	0.700	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.74	0.324	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.74	0.285	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.74	0.216	1
PFOA/PFOS, Total	50.0		ng/l	1.74	0.206	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-01
Client ID: MWN-32A
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 11:30
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	85		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	77		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	60		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	73		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	84		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	83		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	281	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	88		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	82		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	80		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	182	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	89		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	79		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-02
Client ID: MWN-51AR
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:30
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 09:03
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/11/20 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	45			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-02

Date Collected: 04/09/20 13:30

Client ID: MWN-51AR

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: ALPHA 23528

Analytical Method: 134,LCMSMS-ID

Extraction Date: 04/12/20 11:15

Analytical Date: 04/13/20 04:05

Analyst: JW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	50.5		ng/l	1.72	0.352	1
Perfluoropentanoic Acid (PFPeA)	177		ng/l	1.72	0.341	1
Perfluorobutanesulfonic Acid (PFBS)	5.34		ng/l	1.72	0.205	1
Perfluorohexanoic Acid (PFHxA)	110		ng/l	1.72	0.283	1
Perfluoroheptanoic Acid (PFHpA)	45.0		ng/l	1.72	0.194	1
Perfluorohexanesulfonic Acid (PFHxS)	1.41	J	ng/l	1.72	0.324	1
Perfluorooctanoic Acid (PFOA)	14.7		ng/l	1.72	0.203	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	63.6		ng/l	1.72	1.15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.72	0.593	1
Perfluorononanoic Acid (PFNA)	1.04	J	ng/l	1.72	0.269	1
Perfluorooctanesulfonic Acid (PFOS)	1.59	J	ng/l	1.72	0.434	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.72	0.262	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.72	1.04	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	0.559	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.72	0.224	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.72	0.845	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.72	0.500	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	0.693	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	0.321	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	0.282	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	0.214	1
PFOA/PFOS, Total	16.3	J	ng/l	1.72	0.203	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-02
Client ID: MWN-51AR
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:30
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	87		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	82		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	64		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	74		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	228		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	94		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	87		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	142		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	65		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	90		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	64		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	72		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-03
Client ID: MWN-66AR
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 14:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 16:26
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/11/20 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	44			15-110		

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-03

Date Collected: 04/09/20 14:50

Client ID: MWN-66AR

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: ALPHA 23528

Analytical Method: 134,LCMSMS-ID

Extraction Date: 04/12/20 11:15

Analytical Date: 04/13/20 04:22

Analyst: JW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.03	0.415	1
Perfluoropentanoic Acid (PFPeA)	24.7		ng/l	2.03	0.402	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.03	0.242	1
Perfluorohexanoic Acid (PFHxA)	7.31		ng/l	2.03	0.333	1
Perfluoroheptanoic Acid (PFHpA)	4.78		ng/l	2.03	0.229	1
Perfluorohexanesulfonic Acid (PFHxS)	7.32		ng/l	2.03	0.382	1
Perfluorooctanoic Acid (PFOA)	8.45		ng/l	2.03	0.240	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	2.60		ng/l	2.03	1.35	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.03	0.699	1
Perfluorononanoic Acid (PFNA)	0.805	J	ng/l	2.03	0.317	1
Perfluorooctanesulfonic Acid (PFOS)	15.2		ng/l	2.03	0.512	1
Perfluorodecanoic Acid (PFDA)	0.536	J	ng/l	2.03	0.309	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.03	1.23	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.03	0.658	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.03	0.264	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.03	0.996	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.03	0.589	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.03	0.817	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.03	0.378	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.03	0.332	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.03	0.252	1
PFOA/PFOS, Total	23.7		ng/l	2.03	0.240	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-03
Client ID: MWN-66AR
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 14:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	82		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	78		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	59		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	69		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	87		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	313	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	79		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	288	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	92		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	84		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	115		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	69		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-04
Client ID: OU4PZ-9
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 07:47
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	0.66	J	ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	8.9	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	67		21-120
Phenol-d6	53		10-120
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	70		15-120
2,4,6-Tribromophenol	67		10-120
4-Terphenyl-d14	78		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-04
Client ID: OU4PZ-9
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 16:51
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/11/20 10:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	43			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-04
 Client ID: OU4PZ-9
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/13/20 04:39
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	15.5		ng/l	1.94	0.397	1
Perfluoropentanoic Acid (PFPeA)	32.7		ng/l	1.94	0.385	1
Perfluorobutanesulfonic Acid (PFBS)	0.922	J	ng/l	1.94	0.232	1
Perfluorohexanoic Acid (PFHxA)	19.0		ng/l	1.94	0.319	1
Perfluoroheptanoic Acid (PFHpA)	9.38		ng/l	1.94	0.219	1
Perfluorohexanesulfonic Acid (PFHxS)	0.397	J	ng/l	1.94	0.366	1
Perfluorooctanoic Acid (PFOA)	6.55		ng/l	1.94	0.230	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	24.5		ng/l	1.94	1.30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.94	0.669	1
Perfluorononanoic Acid (PFNA)	1.72	J	ng/l	1.94	0.304	1
Perfluorooctanesulfonic Acid (PFOS)	1.66	J	ng/l	1.94	0.490	1
Perfluorodecanoic Acid (PFDA)	0.712	J	ng/l	1.94	0.296	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	2.30		ng/l	1.94	1.18	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.94	0.630	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.94	0.253	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.94	0.953	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.94	0.564	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.94	0.782	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.94	0.362	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.94	0.318	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.94	0.241	1
PFOA/PFOS, Total	8.21	J	ng/l	1.94	0.230	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-04
Client ID: OU4PZ-9
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 13:50
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	78		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	84		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	88		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	69		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	74		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	83		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	149		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	84		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	101		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	65		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	100		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	28		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	62		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	83		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	62		33-143

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-05
 Client ID: EQUIPMENT BLANK
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 10:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/16/20 03:06
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 04/15/20 15:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	57		21-120
Phenol-d6	46		10-120
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	64		15-120
2,4,6-Tribromophenol	56		10-120
4-Terphenyl-d14	70		41-149

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-05

Date Collected: 04/09/20 10:00

Client ID: EQUIPMENT BLANK

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: EPA 3510C

Analytical Method: 1,8270D-SIM

Extraction Date: 04/11/20 10:00

Analytical Date: 04/16/20 17:14

Analyst: PS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	45			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015307-05
 Client ID: EQUIPMENT BLANK
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 10:00
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/12/20 23:41
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.74	0.355	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.74	0.345	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.74	0.207	1
Perfluorohexanoic Acid (PFHxA)	0.296	J	ng/l	1.74	0.286	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.74	0.196	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.74	0.328	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.74	0.206	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.74	1.16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.74	0.599	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.74	0.272	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.74	0.439	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.74	0.265	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.74	1.06	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.74	0.564	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.74	0.226	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.74	0.854	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.74	0.505	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.74	0.700	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.74	0.324	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.74	0.285	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.74	0.216	1
PFOA/PFOS, Total	ND		ng/l	1.74	0.206	1

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-05

Date Collected: 04/09/20 10:00

Client ID: EQUIPMENT BLANK

Date Received: 04/09/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	96		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	91		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	89		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	98		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	79		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	87		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	78		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	131		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	173	Q	40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	76		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	95		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	114		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	117		33-143

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-06
 Client ID: FIELD BLANK
 Sample Location: BUFFALO, NY

Date Collected: 04/09/20 09:45
 Date Received: 04/09/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/12/20 23:57
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.84	0.375	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.84	0.364	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.84	0.219	1
Perfluorohexanoic Acid (PFHxA)	0.368	J	ng/l	1.84	0.301	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.84	0.207	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.84	0.346	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.84	0.217	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.84	1.22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.84	0.632	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.84	0.287	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.84	0.463	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.84	0.279	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.84	1.11	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.596	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.239	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.84	0.901	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.84	0.533	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.739	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.342	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.301	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.228	1
PFOA/PFOS, Total	ND		ng/l	1.84	0.217	1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015307-06
Client ID: FIELD BLANK
Sample Location: BUFFALO, NY

Date Collected: 04/09/20 09:45
Date Received: 04/09/20
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	95		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	98		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	87		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	97		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	98		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	64		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	87		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	55		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	63		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	76		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 13:06
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/11/20 10:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-05 Batch: WG1360433-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	50		15-110

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/12/20 22:51
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1360499-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.388	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/12/20 22:51
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/12/20 11:15

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1360499-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	120		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	119		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	114		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	116		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	113		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	113		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	112		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	109		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	106		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	85		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	109		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	67		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	91		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	93		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 04/15/20 23:11
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 15:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,04-05 Batch: WG1361431-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		21-120
Phenol-d6	42		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	58		15-120
2,4,6-Tribromophenol	41		10-120
4-Terphenyl-d14	59		41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360433-2 WG1360433-3								
1,4-Dioxane	101		104		40-140	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	53		59		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1360499-2 WG1360499-3								
Perfluorobutanoic Acid (PFBA)	105		109		67-148	4		30
Perfluoropentanoic Acid (PFPeA)	110		113		63-161	3		30
Perfluorobutanesulfonic Acid (PFBS)	96		101		65-157	5		30
Perfluorohexanoic Acid (PFHxA)	106		108		69-168	2		30
Perfluoroheptanoic Acid (PFHpA)	106		110		58-159	4		30
Perfluorohexanesulfonic Acid (PFHxS)	99		103		69-177	4		30
Perfluorooctanoic Acid (PFOA)	108		109		63-159	1		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	116		124		49-187	7		30
Perfluoroheptanesulfonic Acid (PFHpS)	110		114		61-179	4		30
Perfluorononanoic Acid (PFNA)	110		111		68-171	1		30
Perfluorooctanesulfonic Acid (PFOS)	98		111		52-151	12		30
Perfluorodecanoic Acid (PFDA)	102		111		63-171	8		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	127		120		56-173	6		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	110		130		60-166	17		30
Perfluoroundecanoic Acid (PFUnA)	110		107		60-153	3		30
Perfluorodecanesulfonic Acid (PFDS)	99		109		38-156	10		30
Perfluorooctanesulfonamide (FOSA)	105		103		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	101		108		45-170	7		30
Perfluorododecanoic Acid (PFDoA)	111		113		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	123		119		48-158	3		30
Perfluorotetradecanoic Acid (PFTA)	118		114		59-182	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1360499-2 WG1360499-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	112		109		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	124		122		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	116		116		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	115		116		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	114		112		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	117		118		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	114		112		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	92		96		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		114		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		119		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	113		106		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	105		106		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	81		78		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	111		112		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	53		72		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		81		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	98		97		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92		90		33-143

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1361431-2 WG1361431-3								
2,4,6-Trichlorophenol	55		62		30-130	12		30
p-Chloro-m-cresol	59		68		23-97	14		30
2-Chlorophenol	58		68		27-123	16		30
2,4-Dichlorophenol	58		66		30-130	13		30
2,4-Dimethylphenol	53		66		30-130	22		30
2-Nitrophenol	54		65		30-130	18		30
4-Nitrophenol	50		62		10-80	21		30
2,4-Dinitrophenol	55		61		20-130	10		30
4,6-Dinitro-o-cresol	62		67		20-164	8		30
Pentachlorophenol	42		52		9-103	21		30
Phenol	43		49		12-110	13		30
2-Methylphenol	57		68		30-130	18		30
3-Methylphenol/4-Methylphenol	57		67		30-130	16		30
2,4,5-Trichlorophenol	56		63		30-130	12		30
Benzoic Acid	56		62		10-164	10		30
Benzyl Alcohol	54		63		26-116	15		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04-05 Batch: WG1361431-2 WG1361431-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		61		21-120
Phenol-d6	44		50		10-120
Nitrobenzene-d5	59		68		23-120
2-Fluorobiphenyl	55		63		15-120
2,4,6-Tribromophenol	51		57		10-120
4-Terphenyl-d14	52		59		41-149

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab MWN-32A Associated sample(s): 01-05 QC Batch ID: WG1360433-4 WG1360433-5 QC Sample: L2015307-01 Client ID:												
1,4-Dioxane	ND	4810	5000	104		4980	104		40-140	0		30

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	50		54		15-110

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1360499-6 WG1360499-7 QC Sample: L2015307-01 Client ID: MWN-32A												
Perfluorobutanoic Acid (PFBA)	60.7	34.6	103	122		114	156	Q	67-148	10		30
Perfluoropentanoic Acid (PFPeA)	206	34.6	249	124		270	188	Q	63-161	8		30
Perfluorobutanesulfonic Acid (PFBS)	0.937J	30.6	38.8	127		37.2	123		65-157	4		30
Perfluorohexanoic Acid (PFHxA)	143	34.6	188	130		200	167		69-168	6		30
Perfluoroheptanoic Acid (PFHpA)	75.3	34.6	120	129		131	163	Q	58-159	9		30
Perfluorohexanesulfonic Acid (PFHxS)	1.70J	31.6	44.1	140		43.8	141		69-177	1		30
Perfluorooctanoic Acid (PFOA)	45.8	34.6	93.0	136		94.0	141		63-159	1		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	375	32.9	426	155		471	296	Q	49-187	10		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	32.9	41.8	127		42.1	130		61-179	1		30
Perfluorononanoic Acid (PFNA)	18.2	34.6	63.2	130		65.3	138		68-171	3		30
Perfluorooctanesulfonic Acid (PFOS)	4.19	32	42.7	120		42.5	121		52-151	0		30
Perfluorodecanoic Acid (PFDA)	20.2	34.6	66.5	134		71.0	149		63-171	7		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	134	33.2	181	141		248	348	Q	56-173	31	Q	30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	34.6	47.9	138		47.5	139		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	0.536J	34.6	47.0	136		47.4	139		60-153	1		30
Perfluorodecanesulfonic Acid (PFDS)	ND	33.4	40.2	120		37.4	113		38-156	7		30
Perfluorooctanesulfonamide (FOSA)	ND	34.6	41.5	120		42.7	125		46-170	3		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	34.6	47.6	138		50.4	148		45-170	6		30
Perfluorododecanoic Acid (PFDoA)	ND	34.6	48.1	139		47.5	139		67-153	1		30
Perfluorotridecanoic Acid (PFTrDA)	ND	34.6	50.5	146		51.8	152		48-158	3		30
Perfluorotetradecanoic Acid (PFTA)	ND	34.6	48.0	139		49.8	146		59-182	4		30

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1360499-6 WG1360499-7 QC Sample: L2015307-01 Client ID: MWN-32A												

Surrogate (Extracted Internal Standard)	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	201	Q	207	Q	7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	312	Q	326	Q	1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	89		90		23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82		81		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	85		81		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	82		81		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	64		65		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	74		75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		85		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	74		72		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	69		67		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	87		87		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	79		78		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	29		41		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		90		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		90		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89		92		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	83		80		31-159

Matrix Spike Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2015307

Report Date: 04/30/20

<i>Parameter</i>	<i>Native Sample</i>	<i>MS Added</i>	<i>MS Found</i>	<i>MS %Recovery</i>	<i>Qual</i>	<i>MSD Found</i>	<i>MSD %Recovery</i>	<i>Qual</i>	<i>Recovery Limits</i>	<i>RPD</i>	<i>Qual</i>	<i>RPD Limits</i>
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1361431-4 WG1361431-5 QC Sample: L2015307-01 Client ID: MWN-32A												
2,4,6-Trichlorophenol	ND	18.2	11	61		9.5	52		30-130	15		30
p-Chloro-m-cresol	ND	18.2	12	66		9.9	54		23-97	19		30
2-Chlorophenol	ND	18.2	11	61		9.7	53		27-123	13		30
2,4-Dichlorophenol	ND	18.2	12	66		9.8	54		30-130	20		30
2,4-Dimethylphenol	3.0J	18.2	12	66		11	61		30-130	9		30
2-Nitrophenol	ND	18.2	11	61		9.7J	53		30-130	13		30
4-Nitrophenol	ND	18.2	14	77		11	61		10-80	24		30
2,4-Dinitrophenol	ND	18.2	15.J	83		14.J	77		20-130	7		30
4,6-Dinitro-o-cresol	ND	18.2	14	77		12	66		20-164	15		30
Pentachlorophenol	ND	18.2	12	66		9.0J	50		9-103	29		30
Phenol	84	18.2	76	0	Q	71	0	Q	12-110	7		30
2-Methylphenol	4.5J	18.2	15	83		18	99		30-130	18		30
3-Methylphenol/4-Methylphenol	7.6	18.2	17	52		14	35		30-130	19		30
2,4,5-Trichlorophenol	ND	18.2	11	61		8.7	48		30-130	23		30
Benzoic Acid	12.J	18.2	20.J	110		18.J	99		10-164	11		30
Benzyl Alcohol	ND	18.2	12	66		10	55		26-116	18		30

<i>Surrogate</i>	<i>MS % Recovery</i>	<i>Qualifier</i>	<i>MSD % Recovery</i>	<i>Qualifier</i>	<i>Acceptance Criteria</i>
2,4,6-Tribromophenol	60		48		10-120
2-Fluorobiphenyl	58		47		15-120
2-Fluorophenol	54		47		21-120
4-Terphenyl-d14	59		44		41-149

Matrix Spike Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Lab Number: L2015307

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,04-05 QC Batch ID: WG1361431-4 WG1361431-5 QC Sample: L2015307-01
Client ID: MWN-32A

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
Nitrobenzene-d5	64		55		23-120
Phenol-d6	47		42		10-120

Project Name: OU-4 SYSTEM**Lab Number:** L2015307**Project Number:** T0071-019-910**Report Date:** 04/30/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent
F	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015307-01A	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01A1	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01A2	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01B	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01B1	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01B2	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01C	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01C1	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01C2	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-01D	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01D1	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01D2	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01E	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01E1	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01E2	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-01F	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01F1	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01F2	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01G	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01G1	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01G2	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-01H	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No: 04302014:51
Lab Number: L2015307
Report Date: 04/30/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015307-01H1	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-01H2	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-01I	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-01I1	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-01I2	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-02A	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-02B	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-02C	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-02D	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-03A	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-03B	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-03C	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-03D	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-04A	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-04B	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-04C	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-04D	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-04E	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-04F	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-04G	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-04H	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-04I	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-05A	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-05B	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-05C	Vial HCl preserved	F	NA		4.4	Y	Absent		NYTCL-8260-R2(14)
L2015307-05D	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-05E	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015307-05F	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04302014:51
Lab Number: L2015307
Report Date: 04/30/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015307-05G	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		NYTCL-8270-LVI(7)
L2015307-05H	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-05I	Amber 250ml unpreserved	F	7	7	4.4	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015307-06A	Plastic 250ml unpreserved	A	NA		4.8	Y	Absent		A2-NY-537-ISOTOPE(14)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04302014:51
Lab Number: L2015307
Report Date: 04/30/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2015307
Report Date: 04/30/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

Page 1 of 1

Certification Information**The following analytes are not included in our Primary NELAP Scope of Accreditation:****Westborough Facility****EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**EPA TO-12** Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B**The following analytes are included in our Massachusetts DEP Scope of Accreditation****Westborough Facility:****Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg. **EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 4/10/20		ALPHA Job # 2015307			
		Project Information Project Name: <u>OU-4 System</u> Project Location: <u>Buffalo, NY</u> Project # <u>T0071-019-910</u> (Use Project name as Project #) ☐		Deliverables ☐ ASP-A ☐ ASP-B ☐ EQulS (1 File) ☐ EQulS (4 File) ☐ Other		Billing Information ☐ Same as Client Info PO #					
Client Information Client: <u>Benchmarc Environmental</u> Address: <u>2558 Hamburg Turnpike</u> <u>Buffalo, NY 14218</u> Phone: Fax: Email: <u>ben@benmarc.com</u>		Regulatory Requirement ☐ NY TOGS ☐ NY Part 375 ☐ AWQ Standards ☐ NY CP-51 ☐ NY Restricted Use ☐ Other ☐ NY Unrestricted Use ☐ NYC Sewer Discharge		Disposal Site Information Please identify below location of applicable disposal facilities. Disposal Facility: ☐ NJ ☐ NY ☐ Other:							
These samples have been previously analyzed by Alpha ☐ Other project specific requirements/comments:		ANALYSIS NY TEL-8260 NY TEL-8270 Phendol 1,4 Dioxane PFAS		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)							
Please specify Metals or TAL.		Sample Specific Comments		Total Bottles							
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials						
		Date	Time								
15307-01	MWN-32A	4-9-20	1130	Water	CEH	X	X	X	X		
-01	MWN-32A MS		1130			X	X	X	X		
-01	MWN-32A MSD		1130			X	X	X	X		
-02	MWN-51 AR		1330					X	X		
-03	MWN-66 AR		1450					X	X		
-04	OU4PZ-9		1350			X	X	X	X		
-05	Equipment blank		1000			X	X	X	X		
-06	Field blank	4-9-20	0945								
Preservative Code:		Container Code		Westboro: Certification No: MA935		Container Type					
A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Mansfield: Certification No: MA015		V A A P B A A A					
Relinquished By: <u>[Signature]</u> Date/Time: <u>4-9-20 1618</u> <u>4/9/20 1700</u>		Received By: <u>[Signature]</u> Date/Time: <u>4/9/20 1600</u> <u>4/10/20 0020</u>		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)							



ANALYTICAL REPORT

Lab Number:	L2015433
Client:	Turnkey Environmental Restoration, LLC 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 GW SAMPLING
Project Number:	T0071-019-910
Report Date:	04/30/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2015433-01	MWN-19A	WATER	BUFFALO, NY	04/10/20 14:00	04/10/20
L2015433-02	MWN-34A	WATER	BUFFALO, NY	04/10/20 10:35	04/10/20
L2015433-03	OU4PZ-6	WATER	BUFFALO, NY	04/10/20 13:00	04/10/20
L2015433-04	OU4PZ-11	WATER	BUFFALO, NY	04/10/20 12:05	04/10/20

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Case Narrative (continued)

Report Revision

April 30, 2020: The Volatile Organics compound list has been amended to include naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2015433-03: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Semivolatile Organics

The WG1361488-3 LCSD recovery, associated with L2015433-01 through -04, is below the acceptance criteria for benzoic acid (0%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported.

Perfluorinated Alkyl Acids by Isotope Dilution

L2015433-01, -02, and -04: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1360631-3 LCSD recovery, associated with L2015433-01 through -04, is above the acceptance criteria for perfluorodecanesulfonic acid (pfd)s (170%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 04/30/20

ORGANICS

VOLATILES

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-01
 Client ID: MWN-19A
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 14:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/15/20 15:41
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.77		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS****Lab ID:** L2015433-01**Date Collected:** 04/10/20 14:00**Client ID:** MWN-19A**Date Received:** 04/10/20**Sample Location:** BUFFALO, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	17		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	13		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-02
 Client ID: MWN-34A
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 10:35
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/15/20 16:04
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	2.1		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS****Lab ID:** L2015433-02**Date Collected:** 04/10/20 10:35**Client ID:** MWN-34A**Date Received:** 04/10/20**Sample Location:** BUFFALO, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	2.0	J	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-03 D

Date Collected: 04/10/20 13:00

Client ID: OU4PZ-6

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/15/20 15:18

Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	690		ug/l	10	2.8	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	105		70-130

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-03 D

Date Collected: 04/10/20 13:00

Client ID: OU4PZ-6

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/17/20 00:42

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	5.0	1.4	2
1,1-Dichloroethane	ND		ug/l	5.0	1.4	2
Chloroform	ND		ug/l	5.0	1.4	2
Carbon tetrachloride	ND		ug/l	1.0	0.27	2
1,2-Dichloropropane	ND		ug/l	2.0	0.27	2
Dibromochloromethane	ND		ug/l	1.0	0.30	2
1,1,2-Trichloroethane	ND		ug/l	3.0	1.0	2
Tetrachloroethene	ND		ug/l	1.0	0.36	2
Chlorobenzene	ND		ug/l	5.0	1.4	2
Trichlorofluoromethane	ND		ug/l	5.0	1.4	2
1,2-Dichloroethane	ND		ug/l	1.0	0.26	2
1,1,1-Trichloroethane	ND		ug/l	5.0	1.4	2
Bromodichloromethane	ND		ug/l	1.0	0.38	2
trans-1,3-Dichloropropene	ND		ug/l	1.0	0.33	2
cis-1,3-Dichloropropene	ND		ug/l	1.0	0.29	2
Bromoform	ND		ug/l	4.0	1.3	2
1,1,2,2-Tetrachloroethane	ND		ug/l	1.0	0.33	2
Benzene	54		ug/l	1.0	0.32	2
Toluene	13		ug/l	5.0	1.4	2
Ethylbenzene	ND		ug/l	5.0	1.4	2
Chloromethane	ND		ug/l	5.0	1.4	2
Bromomethane	1.4	J	ug/l	5.0	1.4	2
Vinyl chloride	ND		ug/l	2.0	0.14	2
Chloroethane	ND		ug/l	5.0	1.4	2
1,1-Dichloroethene	ND		ug/l	1.0	0.34	2
trans-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
Trichloroethene	ND		ug/l	1.0	0.35	2
1,2-Dichlorobenzene	ND		ug/l	5.0	1.4	2

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-03 D

Date Collected: 04/10/20 13:00

Client ID: OU4PZ-6

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	5.0	1.4	2
1,4-Dichlorobenzene	ND		ug/l	5.0	1.4	2
Methyl tert butyl ether	ND		ug/l	5.0	1.4	2
p/m-Xylene	6.7		ug/l	5.0	1.4	2
o-Xylene	3.0	J	ug/l	5.0	1.4	2
cis-1,2-Dichloroethene	ND		ug/l	5.0	1.4	2
Styrene	ND		ug/l	5.0	1.4	2
Dichlorodifluoromethane	ND		ug/l	10	2.0	2
Acetone	28		ug/l	10	2.9	2
Carbon disulfide	ND		ug/l	10	2.0	2
2-Butanone	4.2	J	ug/l	10	3.9	2
4-Methyl-2-pentanone	ND		ug/l	10	2.0	2
2-Hexanone	ND		ug/l	10	2.0	2
Bromochloromethane	ND		ug/l	5.0	1.4	2
1,2-Dibromoethane	ND		ug/l	4.0	1.3	2
1,2-Dibromo-3-chloropropane	ND		ug/l	5.0	1.4	2
Isopropylbenzene	ND		ug/l	5.0	1.4	2
Naphthalene	680	E	ug/l	5.0	1.4	2
1,2,3-Trichlorobenzene	ND		ug/l	5.0	1.4	2
1,2,4-Trichlorobenzene	ND		ug/l	5.0	1.4	2
Methyl Acetate	ND		ug/l	4.0	0.47	2
Cyclohexane	ND		ug/l	20	0.54	2
1,4-Dioxane	ND		ug/l	500	120	2
Freon-113	ND		ug/l	5.0	1.4	2
Methyl cyclohexane	ND		ug/l	20	0.79	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-04
 Client ID: OU4PZ-11
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 12:05
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/15/20 16:28
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.71		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS****Lab ID:** L2015433-04**Date Collected:** 04/10/20 12:05**Client ID:** OU4PZ-11**Date Received:** 04/10/20**Sample Location:** BUFFALO, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	0.74	J	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/15/20 09:01
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1361477-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/15/20 09:01
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1361477-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/15/20 09:01
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1361477-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	104		70-130

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 17:03
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1362045-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	0.71	J	ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 17:03
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1362045-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 17:03
 Analyst: AD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1362045-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1361477-3 WG1361477-4								
Methylene chloride	100		100		70-130	0		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	100		100		63-132	0		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	94		98		63-130	4		20
1,1,2-Trichloroethane	110		120		70-130	9		20
Tetrachloroethene	100		100		70-130	0		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	120		120		62-150	0		20
1,2-Dichloroethane	120		120		70-130	0		20
1,1,1-Trichloroethane	110		110		67-130	0		20
Bromodichloromethane	100		100		67-130	0		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	96		97		70-130	1		20
Bromoform	96		98		54-136	2		20
1,1,2,2-Tetrachloroethane	110		110		67-130	0		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	100		100		64-130	0		20
Bromomethane	75		68		39-139	10		20
Vinyl chloride	100		110		55-140	10		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1361477-3 WG1361477-4								
Chloroethane	100		110		55-138	10		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		99		70-130	1		20
Trichloroethene	100		100		70-130	0		20
1,2-Dichlorobenzene	100		99		70-130	1		20
1,3-Dichlorobenzene	100		97		70-130	3		20
1,4-Dichlorobenzene	100		99		70-130	1		20
Methyl tert butyl ether	98		100		63-130	2		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		95		70-130	5		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Styrene	105		105		70-130	0		20
Dichlorodifluoromethane	110		100		36-147	10		20
Acetone	110		130		58-148	17		20
Carbon disulfide	94		91		51-130	3		20
2-Butanone	120		130		63-138	8		20
4-Methyl-2-pentanone	95		100		59-130	5		20
2-Hexanone	100		110		57-130	10		20
Bromochloromethane	110		100		70-130	10		20
1,2-Dibromoethane	110		110		70-130	0		20
1,2-Dibromo-3-chloropropane	95		94		41-144	1		20
Isopropylbenzene	100		96		70-130	4		20
Naphthalene	120		100		70-130	18		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1361477-3 WG1361477-4								
1,2,3-Trichlorobenzene	120		100		70-130	18		20
1,2,4-Trichlorobenzene	110		95		70-130	15		20
Methyl Acetate	110		120		70-130	9		20
Cyclohexane	110		110		70-130	0		20
1,4-Dioxane	98		126		56-162	25	Q	20
Freon-113	120		120		70-130	0		20
Methyl cyclohexane	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	124		127		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	98		97		70-130
Dibromofluoromethane	108		109		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1362045-3 WG1362045-4								
Methylene chloride	110		110		70-130	0		20
1,1-Dichloroethane	100		110		70-130	10		20
Chloroform	100		100		70-130	0		20
Carbon tetrachloride	100		110		63-132	10		20
1,2-Dichloropropane	110		110		70-130	0		20
Dibromochloromethane	100		100		63-130	0		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	99		100		70-130	1		20
Chlorobenzene	100		100		75-130	0		20
Trichlorofluoromethane	96		100		62-150	4		20
1,2-Dichloroethane	100		110		70-130	10		20
1,1,1-Trichloroethane	100		100		67-130	0		20
Bromodichloromethane	110		110		67-130	0		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	110		110		70-130	0		20
Bromoform	100		100		54-136	0		20
1,1,2,2-Tetrachloroethane	100		100		67-130	0		20
Benzene	110		110		70-130	0		20
Toluene	99		99		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Chloromethane	150	Q	150	Q	64-130	0		20
Bromomethane	98		110		39-139	12		20
Vinyl chloride	110		110		55-140	0		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1362045-3 WG1362045-4								
Chloroethane	110		100		55-138	10		20
1,1-Dichloroethene	100		100		61-145	0		20
trans-1,2-Dichloroethene	100		110		70-130	10		20
Trichloroethene	110		110		70-130	0		20
1,2-Dichlorobenzene	99		100		70-130	1		20
1,3-Dichlorobenzene	100		100		70-130	0		20
1,4-Dichlorobenzene	99		99		70-130	0		20
Methyl tert butyl ether	110		120		63-130	9		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	105		105		70-130	0		20
cis-1,2-Dichloroethene	110		110		70-130	0		20
Styrene	100		105		70-130	5		20
Dichlorodifluoromethane	100		110		36-147	10		20
Acetone	100		110		58-148	10		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	96		110		63-138	14		20
4-Methyl-2-pentanone	100		100		59-130	0		20
2-Hexanone	100		110		57-130	10		20
Bromochloromethane	110		110		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
1,2-Dibromo-3-chloropropane	100		98		41-144	2		20
Isopropylbenzene	100		100		70-130	0		20
Naphthalene	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1362045-3 WG1362045-4								
1,2,3-Trichlorobenzene	100		110		70-130	10		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
Methyl Acetate	110		110		70-130	0		20
Cyclohexane	98		97		70-130	1		20
1,4-Dioxane	100		120		56-162	18		20
Freon-113	95		97		70-130	2		20
Methyl cyclohexane	96		98		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	102		101		70-130
Dibromofluoromethane	101		104		70-130

SEMIVOLATILES

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-01
 Client ID: MWN-19A
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 14:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/16/20 12:30
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 04/15/20 18:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	54		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	49		15-120
2,4,6-Tribromophenol	66		10-120
4-Terphenyl-d14	54		41-149

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-01
Client ID: MWN-19A
Sample Location: BUFFALO, NY

Date Collected: 04/10/20 14:00
Date Received: 04/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 00:20
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/13/20 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	47			15-110		

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-01
 Client ID: MWN-19A
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 14:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 16:21
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	20.2		ng/l	1.77	0.362	1
Perfluoropentanoic Acid (PFPeA)	25.8		ng/l	1.77	0.351	1
Perfluorobutanesulfonic Acid (PFBS)	22.1		ng/l	1.77	0.211	1
Perfluorohexanoic Acid (PFHxA)	12.1		ng/l	1.77	0.291	1
Perfluoroheptanoic Acid (PFHpA)	7.13		ng/l	1.77	0.200	1
Perfluorohexanesulfonic Acid (PFHxS)	2.56		ng/l	1.77	0.333	1
Perfluorooctanoic Acid (PFOA)	10.4		ng/l	1.77	0.209	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	5.96		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.610	1
Perfluorononanoic Acid (PFNA)	1.78		ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	4.21		ng/l	1.77	0.447	1
Perfluorodecanoic Acid (PFDA)	0.890	J	ng/l	1.77	0.270	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	3.96		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.574	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.869	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.514	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.713	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.330	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.290	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.220	1
PFOA/PFOS, Total	14.6		ng/l	1.77	0.209	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-01

Date Collected: 04/10/20 14:00

Client ID: MWN-19A

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	95		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	57		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	53		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	121		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	95		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	354	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	174	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	85		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	33		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	90		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		33-143

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-02
Client ID: MWN-34A
Sample Location: BUFFALO, NY

Date Collected: 04/10/20 10:35
Date Received: 04/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/16/20 12:57
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 18:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		21-120
Phenol-d6	43		10-120
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	47		15-120
2,4,6-Tribromophenol	53		10-120
4-Terphenyl-d14	53		41-149

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-02
Client ID: MWN-34A
Sample Location: BUFFALO, NY

Date Collected: 04/10/20 10:35
Date Received: 04/10/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 00:40
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/13/20 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	52			15-110		

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-02
 Client ID: MWN-34A
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 10:35
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 16:38
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	3.67		ng/l	1.79	0.366	1
Perfluoropentanoic Acid (PFPeA)	1.86		ng/l	1.79	0.355	1
Perfluorobutanesulfonic Acid (PFBS)	0.921	J	ng/l	1.79	0.213	1
Perfluorohexanoic Acid (PFHxA)	1.30	J	ng/l	1.79	0.294	1
Perfluoroheptanoic Acid (PFHpA)	1.44	J	ng/l	1.79	0.202	1
Perfluorohexanesulfonic Acid (PFHxS)	0.509	J	ng/l	1.79	0.337	1
Perfluorooctanoic Acid (PFOA)	5.40		ng/l	1.79	0.211	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.79	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.79	0.616	1
Perfluorononanoic Acid (PFNA)	0.925	J	ng/l	1.79	0.280	1
Perfluorooctanesulfonic Acid (PFOS)	5.22		ng/l	1.79	0.452	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.79	0.272	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.79	1.09	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.79	0.581	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.233	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.79	0.878	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.79	0.520	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.79	0.720	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.333	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.293	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.222	1
PFOA/PFOS, Total	10.6		ng/l	1.79	0.211	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-02

Date Collected: 04/10/20 10:35

Client ID: MWN-34A

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	100		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	75		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	67		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	256	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	204	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	95		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	92		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	111		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		33-143

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-03
 Client ID: OU4PZ-6
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 13:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/16/20 13:23
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 04/15/20 18:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	27.		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	170		ug/l	5.0	0.57	1
2-Methylphenol	60.		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	160		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	21.	J	ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	55		21-120
Phenol-d6	47		10-120
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	45		15-120
2,4,6-Tribromophenol	71		10-120
4-Terphenyl-d14	53		41-149

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-03
 Client ID: OU4PZ-6
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 13:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 04/17/20 01:00
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 04/13/20 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-03
 Client ID: OU4PZ-6
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 13:00
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 19:23
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	11.8		ng/l	1.77	0.362	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.77	0.351	1
Perfluorobutanesulfonic Acid (PFBS)	0.652	J	ng/l	1.77	0.211	1
Perfluorohexanoic Acid (PFHxA)	2.19		ng/l	1.77	0.291	1
Perfluoroheptanoic Acid (PFHpA)	1.26	J	ng/l	1.77	0.200	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.77	0.333	1
Perfluorooctanoic Acid (PFOA)	2.66		ng/l	1.77	0.209	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.610	1
Perfluorononanoic Acid (PFNA)	0.805	J	ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	5.23		ng/l	1.77	0.447	1
Perfluorodecanoic Acid (PFDA)	0.415	J	ng/l	1.77	0.270	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.585	J	ng/l	1.77	0.574	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.869	1
Perfluorooctanesulfonamide (FOSA)	0.702	J	ng/l	1.77	0.514	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.27	J	ng/l	1.77	0.713	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.330	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.290	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.220	1
PFOA/PFOS, Total	7.89		ng/l	1.77	0.209	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS****Lab ID:** L2015433-03**Date Collected:** 04/10/20 13:00**Client ID:** OU4PZ-6**Date Received:** 04/10/20**Sample Location:** BUFFALO, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	89		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	105		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	77		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	93		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	125		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	103		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	221		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	103		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	114		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	167		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	100		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	85		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	64		33-143

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-04
 Client ID: OU4PZ-11
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 12:05
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/16/20 13:50
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 04/15/20 18:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		21-120
Phenol-d6	47		10-120
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	49		15-120
2,4,6-Tribromophenol	72		10-120
4-Terphenyl-d14	50		41-149

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

SAMPLE RESULTS

Lab ID: L2015433-04
Client ID: OU4PZ-11
Sample Location: BUFFALO, NY

Date Collected: 04/10/20 12:05
Date Received: 04/10/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 09:48
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/13/20 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-04
 Client ID: OU4PZ-11
 Sample Location: BUFFALO, NY

Date Collected: 04/10/20 12:05
 Date Received: 04/10/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/14/20 19:40
 Analyst: JW

Extraction Method: ALPHA 23528
 Extraction Date: 04/13/20 08:06

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	60.1		ng/l	1.92	0.391	1
Perfluoropentanoic Acid (PFPeA)	230		ng/l	1.92	0.379	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.92	0.228	1
Perfluorohexanoic Acid (PFHxA)	136		ng/l	1.92	0.314	1
Perfluoroheptanoic Acid (PFHpA)	65.0		ng/l	1.92	0.216	1
Perfluorohexanesulfonic Acid (PFHxS)	5.33		ng/l	1.92	0.360	1
Perfluorooctanoic Acid (PFOA)	32.2		ng/l	1.92	0.226	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	192		ng/l	1.92	1.28	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.92	0.659	1
Perfluorononanoic Acid (PFNA)	5.92		ng/l	1.92	0.299	1
Perfluorooctanesulfonic Acid (PFOS)	7.53		ng/l	1.92	0.483	1
Perfluorodecanoic Acid (PFDA)	0.567	J	ng/l	1.92	0.291	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.17		ng/l	1.92	1.16	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.92	0.621	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.92	0.249	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.92	0.939	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.92	0.556	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.92	0.770	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.92	0.356	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.92	0.313	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.92	0.238	1
PFOA/PFOS, Total	39.7		ng/l	1.92	0.226	1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**SAMPLE RESULTS**

Lab ID: L2015433-04

Date Collected: 04/10/20 12:05

Client ID: OU4PZ-11

Date Received: 04/10/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate (Extracted Internal Standard)	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	93				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	72				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	83				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	57				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	76				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	296			Q	1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	93				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	164				7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	87				1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	29				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80				23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	65				33-143	

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/14/20 13:52
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04 Batch: WG1360631-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.384	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/14/20 13:52
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 04/13/20 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-04 Batch: WG1360631-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	76		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	78		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	76		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	82		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	78		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	67		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	76		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	76		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	64		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	67		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	76		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	64		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	58		33-143

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/16/20 22:36
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/13/20 09:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-04 Batch: WG1360634-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	51		15-110

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 04/16/20 08:00
Analyst: JG

Extraction Method: EPA 3510C
Extraction Date: 04/15/20 18:48

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1361488-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	49		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	48		23-120
2-Fluorobiphenyl	52		15-120
2,4,6-Tribromophenol	28		10-120
4-Terphenyl-d14	51		41-149

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015433

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 Batch: WG1360631-2 WG1360631-3								
Perfluorobutanoic Acid (PFBA)	127		139		67-148	9		30
Perfluoropentanoic Acid (PFPeA)	138		149		63-161	8		30
Perfluorobutanesulfonic Acid (PFBS)	113		123		65-157	8		30
Perfluorohexanoic Acid (PFHxA)	127		139		69-168	9		30
Perfluoroheptanoic Acid (PFHpA)	130		140		58-159	7		30
Perfluorohexanesulfonic Acid (PFHxS)	120		134		69-177	11		30
Perfluorooctanoic Acid (PFOA)	134		145		63-159	8		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	142		171		49-187	19		30
Perfluoroheptanesulfonic Acid (PFHpS)	144		157		61-179	9		30
Perfluorononanoic Acid (PFNA)	130		141		68-171	8		30
Perfluorooctanesulfonic Acid (PFOS)	125		145		52-151	15		30
Perfluorodecanoic Acid (PFDA)	125		144		63-171	14		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	152		159		56-173	5		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	152		150		60-166	1		30
Perfluoroundecanoic Acid (PFUnA)	132		134		60-153	2		30
Perfluorodecanesulfonic Acid (PFDS)	134		170	Q	38-156	24		30
Perfluorooctanesulfonamide (FOSA)	132		134		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	137		150		45-170	9		30
Perfluorododecanoic Acid (PFDoA)	137		147		67-153	7		30
Perfluorotridecanoic Acid (PFTrDA)	122		136		48-158	11		30
Perfluorotetradecanoic Acid (PFTA)	140		150		59-182	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-04 Batch: WG1360631-2 WG1360631-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	73		72		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	72		71		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		77		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	70		69		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	76		75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	83		85		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	74		73		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	63		62		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	72		72		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	78		75		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	74		70		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	62		65		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	54		56		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		79		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		45		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		84		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		75		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	59		57		33-143

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-04 Batch: WG1360634-2 WG1360634-3								
1,4-Dioxane	104		101		40-140	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	54		54		15-110

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1361488-2 WG1361488-3								
2,4,6-Trichlorophenol	57		68		30-130	18		30
p-Chloro-m-cresol	59		64		23-97	8		30
2-Chlorophenol	58		64		27-123	10		30
2,4-Dichlorophenol	62		69		30-130	11		30
2,4-Dimethylphenol	41		51		30-130	22		30
2-Nitrophenol	55		63		30-130	14		30
4-Nitrophenol	53		55		10-80	4		30
2,4-Dinitrophenol	51		49		20-130	4		30
4,6-Dinitro-o-cresol	64		68		20-164	6		30
Pentachlorophenol	58		58		9-103	0		30
Phenol	44		51		12-110	15		30
2-Methylphenol	57		64		30-130	12		30
3-Methylphenol/4-Methylphenol	57		65		30-130	13		30
2,4,5-Trichlorophenol	58		66		30-130	13		30
Benzoic Acid	42		0	Q	10-164	NC		30
Benzyl Alcohol	50		58		26-116	15		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 GW SAMPLING

Lab Number: L2015433

Project Number: T0071-019-910

Report Date: 04/30/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1361488-2 WG1361488-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	48		55		21-120
Phenol-d6	43		49		10-120
Nitrobenzene-d5	40		46		23-120
2-Fluorobiphenyl	42		47		15-120
2,4,6-Tribromophenol	59		60		10-120
4-Terphenyl-d14	50		52		41-149

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Serial_No:04302017:34
Lab Number: L2015433
Report Date: 04/30/20

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
E	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015433-01A	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-01B	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-01C	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-01D	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-01E	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-01F	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-01G	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-01H	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-01I	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-02A	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-02B	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-02C	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-02D	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-02E	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-02F	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-02G	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-02H	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-02I	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-03A	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-03B	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-03C	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-03D	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-03E	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Serial_No:04302017:34
Lab Number: L2015433
Report Date: 04/30/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015433-03F	Amber 250ml unpreserved	E	12	12	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-03G	Amber 250ml unpreserved	E	12	12	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-03H	Amber 250ml unpreserved	E	12	12	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-03I	Amber 250ml unpreserved	E	12	12	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-04A	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-04B	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-04C	Vial HCl preserved	E	NA		3.7	Y	Absent		NYTCL-8260-R2(14)
L2015433-04D	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-04E	Plastic 250ml unpreserved	E	NA		3.7	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015433-04F	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-04G	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015433-04H	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)
L2015433-04I	Amber 250ml unpreserved	E	7	7	3.7	Y	Absent		NYTCL-8270-LVI(7)

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Serial_No:04302017:34
Lab Number: L2015433
Report Date: 04/30/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 GW SAMPLING**Lab Number:** L2015433**Project Number:** T0071-019-910**Report Date:** 04/30/20**Data Qualifiers**

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015433
Report Date: 04/30/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L2015548
Client:	Turnkey Environmental Restoration, LLC 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU4 GW SAMPLING
Project Number:	T0071-019-910
Report Date:	05/01/20

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2015548-01	MWN-09	WATER	T0071-019-910	04/13/20 14:30	04/13/20
L2015548-02	MWN-30A	WATER	T0071-019-910	04/13/20 11:05	04/13/20
L2015548-03	MWN-49A	WATER	T0071-019-910	04/13/20 13:00	04/13/20
L2015548-04	OU4 PZ-7	WATER	T0071-019-910	04/13/20 15:15	04/13/20
L2015548-05	OU4 BD-1	WATER	T0071-019-910	04/13/20 08:00	04/13/20

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Case Narrative (continued)

Report Revision

May 01, 2020: At the client's request, the Volatile Organics analyte list has been amended to include Naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2015548-02, -03, and -05 were analyzed with the method required holding time exceeded.

Semivolatile Organics

The WG1361740-3 LCS/LCSD recoveries, associated with L2015548-02, -03, and -05, are below the acceptance criteria for benzoic acid (0%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported.

Perfluorinated Alkyl Acids by Isotope Dilution

L2015548-01, -02, -03, -04, -05, WG1360982-4 and WG1360982-5: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1360982-2/-3 LCS/LCSD recoveries, associated with L2015548-01 through -05, are above the acceptance criteria for n-methyl perfluorooctanesulfonamidoacetic acid (nmefosaa) (LCS 172%), perfluorodecanesulfonic acid (pfd) (LCSD 159%) and perfluorotridecanoic acid (pftdda) (169%/162%); however, the associated samples are non-detect to the RL for these target analytes. The results of the original analysis are reported.

The WG1360982-3 LCSD recovery, associated with L2015548-01 through -05, was above the acceptance criteria for 1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2fts) (178%); however, re-extraction could not be

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Case Narrative (continued)

performed due to lack of additional sample. The results of the original analysis are reported.

The WG1360982-4 MS recoveries, performed on L2015548-01, are outside the acceptance criteria for perfluorobutanoic acid (pfba) (151%), perfluorobutanesulfonic acid (pfbs) (159%), perfluoroheptanesulfonic acid (pfhps) (191%), perfluorooctanesulfonic acid (pfos) (161%), 1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2fts) (174%), n-methyl perfluorooctanesulfonamidoacetic acid (nmefosaa) (196%), perfluoroundecanoic acid (pfuna) (160%), perfluorodecanesulfonic acid (pfds) (180%) and perfluorododecanoic acid (pfdoa) (159%).

The WG1360982-5 Laboratory Duplicate RPD for perfluorobutanesulfonic acid (pfbs) (38%) performed on L2015548-02, is outside the acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: *Tiffani Morrissey* - Tiffani Morrissey

Title: Technical Director/Representative

Date: 05/01/20

ORGANICS

VOLATILES

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02 D2

Date Collected: 04/13/20 11:05

Client ID: MWN-30A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/29/20 22:24

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	750		ug/l	25	7.0	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02 D

Date Collected: 04/13/20 11:05

Client ID: MWN-30A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/16/20 10:51

Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethane	ND		ug/l	6.2	1.8	2.5
Chloroform	ND		ug/l	6.2	1.8	2.5
Carbon tetrachloride	ND		ug/l	1.2	0.34	2.5
1,2-Dichloropropane	ND		ug/l	2.5	0.34	2.5
Dibromochloromethane	ND		ug/l	1.2	0.37	2.5
1,1,2-Trichloroethane	ND		ug/l	3.8	1.2	2.5
Tetrachloroethene	ND		ug/l	1.2	0.45	2.5
Chlorobenzene	ND		ug/l	6.2	1.8	2.5
Trichlorofluoromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
1,1,1-Trichloroethane	ND		ug/l	6.2	1.8	2.5
Bromodichloromethane	ND		ug/l	1.2	0.48	2.5
trans-1,3-Dichloropropene	ND		ug/l	1.2	0.41	2.5
cis-1,3-Dichloropropene	ND		ug/l	1.2	0.36	2.5
Bromoform	ND		ug/l	5.0	1.6	2.5
1,1,2,2-Tetrachloroethane	ND		ug/l	1.2	0.42	2.5
Benzene	410		ug/l	1.2	0.40	2.5
Toluene	16		ug/l	6.2	1.8	2.5
Ethylbenzene	46		ug/l	6.2	1.8	2.5
Chloromethane	ND		ug/l	6.2	1.8	2.5
Bromomethane	ND		ug/l	6.2	1.8	2.5
Vinyl chloride	ND		ug/l	2.5	0.18	2.5
Chloroethane	ND		ug/l	6.2	1.8	2.5
1,1-Dichloroethene	ND		ug/l	1.2	0.42	2.5
trans-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
Trichloroethene	ND		ug/l	1.2	0.44	2.5
1,2-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02 D

Date Collected: 04/13/20 11:05

Client ID: MWN-30A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,4-Dichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl tert butyl ether	ND		ug/l	6.2	1.8	2.5
p/m-Xylene	35		ug/l	6.2	1.8	2.5
o-Xylene	72		ug/l	6.2	1.8	2.5
cis-1,2-Dichloroethene	ND		ug/l	6.2	1.8	2.5
Styrene	ND		ug/l	6.2	1.8	2.5
Dichlorodifluoromethane	ND		ug/l	12	2.5	2.5
Acetone	ND		ug/l	12	3.6	2.5
Carbon disulfide	ND		ug/l	12	2.5	2.5
2-Butanone	ND		ug/l	12	4.8	2.5
4-Methyl-2-pentanone	ND		ug/l	12	2.5	2.5
2-Hexanone	ND		ug/l	12	2.5	2.5
Bromochloromethane	ND		ug/l	6.2	1.8	2.5
1,2-Dibromoethane	ND		ug/l	5.0	1.6	2.5
1,2-Dibromo-3-chloropropane	ND		ug/l	6.2	1.8	2.5
Isopropylbenzene	5.5	J	ug/l	6.2	1.8	2.5
Naphthalene	710	E	ug/l	6.2	1.8	2.5
1,2,3-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
1,2,4-Trichlorobenzene	ND		ug/l	6.2	1.8	2.5
Methyl Acetate	ND		ug/l	5.0	0.58	2.5
Cyclohexane	1.5	J	ug/l	25	0.68	2.5
1,4-Dioxane	ND		ug/l	620	150	2.5
Freon-113	ND		ug/l	6.2	1.8	2.5
Methyl cyclohexane	2.6	J	ug/l	25	0.99	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	96		70-130

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-03
 Client ID: MWN-49A
 Sample Location: T0071-019-910

Date Collected: 04/13/20 13:00
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/16/20 11:13
 Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.80		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-03

Date Collected: 04/13/20 13:00

Client ID: MWN-49A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	2.4	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-03 R

Date Collected: 04/13/20 13:00

Client ID: MWN-49A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/29/20 21:41

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	1.6	J	ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-05
 Client ID: OU4 BD-1
 Sample Location: T0071-019-910

Date Collected: 04/13/20 08:00
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/16/20 11:35
 Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	0.75		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-05

Date Collected: 04/13/20 08:00

Client ID: OU4 BD-1

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-05 R

Date Collected: 04/13/20 08:00

Client ID: OU4 BD-1

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/29/20 22:02

Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	1.7	J	ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 10:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1361736-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 10:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1361736-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/16/20 10:07
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1361736-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	95		70-130

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 04/29/20 18:48

Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1366014-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/29/20 18:48
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1366014-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8260C

Analytical Date: 04/29/20 18:48

Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1366014-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1361736-3 WG1361736-4								
Methylene chloride	95		97		70-130	2		20
1,1-Dichloroethane	110		110		70-130	0		20
Chloroform	98		100		70-130	2		20
Carbon tetrachloride	88		88		63-132	0		20
1,2-Dichloropropane	100		110		70-130	10		20
Dibromochloromethane	95		100		63-130	5		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	89		95		70-130	7		20
Chlorobenzene	96		100		75-130	4		20
Trichlorofluoromethane	100		100		62-150	0		20
1,2-Dichloroethane	99		100		70-130	1		20
1,1,1-Trichloroethane	89		91		67-130	2		20
Bromodichloromethane	95		98		67-130	3		20
trans-1,3-Dichloropropene	92		97		70-130	5		20
cis-1,3-Dichloropropene	90		94		70-130	4		20
Bromoform	90		97		54-136	7		20
1,1,2,2-Tetrachloroethane	95		110		67-130	15		20
Benzene	98		100		70-130	2		20
Toluene	96		100		70-130	4		20
Ethylbenzene	97		100		70-130	3		20
Chloromethane	110		110		64-130	0		20
Bromomethane	110		110		39-139	0		20
Vinyl chloride	100		110		55-140	10		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1361736-3 WG1361736-4								
Chloroethane	120		120		55-138	0		20
1,1-Dichloroethene	92		96		61-145	4		20
trans-1,2-Dichloroethene	93		97		70-130	4		20
Trichloroethene	93		97		70-130	4		20
1,2-Dichlorobenzene	95		100		70-130	5		20
1,3-Dichlorobenzene	96		100		70-130	4		20
1,4-Dichlorobenzene	95		100		70-130	5		20
Methyl tert butyl ether	86		92		63-130	7		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	100		100		70-130	0		20
cis-1,2-Dichloroethene	97		100		70-130	3		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	81		86		36-147	6		20
Acetone	110		120		58-148	9		20
Carbon disulfide	100		100		51-130	0		20
2-Butanone	100		98		63-138	2		20
4-Methyl-2-pentanone	91		100		59-130	9		20
2-Hexanone	91		110		57-130	19		20
Bromochloromethane	90		95		70-130	5		20
1,2-Dibromoethane	94		99		70-130	5		20
1,2-Dibromo-3-chloropropane	81		94		41-144	15		20
Isopropylbenzene	96		100		70-130	4		20
Naphthalene	78		87		70-130	11		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1361736-3 WG1361736-4								
1,2,3-Trichlorobenzene	82		89		70-130	8		20
1,2,4-Trichlorobenzene	82		90		70-130	9		20
Methyl Acetate	94		100		70-130	6		20
Cyclohexane	99		100		70-130	1		20
1,4-Dioxane	106		112		56-162	6		20
Freon-113	92		96		70-130	4		20
Methyl cyclohexane	92		93		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		102		70-130
Toluene-d8	101		106		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		94		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1366014-3 WG1366014-4								
Methylene chloride	90		98		70-130	9		20
1,1-Dichloroethane	92		100		70-130	8		20
Chloroform	85		92		70-130	8		20
Carbon tetrachloride	81		94		63-132	15		20
1,2-Dichloropropane	91		100		70-130	9		20
Dibromochloromethane	78		85		63-130	9		20
1,1,2-Trichloroethane	83		90		70-130	8		20
Tetrachloroethene	85		94		70-130	10		20
Chlorobenzene	92		96		75-130	4		20
Trichlorofluoromethane	88		100		62-150	13		20
1,2-Dichloroethane	89		96		70-130	8		20
1,1,1-Trichloroethane	82		92		67-130	11		20
Bromodichloromethane	81		91		67-130	12		20
trans-1,3-Dichloropropene	78		84		70-130	7		20
cis-1,3-Dichloropropene	85		90		70-130	6		20
Bromoform	75		85		54-136	13		20
1,1,2,2-Tetrachloroethane	84		89		67-130	6		20
Benzene	86		94		70-130	9		20
Toluene	90		94		70-130	4		20
Ethylbenzene	88		95		70-130	8		20
Chloromethane	97		100		64-130	3		20
Bromomethane	63		64		39-139	2		20
Vinyl chloride	93		100		55-140	7		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1366014-3 WG1366014-4								
Chloroethane	88		95		55-138	8		20
1,1-Dichloroethene	84		95		61-145	12		20
trans-1,2-Dichloroethene	88		97		70-130	10		20
Trichloroethene	86		91		70-130	6		20
1,2-Dichlorobenzene	91		93		70-130	2		20
1,3-Dichlorobenzene	90		95		70-130	5		20
1,4-Dichlorobenzene	89		95		70-130	7		20
Methyl tert butyl ether	84		93		63-130	10		20
p/m-Xylene	90		95		70-130	5		20
o-Xylene	85		95		70-130	11		20
cis-1,2-Dichloroethene	87		95		70-130	9		20
Styrene	90		95		70-130	5		20
Dichlorodifluoromethane	84		92		36-147	9		20
Acetone	86		100		58-148	15		20
Carbon disulfide	87		98		51-130	12		20
2-Butanone	88		98		63-138	11		20
4-Methyl-2-pentanone	84		90		59-130	7		20
2-Hexanone	85		93		57-130	9		20
Bromochloromethane	87		96		70-130	10		20
1,2-Dibromoethane	85		90		70-130	6		20
1,2-Dibromo-3-chloropropane	74		78		41-144	5		20
Isopropylbenzene	87		98		70-130	12		20
Naphthalene	81		90		70-130	11		20

Lab Control Sample Analysis Batch Quality Control

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1366014-3 WG1366014-4								
1,2,3-Trichlorobenzene	88		95		70-130	8		20
1,2,4-Trichlorobenzene	87		93		70-130	7		20
Methyl Acetate	90		100		70-130	11		20
Cyclohexane	91		100		70-130	9		20
1,4-Dioxane	92		98		56-162	6		20
Freon-113	89		100		70-130	12		20
Methyl cyclohexane	83		98		70-130	17		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		100		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		97		70-130

SEMIVOLATILES

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-01
 Client ID: MWN-09
 Sample Location: T0071-019-910

Date Collected: 04/13/20 14:30
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 04/17/20 07:24
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	43			15-110		

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-01
 Client ID: MWN-09
 Sample Location: T0071-019-910

Date Collected: 04/13/20 14:30
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/15/20 12:37
 Analyst: RS

Extraction Method: ALPHA 23528
 Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	67.9		ng/l	1.72	0.352	1
Perfluoropentanoic Acid (PFPeA)	249		ng/l	1.72	0.341	1
Perfluorobutanesulfonic Acid (PFBS)	1.15	J	ng/l	1.72	0.205	1
Perfluorohexanoic Acid (PFHxA)	115		ng/l	1.72	0.283	1
Perfluoroheptanoic Acid (PFHpA)	70.5		ng/l	1.72	0.194	1
Perfluorohexanesulfonic Acid (PFHxS)	1.02	J	ng/l	1.72	0.324	1
Perfluorooctanoic Acid (PFOA)	24.5		ng/l	1.72	0.203	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	44.4		ng/l	1.72	1.15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.72	0.593	1
Perfluorononanoic Acid (PFNA)	12.4		ng/l	1.72	0.269	1
Perfluorooctanesulfonic Acid (PFOS)	3.82		ng/l	1.72	0.434	1
Perfluorodecanoic Acid (PFDA)	13.9		ng/l	1.72	0.262	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.82		ng/l	1.72	1.04	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.72	0.559	1
Perfluoroundecanoic Acid (PFUnA)	0.648	J	ng/l	1.72	0.224	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.72	0.845	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.72	0.500	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.72	0.693	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.72	0.321	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.72	0.282	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.72	0.214	1
PFOA/PFOS, Total	28.3		ng/l	1.72	0.203	1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-01

Date Collected: 04/13/20 14:30

Client ID: MWN-09

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	70		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	76		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	62		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	79		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	93		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	326	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	87		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	189	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	88		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	52		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	79		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		33-143

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02
 Client ID: MWN-30A
 Sample Location: T0071-019-910

Date Collected: 04/13/20 11:05
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/17/20 07:51
 Analyst: ALS

Extraction Method: EPA 3510C
 Extraction Date: 04/16/20 11:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	1.9	J	ug/l	5.0	0.57	1
2-Methylphenol	0.73	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	0.72	J	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	24		21-120
Phenol-d6	21		10-120
Nitrobenzene-d5	29		23-120
2-Fluorobiphenyl	28		15-120
2,4,6-Tribromophenol	27		10-120
4-Terphenyl-d14	35	Q	41-149

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-02
Client ID: MWN-30A
Sample Location: T0071-019-910

Date Collected: 04/13/20 11:05
Date Received: 04/13/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 07:47
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	99.0	J	ng/l	139	31.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	42		15-110

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02
 Client ID: MWN-30A
 Sample Location: T0071-019-910

Date Collected: 04/13/20 11:05
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/15/20 13:10
 Analyst: RS

Extraction Method: ALPHA 23528
 Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	14.2		ng/l	1.77	0.360	1
Perfluoropentanoic Acid (PFPeA)	19.5		ng/l	1.77	0.350	1
Perfluorobutanesulfonic Acid (PFBS)	1.92		ng/l	1.77	0.210	1
Perfluorohexanoic Acid (PFHxA)	9.46		ng/l	1.77	0.290	1
Perfluoroheptanoic Acid (PFHpA)	5.62		ng/l	1.77	0.199	1
Perfluorohexanesulfonic Acid (PFHxS)	2.16		ng/l	1.77	0.332	1
Perfluorooctanoic Acid (PFOA)	8.87		ng/l	1.77	0.208	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	13.7		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.608	1
Perfluorononanoic Acid (PFNA)	1.56	J	ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	3.70		ng/l	1.77	0.445	1
Perfluorodecanoic Acid (PFDA)	0.636	J	ng/l	1.77	0.268	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	3.27		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.572	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.866	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.512	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.710	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.329	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.289	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.219	1
PFOA/PFOS, Total	12.6		ng/l	1.77	0.208	1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-02

Date Collected: 04/13/20 11:05

Client ID: MWN-30A

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	77		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	71		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	99		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	388	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	186	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	102		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	127		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	54		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	118		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	115		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		33-143

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-03
Client ID: MWN-49A
Sample Location: T0071-019-910

Date Collected: 04/13/20 13:00
Date Received: 04/13/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 04/17/20 08:14
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 04/16/20 11:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		21-120
Phenol-d6	48		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	65		15-120
2,4,6-Tribromophenol	64		10-120
4-Terphenyl-d14	77		41-149

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-03
Client ID: MWN-49A
Sample Location: T0071-019-910

Date Collected: 04/13/20 13:00
Date Received: 04/13/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 18:36
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	42			15-110		

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-03
 Client ID: MWN-49A
 Sample Location: T0071-019-910

Date Collected: 04/13/20 13:00
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/15/20 13:43
 Analyst: RS

Extraction Method: ALPHA 23528
 Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	7.06		ng/l	1.74	0.354	1
Perfluoropentanoic Acid (PFPeA)	5.57		ng/l	1.74	0.344	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.74	0.206	1
Perfluorohexanoic Acid (PFHxA)	2.82		ng/l	1.74	0.285	1
Perfluoroheptanoic Acid (PFHpA)	1.60	J	ng/l	1.74	0.195	1
Perfluorohexanesulfonic Acid (PFHxS)	1.75		ng/l	1.74	0.326	1
Perfluorooctanoic Acid (PFOA)	5.58		ng/l	1.74	0.205	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.74	1.16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.74	0.597	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.74	0.271	1
Perfluorooctanesulfonic Acid (PFOS)	2.59		ng/l	1.74	0.438	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.74	0.264	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.74	1.05	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.74	0.562	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.74	0.226	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.74	0.851	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.74	0.503	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.74	0.698	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.74	0.323	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.74	0.284	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.74	0.215	1
PFOA/PFOS, Total	8.17		ng/l	1.74	0.205	1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS****Lab ID:** L2015548-03**Date Collected:** 04/13/20 13:00**Client ID:** MWN-49A**Date Received:** 04/13/20**Sample Location:** T0071-019-910**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	67		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	86		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	72		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	288	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	99		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	185	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	95		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	100		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	60		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	98		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	76		33-143

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-04
Client ID: OU4 PZ-7
Sample Location: T0071-019-910

Date Collected: 04/13/20 15:15
Date Received: 04/13/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 08:35
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	48			15-110		

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-04
 Client ID: OU4 PZ-7
 Sample Location: T0071-019-910

Date Collected: 04/13/20 15:15
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/15/20 14:00
 Analyst: RS

Extraction Method: ALPHA 23528
 Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	30.5		ng/l	1.74	0.354	1
Perfluoropentanoic Acid (PFPeA)	122		ng/l	1.74	0.344	1
Perfluorobutanesulfonic Acid (PFBS)	2.49		ng/l	1.74	0.206	1
Perfluorohexanoic Acid (PFHxA)	70.5		ng/l	1.74	0.285	1
Perfluoroheptanoic Acid (PFHpA)	30.0		ng/l	1.74	0.195	1
Perfluorohexanesulfonic Acid (PFHxS)	1.42	J	ng/l	1.74	0.326	1
Perfluorooctanoic Acid (PFOA)	17.3		ng/l	1.74	0.205	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	70.1		ng/l	1.74	1.16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.74	0.597	1
Perfluorononanoic Acid (PFNA)	3.20		ng/l	1.74	0.271	1
Perfluorooctanesulfonic Acid (PFOS)	8.27		ng/l	1.74	0.438	1
Perfluorodecanoic Acid (PFDA)	0.368	J	ng/l	1.74	0.264	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.74	1.05	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.74	0.562	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.74	0.226	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.74	0.851	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.74	0.503	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.74	0.698	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.74	0.323	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.74	0.284	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.74	0.215	1
PFOA/PFOS, Total	25.6		ng/l	1.74	0.205	1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-04

Date Collected: 04/13/20 15:15

Client ID: OU4 PZ-7

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	77		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	80		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	73		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	93		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	268	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	82		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	122		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	94		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	99		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	59		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	97		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-05
 Client ID: OU4 BD-1
 Sample Location: T0071-019-910

Date Collected: 04/13/20 08:00
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/17/20 07:25
 Analyst: JG

Extraction Method: EPA 3510C
 Extraction Date: 04/16/20 11:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	ND		ug/l	5.0	0.57	1
2-Methylphenol	ND		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	37		10-120
Nitrobenzene-d5	42		23-120
2-Fluorobiphenyl	42		15-120
2,4,6-Tribromophenol	57		10-120
4-Terphenyl-d14	52		41-149

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

SAMPLE RESULTS

Lab ID: L2015548-05
Client ID: OU4 BD-1
Sample Location: T0071-019-910

Date Collected: 04/13/20 08:00
Date Received: 04/13/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 19:03
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	139	31.4	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-05
 Client ID: OU4 BD-1
 Sample Location: T0071-019-910

Date Collected: 04/13/20 08:00
 Date Received: 04/13/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/15/20 14:17
 Analyst: RS

Extraction Method: ALPHA 23528
 Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	7.06		ng/l	1.73	0.353	1
Perfluoropentanoic Acid (PFPeA)	5.36		ng/l	1.73	0.342	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.73	0.206	1
Perfluorohexanoic Acid (PFHxA)	2.86		ng/l	1.73	0.284	1
Perfluoroheptanoic Acid (PFHpA)	1.40	J	ng/l	1.73	0.195	1
Perfluorohexanesulfonic Acid (PFHxS)	1.84		ng/l	1.73	0.325	1
Perfluorooctanoic Acid (PFOA)	6.00		ng/l	1.73	0.204	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.73	1.15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.73	0.595	1
Perfluorononanoic Acid (PFNA)	0.284	J	ng/l	1.73	0.270	1
Perfluorooctanesulfonic Acid (PFOS)	2.42		ng/l	1.73	0.436	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.73	0.263	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.73	1.05	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.73	0.560	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.73	0.225	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.73	0.848	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.73	0.502	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.73	0.696	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.73	0.322	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.73	0.283	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.73	0.214	1
PFOA/PFOS, Total	8.42		ng/l	1.73	0.204	1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**SAMPLE RESULTS**

Lab ID: L2015548-05

Date Collected: 04/13/20 08:00

Client ID: OU4 BD-1

Date Received: 04/13/20

Sample Location: T0071-019-910

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	66		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	76		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	73		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	264	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	94		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	158		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	97		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	56		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	102		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	95		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/15/20 11:48
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-05 Batch: WG1360982-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.400	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/15/20 11:48
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 04/14/20 10:29

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-05 Batch: WG1360982-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	103		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	112		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	106		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	105		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	88		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	81		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	99		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	77		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	100		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	77		33-143

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/20 00:09
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/14/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-05 Batch: WG1361111-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	43		15-110

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 04/17/20 00:26
Analyst: SZ

Extraction Method: EPA 3510C
Extraction Date: 04/16/20 08:12

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02-03,05 Batch: WG1361740-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	51		21-120
Phenol-d6	40		10-120
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	58		15-120
2,4,6-Tribromophenol	42		10-120
4-Terphenyl-d14	64		41-149

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360982-2 WG1360982-3								
Perfluorobutanoic Acid (PFBA)	140		140		67-148	0		30
Perfluoropentanoic Acid (PFPeA)	151		150		63-161	1		30
Perfluorobutanesulfonic Acid (PFBS)	136		137		65-157	1		30
Perfluorohexanoic Acid (PFHxA)	138		139		69-168	1		30
Perfluoroheptanoic Acid (PFHpA)	140		143		58-159	2		30
Perfluorohexanesulfonic Acid (PFHxS)	128		130		69-177	2		30
Perfluorooctanoic Acid (PFOA)	152		150		63-159	1		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	156		171		49-187	9		30
Perfluoroheptanesulfonic Acid (PFHpS)	155		166		61-179	7		30
Perfluorononanoic Acid (PFNA)	145		149		68-171	3		30
Perfluorooctanesulfonic Acid (PFOS)	135		137		52-151	1		30
Perfluorodecanoic Acid (PFDA)	136		139		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	173		178	Q	56-173	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	172	Q	145		60-166	17		30
Perfluoroundecanoic Acid (PFUnA)	142		142		60-153	0		30
Perfluorodecanesulfonic Acid (PFDS)	154		159	Q	38-156	3		30
Perfluorooctanesulfonamide (FOSA)	141		146		46-170	3		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	148		153		45-170	3		30
Perfluorododecanoic Acid (PFDoA)	148		150		67-153	1		30
Perfluorotridecanoic Acid (PFTrDA)	169	Q	162	Q	48-158	4		30
Perfluorotetradecanoic Acid (PFTA)	161		155		59-182	4		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 Batch: WG1360982-2 WG1360982-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		104		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	98		95		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	106		100		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	98		97		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	110		107		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	134		127		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		103		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	109		109		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		94		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	112		102		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		101		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	103		99		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	87		91		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	108		106		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	78		77		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	82		81		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	101		98		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	85		89		33-143

Lab Control Sample Analysis**Batch Quality Control****Project Name:** OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG1361111-2 WG1361111-3								
1,4-Dioxane	110		112		40-140	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	38		44		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1361740-2 WG1361740-3								
2,4,6-Trichlorophenol	64		53		30-130	19		30
p-Chloro-m-cresol	68		60		23-97	13		30
2-Chlorophenol	69		58		27-123	17		30
2,4-Dichlorophenol	70		59		30-130	17		30
2,4-Dimethylphenol	63		58		30-130	8		30
2-Nitrophenol	68		57		30-130	18		30
4-Nitrophenol	57		45		10-80	24		30
2,4-Dinitrophenol	60		48		20-130	22		30
4,6-Dinitro-o-cresol	69		59		20-164	16		30
Pentachlorophenol	52		40		9-103	26		30
Phenol	52		47		12-110	10		30
2-Methylphenol	69		58		30-130	17		30
3-Methylphenol/4-Methylphenol	70		59		30-130	17		30
2,4,5-Trichlorophenol	65		55		30-130	17		30
Benzoic Acid	63		0	Q	10-164	NC		30
Benzyl Alcohol	66		55		26-116	18		30

Lab Control Sample Analysis Batch Quality Control

Project Name: OU4 GW SAMPLING

Lab Number: L2015548

Project Number: T0071-019-910

Report Date: 05/01/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-03,05 Batch: WG1361740-2 WG1361740-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	60		49		21-120
Phenol-d6	50		40		10-120
Nitrobenzene-d5	69		57		23-120
2-Fluorobiphenyl	63		52		15-120
2,4,6-Tribromophenol	57		46		10-120
4-Terphenyl-d14	66		53		41-149

Matrix Spike Analysis

Batch Quality Control

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1360982-4 QC Sample: L2015548-01 Client ID: MWN-09												
Perfluorobutanoic Acid (PFBA)	67.9	35.7	122	151	Q	-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	249	35.7	306	160		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	1.15J	31.6	50.2	159	Q	-	-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	115	35.7	167	146		-	-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	70.5	35.7	123	147		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	1.02J	32.6	54.1	166		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	24.5	35.7	77.0	147		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	44.4	33.9	94.1	146		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	33.9	64.8	191	Q	-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	12.4	35.7	66.2	151		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	3.82	33.1	56.6	161	Q	-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	13.9	35.7	72.0	163		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.82	34.3	68.4	174	Q	-	-		56-173	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.7	70.1	196	Q	-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	0.648J	35.7	57.0	160	Q	-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	34.5	62.2	180	Q	-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	35.7	55.1	154		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.7	57.0	160		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	35.7	56.7	159	Q	-	-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.7	54.9	154		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	35.7	61.1	171		-	-		59-182	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1360982-4 QC Sample: L2015548-01 Client ID: MWN-09												

Surrogate (Extracted Internal Standard)	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	193	Q			7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	359	Q			1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	106				23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82				1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	86				40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89				38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	66				21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81				30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	93				47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	81				24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63				33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	100				2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	73				16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	55				1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	90				42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94				36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95				34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	81				31-159

Lab Duplicate Analysis Batch Quality Control

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1360982-5 QC Sample: L2015548-02 Client ID: MWN-30A						
Perfluorobutanoic Acid (PFBA)	14.2	13.8	ng/l	3		30
Perfluoropentanoic Acid (PFPeA)	19.5	19.6	ng/l	1		30
Perfluorobutanesulfonic Acid (PFBS)	1.92	2.81	ng/l	38	Q	30
Perfluorohexanoic Acid (PFHxA)	9.46	8.88	ng/l	6		30
Perfluoroheptanoic Acid (PFHpA)	5.62	6.52	ng/l	15		30
Perfluorohexanesulfonic Acid (PFHxS)	2.16	2.64	ng/l	20		30
Perfluorooctanoic Acid (PFOA)	8.87	8.72	ng/l	2		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	13.7	14.4	ng/l	5		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	1.56J	1.21J	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	3.70	3.58	ng/l	3		30
Perfluorodecanoic Acid (PFDA)	0.636J	0.628J	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	3.27	3.34	ng/l	2		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis **Batch Quality Control**

Project Name: OU4 GW SAMPLING

Project Number: T0071-019-910

Lab Number: L2015548

Report Date: 05/01/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1360982-5 QC Sample: L2015548-02 Client ID: MWN-30A						
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
PFOA/PFOS, Total	12.6	12.3	ng/l	2		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98		93		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	77		71		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		85		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	71		66		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		83		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		104		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	99		91		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	388	Q	328	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	96		86		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104		96		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		100		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	186	Q	168		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	102		112		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	127		118		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	54		55		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	118		125		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	115		115		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		87		33-143

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015548-01A	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-01B	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-01C	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-01D	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-02A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-02B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-02C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-02D	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-02E	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-02F	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-02G	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-02H	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)
L2015548-02I	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)
L2015548-03A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-03B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-03C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-03D	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-03E	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-03F	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-03G	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-03H	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)
L2015548-03I	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)
L2015548-04A	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Serial_No:05012019:35
Lab Number: L2015548
Report Date: 05/01/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2015548-04B	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-04C	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-04D	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-05A	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-05B	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-05C	Vial HCl preserved	A	NA		3.0	Y	Absent		NYTCL-8260-R2(14)
L2015548-05D	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-05E	Plastic 250ml unpreserved	A	NA		3.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2015548-05F	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-05G	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2015548-05H	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)
L2015548-05I	Amber 250ml unpreserved	A	7	7	3.0	Y	Absent		NYTCL-8270-LVI(7)

Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Serial_No:05012019:35
Lab Number: L2015548
Report Date: 05/01/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU4 GW SAMPLING**Lab Number:** L2015548**Project Number:** T0071-019-910**Report Date:** 05/01/20**Data Qualifiers**

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU4 GW SAMPLING
Project Number: T0071-019-910

Lab Number: L2015548
Report Date: 05/01/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Page 69 of 69



ANALYTICAL REPORT

Lab Number:	L2016405
Client:	Turnkey Environmental Restoration, LLC 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Brock Greene
Phone:	(716) 856-0599
Project Name:	OU-4 SYSTEM
Project Number:	T0071-019-910
Report Date:	04/29/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2016405-01	NORTH INFLUENT	WATER	BUFFALO, NY	04/20/20 14:27	04/20/20
L2016405-02	NORTH EFFLUENT	WATER	BUFFALO, NY	04/20/20 14:33	04/20/20
L2016405-03	SOUTH EFFLUENT	WATER	BUFFALO, NY	04/20/20 14:16	04/20/20
L2016405-04	SOUTH INFLUENT	WATER	BUFFALO, NY	04/20/20 14:08	04/20/20
L2016405-05	FIELD BLANK	WATER	BUFFALO, NY	04/20/20 14:38	04/20/20

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Case Narrative (continued)

Report Revision

April 29, 2020: The Volatile Organics compound list has been amended to include naphthalene.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2016405-02 and -03: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Kelly Stenstrom

Title: Technical Director/Representative

Date: 04/29/20

ORGANICS

VOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-01 D

Date Collected: 04/20/20 14:27

Client ID: NORTH INFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/23/20 02:17

Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	100	28.	40
1,1-Dichloroethane	ND		ug/l	100	28.	40
Chloroform	ND		ug/l	100	28.	40
Carbon tetrachloride	ND		ug/l	20	5.4	40
1,2-Dichloropropane	ND		ug/l	40	5.5	40
Dibromochloromethane	ND		ug/l	20	6.0	40
1,1,2-Trichloroethane	ND		ug/l	60	20.	40
Tetrachloroethene	ND		ug/l	20	7.2	40
Chlorobenzene	ND		ug/l	100	28.	40
Trichlorofluoromethane	ND		ug/l	100	28.	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
1,1,1-Trichloroethane	ND		ug/l	100	28.	40
Bromodichloromethane	ND		ug/l	20	7.7	40
trans-1,3-Dichloropropene	ND		ug/l	20	6.6	40
cis-1,3-Dichloropropene	ND		ug/l	20	5.8	40
Bromoform	ND		ug/l	80	26.	40
1,1,2,2-Tetrachloroethane	ND		ug/l	20	6.7	40
Benzene	5400		ug/l	20	6.4	40
Toluene	1300		ug/l	100	28.	40
Ethylbenzene	270		ug/l	100	28.	40
Chloromethane	ND		ug/l	100	28.	40
Bromomethane	ND		ug/l	100	28.	40
Vinyl chloride	ND		ug/l	40	2.8	40
Chloroethane	ND		ug/l	100	28.	40
1,1-Dichloroethene	ND		ug/l	20	6.8	40
trans-1,2-Dichloroethene	ND		ug/l	100	28.	40
Trichloroethene	ND		ug/l	20	7.0	40
1,2-Dichlorobenzene	ND		ug/l	100	28.	40

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-01 D

Date Collected: 04/20/20 14:27

Client ID: NORTH INFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	100	28.	40
1,4-Dichlorobenzene	ND		ug/l	100	28.	40
Methyl tert butyl ether	ND		ug/l	100	28.	40
p/m-Xylene	820		ug/l	100	28.	40
o-Xylene	320		ug/l	100	28.	40
cis-1,2-Dichloroethene	ND		ug/l	100	28.	40
Styrene	29	J	ug/l	100	28.	40
Dichlorodifluoromethane	ND		ug/l	200	40.	40
Acetone	ND		ug/l	200	58.	40
Carbon disulfide	ND		ug/l	200	40.	40
2-Butanone	ND		ug/l	200	78.	40
4-Methyl-2-pentanone	ND		ug/l	200	40.	40
2-Hexanone	ND		ug/l	200	40.	40
Bromochloromethane	ND		ug/l	100	28.	40
1,2-Dibromoethane	ND		ug/l	80	26.	40
1,2-Dibromo-3-chloropropane	ND		ug/l	100	28.	40
Isopropylbenzene	ND		ug/l	100	28.	40
Naphthalene	6200		ug/l	100	28.	40
1,2,3-Trichlorobenzene	ND		ug/l	100	28.	40
1,2,4-Trichlorobenzene	ND		ug/l	100	28.	40
Methyl Acetate	ND		ug/l	80	9.4	40
Cyclohexane	ND		ug/l	400	11.	40
1,4-Dioxane	ND		ug/l	10000	2400	40
Freon-113	ND		ug/l	100	28.	40
Methyl cyclohexane	ND		ug/l	400	16.	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:33
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/23/20 02:42
 Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	44		ug/l	0.50	0.16	1
Toluene	3.4		ug/l	2.5	0.70	1
Ethylbenzene	0.75	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	1.9		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:33
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	2.2	J	ug/l	2.5	0.70	1
o-Xylene	1.5	J	ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	2.0	J	ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.5	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	46		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	102		70-130

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-03
 Client ID: SOUTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:16
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 04/23/20 17:03
 Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	2.2		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	0.71	J	ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-03
 Client ID: SOUTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:16
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	2.6		ug/l	2.5	0.70	1
o-Xylene	1.1	J	ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	4.6	J	ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
Naphthalene	230	E	ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
1,4-Dioxane	ND		ug/l	250	61.	1
Freon-113	ND		ug/l	2.5	0.70	1
Methyl cyclohexane	ND		ug/l	10	0.40	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	109		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-03 D
Client ID: SOUTH EFFLUENT
Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:16
Date Received: 04/20/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 04/23/20 03:07
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Volatile Organics by GC/MS - Westborough Lab

Naphthalene	220		ug/l	5.0	1.4	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	103		70-130

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-04 D

Date Collected: 04/20/20 14:08

Client ID: SOUTH INFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8260C

Analytical Date: 04/23/20 03:33

Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	500	140	200
1,1-Dichloroethane	ND		ug/l	500	140	200
Chloroform	ND		ug/l	500	140	200
Carbon tetrachloride	ND		ug/l	100	27.	200
1,2-Dichloropropane	ND		ug/l	200	27.	200
Dibromochloromethane	ND		ug/l	100	30.	200
1,1,2-Trichloroethane	ND		ug/l	300	100	200
Tetrachloroethene	ND		ug/l	100	36.	200
Chlorobenzene	ND		ug/l	500	140	200
Trichlorofluoromethane	ND		ug/l	500	140	200
1,2-Dichloroethane	ND		ug/l	100	26.	200
1,1,1-Trichloroethane	ND		ug/l	500	140	200
Bromodichloromethane	ND		ug/l	100	38.	200
trans-1,3-Dichloropropene	ND		ug/l	100	33.	200
cis-1,3-Dichloropropene	ND		ug/l	100	29.	200
Bromoform	ND		ug/l	400	130	200
1,1,2,2-Tetrachloroethane	ND		ug/l	100	33.	200
Benzene	23000		ug/l	100	32.	200
Toluene	2700		ug/l	500	140	200
Ethylbenzene	310	J	ug/l	500	140	200
Chloromethane	ND		ug/l	500	140	200
Bromomethane	ND		ug/l	500	140	200
Vinyl chloride	ND		ug/l	200	14.	200
Chloroethane	ND		ug/l	500	140	200
1,1-Dichloroethene	ND		ug/l	100	34.	200
trans-1,2-Dichloroethene	ND		ug/l	500	140	200
Trichloroethene	ND		ug/l	100	35.	200
1,2-Dichlorobenzene	ND		ug/l	500	140	200

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-04 D

Date Collected: 04/20/20 14:08

Client ID: SOUTH INFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,3-Dichlorobenzene	ND		ug/l	500	140	200
1,4-Dichlorobenzene	ND		ug/l	500	140	200
Methyl tert butyl ether	ND		ug/l	500	140	200
p/m-Xylene	970		ug/l	500	140	200
o-Xylene	460	J	ug/l	500	140	200
cis-1,2-Dichloroethene	ND		ug/l	500	140	200
Styrene	ND		ug/l	500	140	200
Dichlorodifluoromethane	ND		ug/l	1000	200	200
Acetone	ND		ug/l	1000	290	200
Carbon disulfide	ND		ug/l	1000	200	200
2-Butanone	ND		ug/l	1000	390	200
4-Methyl-2-pentanone	ND		ug/l	1000	200	200
2-Hexanone	ND		ug/l	1000	200	200
Bromochloromethane	ND		ug/l	500	140	200
1,2-Dibromoethane	ND		ug/l	400	130	200
1,2-Dibromo-3-chloropropane	ND		ug/l	500	140	200
Isopropylbenzene	ND		ug/l	500	140	200
Naphthalene	910		ug/l	500	140	200
1,2,3-Trichlorobenzene	ND		ug/l	500	140	200
1,2,4-Trichlorobenzene	ND		ug/l	500	140	200
Methyl Acetate	ND		ug/l	400	47.	200
Cyclohexane	ND		ug/l	2000	54.	200
1,4-Dioxane	ND		ug/l	50000	12000	200
Freon-113	ND		ug/l	500	140	200
Methyl cyclohexane	ND		ug/l	2000	79.	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	102		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/22/20 19:14
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1363777-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/22/20 19:14
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1363777-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/22/20 19:14
 Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04 Batch: WG1363777-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	101		70-130

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/23/20 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1364198-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.65
1,1,1,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 04/23/20 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1364198-5					
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
1,4-Dioxane	ND		ug/l	250	61.
Freon-113	ND		ug/l	2.5	0.70
Methyl cyclohexane	ND		ug/l	10	0.40

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
 Analytical Date: 04/23/20 10:06
 Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1364198-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1363777-3 WG1363777-4								
Methylene chloride	94		95		70-130	1		20
1,1-Dichloroethane	83		87		70-130	5		20
Chloroform	93		96		70-130	3		20
Carbon tetrachloride	92		97		63-132	5		20
1,2-Dichloropropane	78		83		70-130	6		20
Dibromochloromethane	88		92		63-130	4		20
1,1,2-Trichloroethane	90		96		70-130	6		20
Tetrachloroethene	98		100		70-130	2		20
Chlorobenzene	91		98		75-130	7		20
Trichlorofluoromethane	99		100		62-150	1		20
1,2-Dichloroethane	83		82		70-130	1		20
1,1,1-Trichloroethane	97		100		67-130	3		20
Bromodichloromethane	88		92		67-130	4		20
trans-1,3-Dichloropropene	83		88		70-130	6		20
cis-1,3-Dichloropropene	83		95		70-130	13		20
Bromoform	88		91		54-136	3		20
1,1,2,2-Tetrachloroethane	86		88		67-130	2		20
Benzene	88		94		70-130	7		20
Toluene	90		96		70-130	6		20
Ethylbenzene	90		97		70-130	7		20
Chloromethane	83		85		64-130	2		20
Bromomethane	61		69		39-139	12		20
Vinyl chloride	77		81		55-140	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1363777-3 WG1363777-4								
Chloroethane	92		93		55-138	1		20
1,1-Dichloroethene	100		110		61-145	10		20
trans-1,2-Dichloroethene	100		100		70-130	0		20
Trichloroethene	92		99		70-130	7		20
1,2-Dichlorobenzene	91		95		70-130	4		20
1,3-Dichlorobenzene	91		96		70-130	5		20
1,4-Dichlorobenzene	90		94		70-130	4		20
Methyl tert butyl ether	92		94		63-130	2		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Styrene	95		100		70-130	5		20
Dichlorodifluoromethane	94		98		36-147	4		20
Acetone	76		76		58-148	0		20
Carbon disulfide	95		100		51-130	5		20
2-Butanone	83		83		63-138	0		20
4-Methyl-2-pentanone	69		73		59-130	6		20
2-Hexanone	75		77		57-130	3		20
Bromochloromethane	100		100		70-130	0		20
1,2-Dibromoethane	92		95		70-130	3		20
1,2-Dibromo-3-chloropropane	86		88		41-144	2		20
Isopropylbenzene	88		95		70-130	8		20
Naphthalene	89		90		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04 Batch: WG1363777-3 WG1363777-4								
1,2,3-Trichlorobenzene	88		93		70-130	6		20
1,2,4-Trichlorobenzene	90		97		70-130	7		20
Methyl Acetate	130		130		70-130	0		20
Cyclohexane	80		86		70-130	7		20
1,4-Dioxane	90		96		56-162	6		20
Freon-113	100		110		70-130	10		20
Methyl cyclohexane	92		100		70-130	8		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		78		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	92		92		70-130
Dibromofluoromethane	103		100		70-130

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1364198-3 WG1364198-4								
Methylene chloride	92		99		70-130	7		20
1,1-Dichloroethane	100		110		70-130	10		20
Chloroform	93		100		70-130	7		20
Carbon tetrachloride	97		99		63-132	2		20
1,2-Dichloropropane	94		97		70-130	3		20
Dibromochloromethane	94		98		63-130	4		20
1,1,2-Trichloroethane	86		90		70-130	5		20
Tetrachloroethene	86		86		70-130	0		20
Chlorobenzene	89		91		75-130	2		20
Trichlorofluoromethane	90		94		62-150	4		20
1,2-Dichloroethane	95		100		70-130	5		20
1,1,1-Trichloroethane	96		100		67-130	4		20
Bromodichloromethane	93		98		67-130	5		20
trans-1,3-Dichloropropene	87		88		70-130	1		20
cis-1,3-Dichloropropene	86		91		70-130	6		20
Bromoform	93		94		54-136	1		20
1,1,2,2-Tetrachloroethane	82		83		67-130	1		20
Benzene	90		97		70-130	7		20
Toluene	90		90		70-130	0		20
Ethylbenzene	90		90		70-130	0		20
Chloromethane	110		120		64-130	9		20
Bromomethane	91		89		39-139	2		20
Vinyl chloride	100		110		55-140	10		20

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1364198-3 WG1364198-4								
Chloroethane	61		61		55-138	0		20
1,1-Dichloroethene	92		94		61-145	2		20
trans-1,2-Dichloroethene	92		96		70-130	4		20
Trichloroethene	92		95		70-130	3		20
1,2-Dichlorobenzene	88		90		70-130	2		20
1,3-Dichlorobenzene	90		92		70-130	2		20
1,4-Dichlorobenzene	88		90		70-130	2		20
Methyl tert butyl ether	91		97		63-130	6		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
cis-1,2-Dichloroethene	92		98		70-130	6		20
Styrene	90		90		70-130	0		20
Dichlorodifluoromethane	160	Q	160	Q	36-147	0		20
Acetone	91		99		58-148	8		20
Carbon disulfide	97		100		51-130	3		20
2-Butanone	80		90		63-138	12		20
4-Methyl-2-pentanone	92		87		59-130	6		20
2-Hexanone	83		83		57-130	0		20
Bromochloromethane	93		96		70-130	3		20
1,2-Dibromoethane	87		90		70-130	3		20
1,2-Dibromo-3-chloropropane	77		93		41-144	19		20
Isopropylbenzene	88		88		70-130	0		20
Naphthalene	73		76		70-130	4		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1364198-3 WG1364198-4								
1,2,3-Trichlorobenzene	78		83		70-130	6		20
1,2,4-Trichlorobenzene	80		83		70-130	4		20
Methyl Acetate	89		90		70-130	1		20
Cyclohexane	98		100		70-130	2		20
1,4-Dioxane	116		122		56-162	5		20
Freon-113	96		100		70-130	4		20
Methyl cyclohexane	87		94		70-130	8		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		112		70-130
Toluene-d8	102		100		70-130
4-Bromofluorobenzene	96		100		70-130
Dibromofluoromethane	99		103		70-130

SEMIVOLATILES

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-01
 Client ID: NORTH INFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:27
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/22/20 06:22
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 04/21/20 07:36

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	100		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	250	E	ug/l	5.0	0.57	1
2-Methylphenol	130		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	260	E	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	83		21-120
Phenol-d6	53		10-120
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	59		15-120
2,4,6-Tribromophenol	97		10-120
4-Terphenyl-d14	59		41-149

Project Name: OU-4 SYSTEM**Project Number:** T0071-019-910**Lab Number:** L2016405**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-01 D

Client ID: NORTH INFLUENT

Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:27

Date Received: 04/20/20

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8270D

Analytical Date: 04/22/20 18:22

Analyst: SZ

Extraction Method: EPA 3510C

Extraction Date: 04/21/20 07:36

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Phenol	290		ug/l	25	2.8	5
3-Methylphenol/4-Methylphenol	300		ug/l	25	2.4	5

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:33
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D
 Analytical Date: 04/22/20 05:55
 Analyst: WR

Extraction Method: EPA 3510C
 Extraction Date: 04/21/20 07:36

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	8.3		ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	6.4		ug/l	5.0	0.57	1
2-Methylphenol	3.8	J	ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	3.2	J	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	44		10-120
Nitrobenzene-d5	44		23-120
2-Fluorobiphenyl	47		15-120
2,4,6-Tribromophenol	75		10-120
4-Terphenyl-d14	57		41-149

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:33
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270D-SIM
 Analytical Date: 04/24/20 01:04
 Analyst: PS

Extraction Method: EPA 3510C
 Extraction Date: 04/21/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	48			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-02
 Client ID: NORTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:33
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/23/20 03:09
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 04/22/20 07:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	15.8		ng/l	1.78	0.364	1
Perfluoropentanoic Acid (PFPeA)	21.9		ng/l	1.78	0.354	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	0.212	1
Perfluorohexanoic Acid (PFHxA)	11.2		ng/l	1.78	0.293	1
Perfluoroheptanoic Acid (PFHpA)	6.18		ng/l	1.78	0.201	1
Perfluorohexanesulfonic Acid (PFHxS)	5.04		ng/l	1.78	0.336	1
Perfluorooctanoic Acid (PFOA)	8.15		ng/l	1.78	0.211	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	6.80		ng/l	1.78	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.614	1
Perfluorononanoic Acid (PFNA)	1.22	J	ng/l	1.78	0.278	1
Perfluorooctanesulfonic Acid (PFOS)	7.03		ng/l	1.78	0.450	1
Perfluorodecanoic Acid (PFDA)	0.289	J	ng/l	1.78	0.271	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	1.08	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.578	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.232	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.875	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.518	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.718	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.332	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.292	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.221	1
PFOA/PFOS, Total	15.2		ng/l	1.78	0.211	1

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-02

Date Collected: 04/20/20 14:33

Client ID: NORTH EFFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Surrogate (Extracted Internal Standard)	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro[13C4]Butanoic Acid (MPFBA)	101				2-156	
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	67				16-173	
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85				31-159	
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	57				21-145	
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81				30-139	
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	123				47-153	
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98				36-149	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	422			Q	1-244	
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	98				34-146	
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	113				42-146	
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96				38-144	
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	309			Q	7-170	
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	121				1-181	
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	116				40-144	
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	44				1-87	
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	151			Q	23-146	
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	108				24-161	
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	93				33-143	

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-03

Date Collected: 04/20/20 14:16

Client ID: SOUTH EFFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: EPA 3510C

Analytical Method: 1,8270D

Extraction Date: 04/21/20 07:36

Analytical Date: 04/22/20 05:28

Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61	1
p-Chloro-m-cresol	ND		ug/l	2.0	0.35	1
2-Chlorophenol	ND		ug/l	2.0	0.48	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.41	1
2,4-Dimethylphenol	3.0	J	ug/l	5.0	1.8	1
2-Nitrophenol	ND		ug/l	10	0.85	1
4-Nitrophenol	ND		ug/l	10	0.67	1
2,4-Dinitrophenol	ND		ug/l	20	6.6	1
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8	1
Pentachlorophenol	ND		ug/l	10	1.8	1
Phenol	21.		ug/l	5.0	0.57	1
2-Methylphenol	6.8		ug/l	5.0	0.49	1
3-Methylphenol/4-Methylphenol	3.8	J	ug/l	5.0	0.48	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77	1
Benzoic Acid	ND		ug/l	50	2.6	1
Benzyl Alcohol	ND		ug/l	2.0	0.59	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		21-120
Phenol-d6	46		10-120
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	56		15-120
2,4,6-Tribromophenol	82		10-120
4-Terphenyl-d14	61		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-03
Client ID: SOUTH EFFLUENT
Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:16
Date Received: 04/20/20
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/24/20 01:29
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/21/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	47			15-110		

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**SAMPLE RESULTS**

Lab ID: L2016405-03
 Client ID: SOUTH EFFLUENT
 Sample Location: BUFFALO, NY

Date Collected: 04/20/20 14:16
 Date Received: 04/20/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 134,LCMSMS-ID
 Analytical Date: 04/23/20 03:26
 Analyst: SG

Extraction Method: ALPHA 23528
 Extraction Date: 04/22/20 07:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	91.2		ng/l	1.77	0.362	1
Perfluoropentanoic Acid (PFPeA)	322		ng/l	1.77	0.351	1
Perfluorobutanesulfonic Acid (PFBS)	9.87		ng/l	1.77	0.211	1
Perfluorohexanoic Acid (PFHxA)	188		ng/l	1.77	0.291	1
Perfluoroheptanoic Acid (PFHpA)	95.5		ng/l	1.77	0.200	1
Perfluorohexanesulfonic Acid (PFHxS)	4.72		ng/l	1.77	0.333	1
Perfluorooctanoic Acid (PFOA)	58.9		ng/l	1.77	0.209	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	350		ng/l	1.77	1.18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.77	0.610	1
Perfluorononanoic Acid (PFNA)	23.7		ng/l	1.77	0.276	1
Perfluorooctanesulfonic Acid (PFOS)	6.74		ng/l	1.77	0.447	1
Perfluorodecanoic Acid (PFDA)	28.2		ng/l	1.77	0.270	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	123		ng/l	1.77	1.07	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.77	0.574	1
Perfluoroundecanoic Acid (PFUnA)	1.31	J	ng/l	1.77	0.230	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.77	0.869	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.77	0.514	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.77	0.713	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.77	0.330	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.77	0.290	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.77	0.220	1
PFOA/PFOS, Total	65.6		ng/l	1.77	0.209	1

Project Name: OU-4 SYSTEM

Lab Number: L2016405

Project Number: T0071-019-910

Report Date: 04/29/20

SAMPLE RESULTS

Lab ID: L2016405-03

Date Collected: 04/20/20 14:16

Client ID: SOUTH EFFLUENT

Date Received: 04/20/20

Sample Location: BUFFALO, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	68		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	61		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	126		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	512	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	106		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	303	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	132		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	120		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	137		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	110		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	107		33-143

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 04/20/20 14:43
Analyst: SZ

Extraction Method: EPA 3510C
Extraction Date: 04/20/20 10:22

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG1362643-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.61
p-Chloro-m-cresol	ND		ug/l	2.0	0.35
2-Chlorophenol	ND		ug/l	2.0	0.48
2,4-Dichlorophenol	ND		ug/l	5.0	0.41
2,4-Dimethylphenol	ND		ug/l	5.0	1.8
2-Nitrophenol	ND		ug/l	10	0.85
4-Nitrophenol	ND		ug/l	10	0.67
2,4-Dinitrophenol	ND		ug/l	20	6.6
4,6-Dinitro-o-cresol	ND		ug/l	10	1.8
Pentachlorophenol	ND		ug/l	10	1.8
Phenol	ND		ug/l	5.0	0.57
2-Methylphenol	ND		ug/l	5.0	0.49
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.48
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.77
Benzoic Acid	ND		ug/l	50	2.6
Benzyl Alcohol	ND		ug/l	2.0	0.59

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		21-120
Phenol-d6	37		10-120
Nitrobenzene-d5	37		23-120
2-Fluorobiphenyl	41		15-120
2,4,6-Tribromophenol	48		10-120
4-Terphenyl-d14	46		41-149

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/23/20 10:14
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/21/20 17:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 02-03 Batch: WG1363133-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	81		15-110

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/22/20 23:18
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 04/22/20 07:14

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02-03 Batch: WG1363281-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.356	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Method Blank Analysis Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 04/22/20 23:18
Analyst: SG

Extraction Method: ALPHA 23528
Extraction Date: 04/22/20 07:14

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 02-03 Batch: WG1363281-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	99		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	112		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	96		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	93		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	97		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	88		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	107		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	55		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		33-143

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1362643-2 WG1362643-3								
2,4,6-Trichlorophenol	47		45		30-130	4		30
p-Chloro-m-cresol	44		44		23-97	0		30
2-Chlorophenol	47		46		27-123	2		30
2,4-Dichlorophenol	52		50		30-130	4		30
2,4-Dimethylphenol	44		42		30-130	5		30
2-Nitrophenol	46		45		30-130	2		30
4-Nitrophenol	32		32		10-80	0		30
2,4-Dinitrophenol	52		41		20-130	24		30
4,6-Dinitro-o-cresol	54		51		20-164	6		30
Pentachlorophenol	58		50		9-103	15		30
Phenol	38		35		12-110	8		30
2-Methylphenol	49		47		30-130	4		30
3-Methylphenol/4-Methylphenol	46		46		30-130	0		30
2,4,5-Trichlorophenol	51		47		30-130	8		30
Benzoic Acid	39		38		10-164	3		30
Benzyl Alcohol	40		40		26-116	0		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG1362643-2 WG1362643-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	40		39		21-120
Phenol-d6	36		33		10-120
Nitrobenzene-d5	32		31		23-120
2-Fluorobiphenyl	34		35		15-120
2,4,6-Tribromophenol	50		44		10-120
4-Terphenyl-d14	39	Q	37	Q	41-149

Lab Control Sample Analysis Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 02-03 Batch: WG1363133-2 WG1363133-3								
1,4-Dioxane	106		104		40-140	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	71		56		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-03 Batch: WG1363281-2 WG1363281-3								
Perfluorobutanoic Acid (PFBA)	104		107		67-148	3		30
Perfluoropentanoic Acid (PFPeA)	110		113		63-161	3		30
Perfluorobutanesulfonic Acid (PFBS)	106		106		65-157	0		30
Perfluorohexanoic Acid (PFHxA)	108		112		69-168	4		30
Perfluoroheptanoic Acid (PFHpA)	105		105		58-159	0		30
Perfluorohexanesulfonic Acid (PFHxS)	94		100		69-177	6		30
Perfluorooctanoic Acid (PFOA)	112		115		63-159	3		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	126		138		49-187	9		30
Perfluoroheptanesulfonic Acid (PFHpS)	109		127		61-179	15		30
Perfluorononanoic Acid (PFNA)	106		110		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	99		107		52-151	8		30
Perfluorodecanoic Acid (PFDA)	102		107		63-171	5		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	127		136		56-173	7		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	120		122		60-166	2		30
Perfluoroundecanoic Acid (PFUnA)	103		103		60-153	0		30
Perfluorodecanesulfonic Acid (PFDS)	116		120		38-156	3		30
Perfluorooctanesulfonamide (FOSA)	108		100		46-170	8		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		104		45-170	4		30
Perfluorododecanoic Acid (PFDoA)	107		110		67-153	3		30
Perfluorotridecanoic Acid (PFTrDA)	124		111		48-158	11		30
Perfluorotetradecanoic Acid (PFTA)	116		114		59-182	2		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: OU-4 SYSTEM

Project Number: T0071-019-910

Lab Number: L2016405

Report Date: 04/29/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 02-03 Batch: WG1363281-2 WG1363281-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	101		101		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	96		95		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	89		97		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	83		83		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		99		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	118		126		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		101		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	95		99		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89		93		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		102		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		99		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	93		104		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		85		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	109		113		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	56		61		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	88		85		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	105		108		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92		82		33-143

Project Name: OU-4 SYSTEM**Lab Number:** L2016405**Project Number:** T0071-019-910**Report Date:** 04/29/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

B Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2016405-01A	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-01B	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-01C	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-01H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)
L2016405-01I	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)
L2016405-02A	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-02B	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-02C	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-02D	Plastic 250ml unpreserved	A	NA		3.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2016405-02E	Plastic 250ml unpreserved	A	NA		3.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2016405-02F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2016405-02G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2016405-02H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)
L2016405-02I	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)
L2016405-03A	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-03B	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-03C	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-03D	Plastic 250ml unpreserved	A	NA		3.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2016405-03E	Plastic 250ml unpreserved	A	NA		3.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2016405-03F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2016405-03G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2016405-03H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)

*Values in parentheses indicate holding time in days

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04292018:38
Lab Number: L2016405
Report Date: 04/29/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2016405-03I	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		NYTCL-8270-LVI(7)
L2016405-04A	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-04B	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-04C	Vial HCl preserved	B	NA		3.2	Y	Absent		NYTCL-8260-R2(14)
L2016405-05A	Plastic 250ml unpreserved	A	NA		3.8	Y	Absent		HOLD-537(14)

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Serial_No:04292018:38
Lab Number: L2016405
Report Date: 04/29/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers



Project Name: OU-4 SYSTEM
Project Number: T0071-019-910

Lab Number: L2016405
Report Date: 04/29/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

Page 1 of 1

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**EPA TO-12** Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg. **EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L 2016405

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.