INVENTUM ENGINEERING, PC

June 30, 2021

Megan Kuczka
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, NY 14203

Re: 320 Scajaquada St.
NYSDEC Site No. 915152
Saginaw - Buffalo
Site Management PRR Rev. 1 (May 4, 2020 – May 4, 2021

Dear Ms. Kuczka:

On behalf of East Delavan Property, LLC, Inventum Engineering, P.C. (Inventum) is pleased to submit the attached revised Site Management (SM) Periodic Review Report (PRR) for the Saginaw – Buffalo site 320 Scajaquada St, Buffalo, New York. The PRR has been prepared pursuant to the February 2, 1995 Order on Consent and Administrative Settlement (Index No. B9-0410-92-09) and Section 6.3(b) of DER-10 *Technical Guidance for Site Investigation and Remediation*.

The attached (Attachment A) report summarizes the SM activities conducted on site between May 4, 2020 and May 4, 2021. The completed Institutional and Engineering Controls Certifications Forms are provided as Attachment B.

The revised PRR incorporates comments received from the New York Department of Environmental Conservation (NYSDEC) in an e-mail dated June 15, 2021. The NYSDEC's comments are reproduced in the bullets below followed by Inventum's response in *italics.*

- Please revise the footnote on Page 6 of the PDF to site numbers C915196B and 915196

  The footnote has been revised in accordance with the comment.

- Please add the revisions requested in the June 17, 2020 PRR acceptance letter

  The PRR has been revised to include the edits requested in the acceptance letter, which include:

  - *Photos collected during the onsite inspection.*
  - *A groundwater contour map with flow direction arrows. Inventum notes that routine sitewide groundwater sampling was not required during the reporting period, and as such, not all groundwater monitoring wells were gauged.*

Inventum had included groundwater contours on Figure 1. These were generated with level data collected during the most recent (October 2019) biennial sampling. Flow direction arrows have been added to Figure 1 as requested.

- *A table of historical data available to Inventum is provided as Table 3 in Appendix B of the PRR.*

As noted on the September 2020 annual inspection form provided as Appendix A to the PRR, the monitoring well maintenance will be conducted concurrent with the next scheduled biennial sampling in October 2021.

- How is purge water disposed of onsite? Please detail this in the PRR

  Section 5.2 of the PRR has been revised to include purge water disposal details.

- The parcel identified on the IC/EC Certification does not match current SBL numbers. Is the site compromised of parcel 101.24-1-3.1 and parcel 101.24-1-3.2? If yes, please revise site boundary on Figure 1 and add the second SBL number to the IC/EC Certification.

  The current SBL numbers and parcels as obtained from the Erie County Office of GIS Interactive Mapping show the PRR subject area identified in the IHWS registry and referenced in the 1998 ROD as parcel 101.24-1-3.1 (7.2478 Ac). This is the 7-acre parking lot referenced in the ROD and O&M plan and subject to the annual pavement inspection. Inventum does not believe the parcel identified as 101.24-1-3.2 (1.3835 Ac) is included in the registry listing. The confusion on the acreage on the IC/EC forms is likely due to the presence of offsite upgradient monitoring wells on parcel 101.24-1-3.2 (MW-1 and MW-201) that were, at one point in time, both included in the monitoring program. The IC/EC forms have been revised to reflect parcel 101.24-1-3.1 and an area of approximately 7.25 acres.

- Is a site inspection completed outside of OU-1 and OU-2? Please detail these areas in the PRR, including their current use and occupancy.

  There is no site inspection completed outside of OU-1 and OU-2. These are the areas incorporated in the O&M plan subject to the biennial groundwater sampling and annual pavement inspection. The current site use is already defined in Section 1.1 of the PRR as being used by the City of Buffalo for training school bus drivers.

  Should you have any questions or if you would like to discuss any aspect of this report, please feel free to contact me at 571.217.3627 or todd.waldrop@inventumeng.com

Sincerely,

Todd Waldrop

cc. J. Williams – East Delavan Property, LLC
J. Yensan – OSC, Inc.
D. Flynn, Phillips Lytle

Attachment A – Periodic Review Report

INVENTUM ENGINEERING, PC

Saginaw – Buffalo Site
320 Scajaquada St
Site Management Periodic Review Report

East Delavan Property, LLC
NYSDEC Site Number 915152

Dates Covered by Report:
May 4, 2020 to May 4, 2021

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1 Executive Summary

Inventum Engineering, P.C. (Inventum) has prepared this Site Management (SM) Periodic Review Report (PRR) for the Saginaw-Buffalo Site (Site) located at 320 Scajacuada Street in the City of Buffalo, Erie County. The Site is defined as the former Parking Lot #4 associated with the former General Motors and American Axle & Manufacturing (AAM) facility that manufactured axles and drive-train components for cars and trucks. The Site covers an area of approximately 7.2478 acres (SBL Parcel No. 101.24-1-3.1) and is included in the New York Registry of Inactive Hazardous Waste Sites (Site No. 915152). Site Institutional Controls (ICs) and Engineering Controls (ECs) were adhered to over the PRR reporting period and continue to be effective in maintaining the remedial objectives. No changes to the established SMP or recommended during the next PRR reporting period.

1.1 Site Summary

General Motors (GM) purchased several parcels in the mid-1960s and constructed Parking Lot #4 which is the current listed Site. In 1989 during a spill cleanup of industrial oil by GM, excavated soil was found to contain Polychlorinated Biphenyls (PCBs). The Site was sold to AAM in 1994 along with the main facility west of the railroad right of way[1]. As part of this conveyance, a deed restriction was placed on the property limiting it for use for industrial purposes only. GM-Saginaw Division, the previous owner of the Site, entered into a Consent Order in 1995 and a Final Site Investigation Report and Engineering Evaluation Report of Alternatives was completed in 1997. A Record of Decision (ROD) was issued in March 1998 which required: 1) The further removal of PCB contaminated soil, water and oil; 2) Maintenance of the pavement to reduce infiltration and provided a barrier to lead contaminated soil; and 3) Long-term monitoring and maintenance. Remediation (the "removal of PCB contaminated soil, water and oil") of the Site was completed in 1998 and a long-term operation and maintenance (O&M) plan is in place.

The Site is currently utilized periodically by the City of Buffalo for training school bus drivers.

1.2 Effectiveness of the Remedial Program

Remediation of the Site was completed in 1998 and included:

- Dewatering of an approximately 1-acre area surrounding the former Wastewater Treatment Plant[2] and on-site water treatment, confirmatory effluent sampling and analysis, and batch discharge to the Buffalo Sewer Authority (BSA) sanitary sewer system;
- Excavating fill/soil containing greater than the site cleanup goal of 10 parts per million (ppm) PCBs in the OU1 area, and confirmatory sampling;
- Transporting excavated materials off-site for treatment and disposal;
- Backfilling of the OU1 excavation with clay soil; and
- Paving the excavation area (OU1) and repaving of the OU2 area which was the remainder of the Parking Lot No. 4.

[1] The former GM/AAM main facility is now compromised of the East Delavan Ave Brownfield Cleanup Program Site No. C915196B and the 250 Colorado Street Site No. 915196

[2] This 1-acre area was referred to as Operable Unit 1 (OU1) as was the original NYSDEC Registry Listing for the Site

The remedial program was effective and long-term site monitoring requirements were established requiring:

- Pavement inspection and maintenance conducted on an annual basis to ensure that the integrity of the asphalt surface has been maintained;
- Visual inspection of storm sewer manhole covers and manhole risers for structural damage;
- Groundwater sampling of Site monitoring wells for PCBs, Total Lead, and Soluble Lead; and
- Storm sewer sampling from Manhole #2 for PCBs and Total Lead.

Groundwater and storm sewer sampling were initially conducted on a semi-annual basis and have been conducted on a biennial basis since 2008. Three (3) monitoring wells (MW-1, MW-201, and MW-205) were removed from the groundwater sampling program in 2004 (Figure 1).

Pavement inspection, storm sewer visual inspection, and storm sewer sampling is conducted on an annual basis.

1.2.1 Progress During the Reporting Period

The cover system is intact and functioning. Inventum conducted the annual inspection September 2020 and completed the required inspection form (Appendix A). Photographs of the inspection are included in Appendix A.

Supplemental groundwater sampling of select site monitoring wells (MW-1, MW-202, MW-204, and MW-211) for per and polyfluoroalkyl substances (PFAS) and 1,4-Dioxane was completed in September 2020 in accordance with the June 25, 2020 approved work plan. These results were documented in an *Emerging Contaminant Sampling Report* submitted to the NYSDEC on January 5, 2021. The NYSDEC provided comments on the report in a letter dated March 19, 2021 and required additional biennial sampling for PFAS and 1,4-Dioxane at select monitoring wells (MW-204 [PFAS only], MW-211, and MW-202). A tabular summary of the supplemental groundwater sampling results is provided for reference in Appendix B (Table 1). Groundwater sampling forms are provided in Appendix C.

The annual storm sewer sampling from Manhole #2 for PCBs and Total lead was conducted in September 2020. A summary of the storm sewer results is provided in Appendix B (Table 2). Historical sampling data is provided in Table 3 (Appendix B).

The EQuIS formatted EDD from the September 2020 Emerging Contaminant sampling and annual storm sewer sampling was submitted to the NYSDEC on January 29, 2021. The laboratory report is provided as Appendix D.

1.2.2 Progress to Remedial Objectives for the Site

The Remedial Objectives (ROs) for the Site as established in the March 1998 Record of ROD) have been achieved and the Site has been in long-term monitoring since 2002.

1.3 Compliance

1.3.1 Potential Non-compliance

There were no areas of potential non-compliance identified during the reporting period.

1.3.2 Proposed Steps

There were no areas of potential non-compliance identified during the reporting period that would require a compliance plan.

1.4 Recommendations

1.4.1 Recommended Changes to the SMP

There are no recommended changes to the SMP at this time.

1.4.2 Recommend Changes to the Frequency for Submittal of PRRs

There is no recommended change to the frequency of the PRRs at this time.

1.4.3 Recommend Whether the Requirements for Discontinuing Site Management

It is appropriate to continue Site Management.

2 Site Overview

2.1 Site Location

The Site is located at 320 Scajacuada Street in the City of Buffalo, Erie County. The Site is defined as the former Parking Lot #4 associated with the former General Motors and American Axle & Manufacturing (AAM) facility that manufactured axles and drive-train components for cars and trucks. The Site covers an area of approximately 7.2478 acres and is included in the New York Registry of Inactive Hazardous Waste Sites (Site No. 915152).

2.2 Chronology of the Remedial Program

GM and NYSDEC entered on Order on Consent (Index #B9-0410-92-09), effective February 2, 1995, pursuant to which GM performed an Interim Remedial Measure (IRM) at OU1 and conducted a Site Investigation and Engineering Evaluation of Alternatives in both OU1 and OU2. Based upon the Engineering Evaluation of Alternatives Report prepared by Wehran-New York, Inc. (ENCOR), NYSDEC prepared a Proposed Remedial Action Plan, which it submitted for public comment in February 1998.

NYSDEC selected a final remedial alternative for the Site in a ROD that was issued in March 1998. A Remedial Design (RD) Report was prepared by EMCON to implement the ROD-selected remedial alternatives at the Site. The RD Report was approved by the NYSDEC, and remedial activities were conducted between July 1998 and March 2000.

3 Evaluate Remedy Performance, Effectiveness, and Protectiveness

The performance, effectiveness, and protectiveness of the remedy are verified through evaluating each of the primary remedial measures.

- The pavement and structural integrity of the sewer system remain in good condition at the Site. The next annual inspection will be conducted in October 2021.
- Groundwater samples in accordance with the O&M plan will be collected in October 2021. In addition to routine biennial sampling for PCBs, Total Lead, and Soluble Lead, MW-204 will also be sampled for PFAS and MW-211 and MW-202 will also be sampled for PFAS and 1,4-Dioxane.
- Sewer samples in accordance with the O&M plan will be collected in October 2021.

4 IC/EC Plan Compliance Report

4.1 IC/EC Requirements and Compliance

A series of IC have been developed and are being adhered to at the Site and include:

- Inspection and maintenance of Parking Lot #4.
- Groundwater and sewer monitoring in accordance with the April 2001 O&M Manual and subsequent modifications to the O&M Manual in January 2004 and September 2008.

4.1.1 Controls

Engineering controls (ECs) developed for the Site consist of an asphalt pavement cover system.

4.1.2 Status

The Site IC/ECs are all currently active and in force.

4.1.3 Corrective Measures

There are no corrective measures proposed at this time.

4.2 IC/EC Certification

The IC/EC certifications are provided in Enclosure A.

5 Monitoring Plan Compliance Report

5.1 Monitoring Plan Compliance Report

Routine Site Monitoring includes annual pavement inspection, annual visual inspection of sewer structure integrity, annual storm sewer sample collection, biennial groundwater sample collection, and periodic certification.

5.2 Monitoring Completed During Reporting Period

Inventum conducted the annual inspection September 2020 and completed the required inspection form (Appendix A).

Supplemental groundwater sampling of select site monitoring wells (MW-1, MW-202, MW-204, and MW-211) for the emerging contaminants PFAS and 1,4-Dioxane was completed in September 2020. The

supplemental sampling was conducted in response to exceedances of PFAS screening thresholds in samples collected in December 2019. PFAS and 1,4-Dioxane samplings results from both December 2019 and September 2020 are shown on Table 1 (Appendix B) and on Figure 1.

No PFAS analytes were detected at concentrations above their respective screening value in the sample from MW-1 (representative upgradient well) or MW-202 (representative downgradient property boundary well). PFOA was detected at concentrations above the 10 nanogram per liter (ng/L) screening value at MW-204 in both the primary and duplicate sample collected in September 2020; however, none of the other PFAS analytes were detected above their screening value. The supplemental sampling at MW-211 showed consistent results compared to the December 2019 sampling. PFPeA, PFOA, and 6:2FTS were detected in both the December 2019 and September 2020 samples within a similar order of magnitude. None of the wells sampled in September 2020 contained total concentrations of PFAS (including PFOA and PFOS) greater than 500 ng/L.

1,4-Dioxane was detected in MW-211 at concentrations above the 1 microgram per liter (µg/L) screening value in the September 2020 (7.5 µg/L) sample. None of the other well samples collected in September 2020 during the reporting period contained 1,4-Dioxane at concentrations above the screening value.

Storm sewer sampling from Manhole #2 for PCBs and Total lead was conducted in September 2020. All results for PCBs were non-detect. An estimated Total Lead concentration of 0.48 µg/L was detected. A summary of the storm sewer results is provided in Table 2 of Appendix B.

Laboratory analytical results for samples collected during the reporting period are provided in Appendix D and the EDDs formatted for the NYSDEC Environmental Information Management System (EIMS) were submitted to the NYSDEC database on January 29, 2021.

There were no emergencies or unforeseen failures of established ECs that would require non-routine inspections. Purge water generated from groundwater sampling during the reporting period was contained in a DOT-compliant open topped 55-gallon steel drum, labeled as non-hazardous waste, and stored onsite pending additional accumulation prior to disposal.

5.3 Monitoring Deficiencies

There were no monitoring deficiencies during the reporting period.

5.4 Conclusions and Recommendations for Changes

As required by the NYSDEC in a letter dated March 19, 2021, the biennial sampling program will be modified to include additional sampling for PFAS and 1,4-Dioxane at select wells. In addition to routine biennial sampling for PCBs, Total Lead, and Soluble Lead, MW-204 will also be sampled for PFAS and MW-211 and MW-202 will also be sampled for PFAS and 1,4-Dioxane.

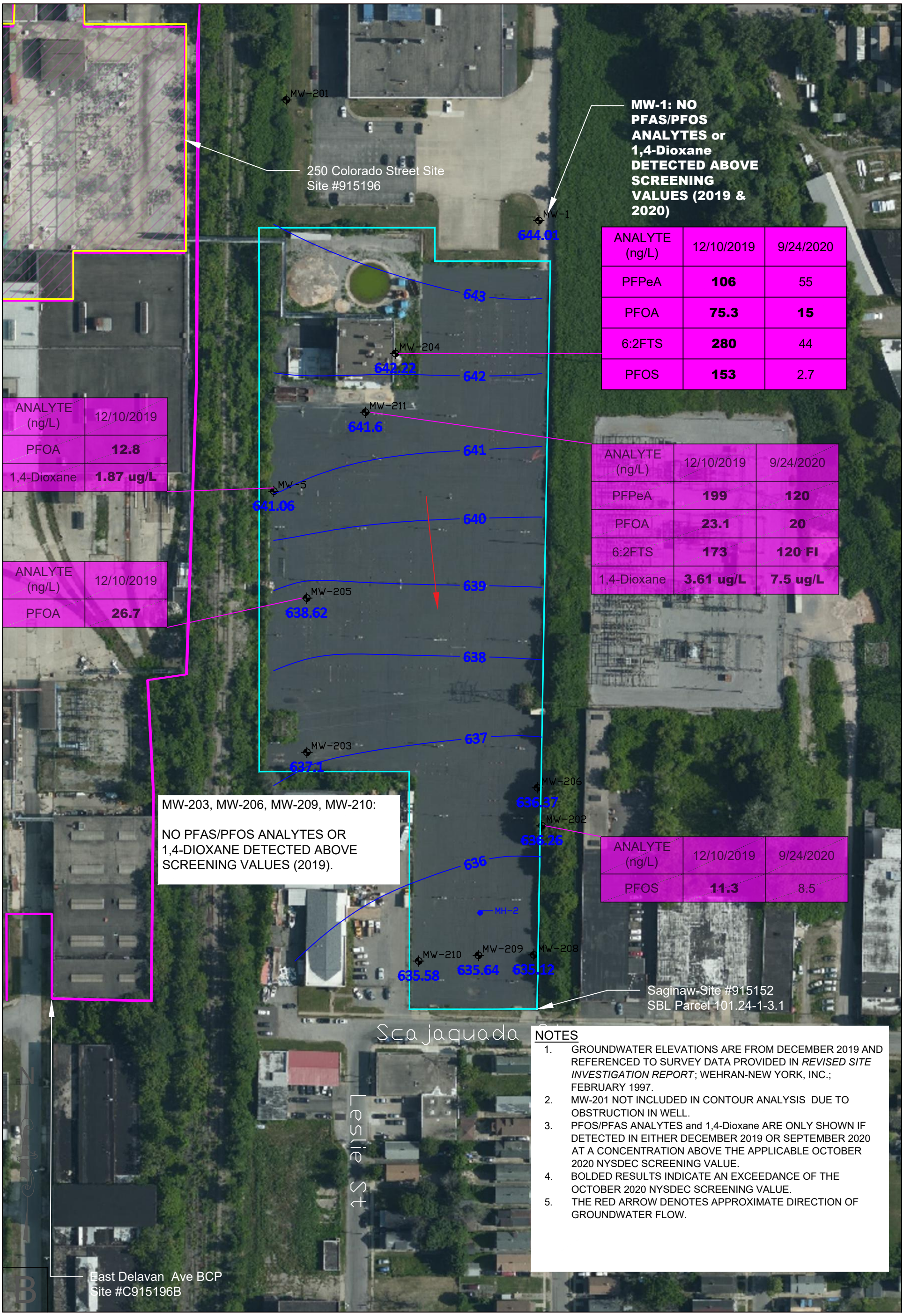
6 Operation & Maintenance (O&M) Plan Compliance Report

The Site remedy does not rely on any mechanical systems to protect public health and the environment; therefore, an O&M Plan Compliance Report is not applicable to this PRR.

7 Overall PRR Conclusions and Recommendations

Site IC/ECs remain in place and effective in maintaining the remedial objectives. No changes to the established SMP or recommended during the next PRR reporting period

Figure



ANALYTE (ng/L)	12/10/2019	9/24/2020
PFPeA	**106**	55
PFOA	**75.3**	**15**
6:2FTS	**280**	44
PFOS	**153**	2.7

ANALYTE (ng/L)	12/10/2019
PFOA	**12.8**
1,4-Dioxane	**1.87 ug/L**

ANALYTE (ng/L)	12/10/2019
PFOA	**26.7**

ANALYTE (ng/L)	12/10/2019	9/24/2020
PFPeA	**199**	**120**
PFOA	**23.1**	**20**
6:2FTS	**173**	**120 FI**
1,4-Dioxane	**3.61 ug/L**	**7.5 ug/L**

MW-203, MW-206, MW-209, MW-210:

NO PFAS/PFOS ANALYTES OR 1,4-DIOXANE DETECTED ABOVE SCREENING VALUES (2019).

ANALYTE (ng/L)	12/10/2019	9/24/2020
PFOS	**11.3**	8.5

NOTES

1. GROUNDWATER ELEVATIONS ARE FROM DECEMBER 2019 AND REFERENCED TO SURVEY DATA PROVIDED IN *REVISED SITE INVESTIGATION REPORT*; WEHRAN-NEW YORK, INC.; FEBRUARY 1997.
2. MW-201 NOT INCLUDED IN CONTOUR ANALYSIS DUE TO OBSTRUCTION IN WELL.
3. PFOS/PFAS ANALYTES and 1,4-Dioxane ARE ONLY SHOWN IF DETECTED IN EITHER DECEMBER 2019 OR SEPTEMBER 2020 AT A CONCENTRATION ABOVE THE APPLICABLE OCTOBER 2020 NYSDEC SCREENING VALUE.
4. BOLDED RESULTS INDICATE AN EXCEEDANCE OF THE OCTOBER 2020 NYSDEC SCREENING VALUE.
5. THE RED ARROW DENOTES APPROXIMATE DIRECTION OF GROUNDWATER FLOW.

NOT TO SCALE

FIGURE 1

INVENTUM ENGINEERING
481 CARLISLE DRIVE
SUITE 202
HERNDON, VIRGINIA 20170
(703) 722-6049
www.InventumEng.com

FIGURE 1
EMERGING CONTAMINANT SAMPLING RESULTS
Saginaw - Buffalo Site
320 Scajaquada St.
NYSDEC Site No. 915152

DRAWING BY
CHECKED
APPROVED

Appendix A – Engineering Controls – September 2020 Annual Site-Wide Inspection Form and Photographs

ANNUAL INSPECTION FORM
SAGINAW-BUFFALO SITE

Inspection Date: 9/24/2020
Inspected By: Todd Waldrop (Inventum Engineering)

PAVEMENT (Identify any damaged areas on site sketch)

1. Cracked Areas	Yes	No x
2. Settled Areas	Yes	No x
3. Potholes	Yes	No x
4. Heaving	Yes	No x
5. Plow Damage	Yes	No x
6. Drainage	Good x	Poor
	Explain:	
7. Condition of Surface Sealing	Good x	Poor
	Explain: Some linear cracking, but overall in good shape. No deep fissures in sealant. Photos collected.	

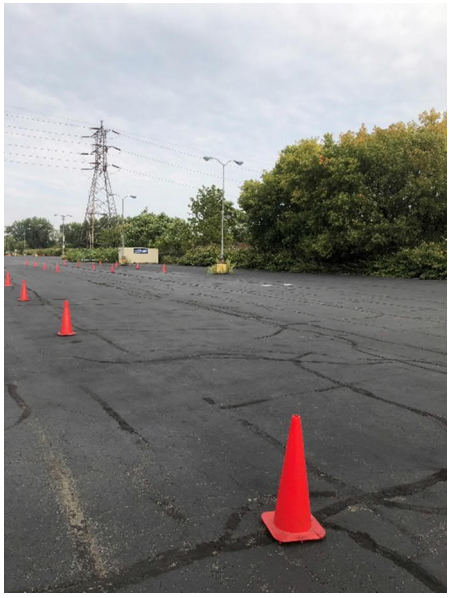
STORM SEWERS

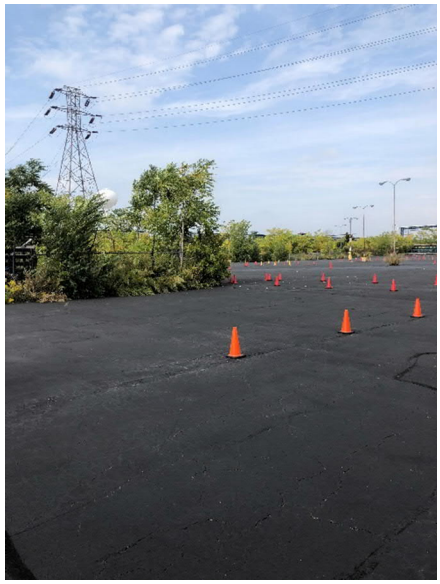
1. Condition of Manhole Risers	Good x	Poor
	Explain:	
2. Sediment in Main	None x	Avg (1-4") High (>4")
	Comments: No sediment visible in MH #1 or MH#2. Trickle flow.	

MONITORING WELLS

	MW-1	MW-5	MW-201	MW-202	MW-203	MW-204	MW-205	MW-206	MW-208	MW-209	MW-210	MW-211
Is protective casing in good condition?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is flush mount casing in good condition?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are casing labeled?	No	No	No	No	No	No	No	No	No	No	No	No
Is concrete surface seal in good condition?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Is protected pad in good condition?	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Are locks present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are lock in good condition?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is riser in good condition?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are J-plugs present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Comments:
Casing survey/measurement markings are not visible. Re-mark and survey scheduled to coincide with similar scope of work in 2021 planned for the ongoing RI associated with 1001 East Delavan Ave BCP Site (Site No. C915196B)
MW-206 - Pad and well can need replacement. Replacement/repair scheduled to coincide with similar scope of work in 2021 planned for the ongoing RI associated with 1001 East Delavan Ave BCP Site (Site No. C915196B)
MW-201 - Abovegrade concrete appears to have slipped and may be displaced. Above grade casing disconnected and displaced from belowgrade casing by at least 0.2". Well is no longer part of the monitoring network. Recommend abandonment in 2021.

Client Name: East Delavan Avenue LLC	Photo Date: Sept. 2020	Project: Saginaw – Buffalo Site Site No. 915152
Photo No. 1		
Direction Photo Taken: Looking North		
Description: Typical. Pavement in good condition.		
Client Name: East Delavan Avenue LLC	Photo Date: Sept. 2020	Project: Saginaw – Buffalo Site Site No. 915152
Photo No. 2		
Direction Photo Taken: Looking south.		
Description: MH-2		

Client Name: East Delavan Avenue LLC	Photo Date: Sept. 2020	Project: Saginaw – Buffalo Site Site No. 915152
Photo No. 3		
Direction Photo Taken: N/A		
Description: Little flow in MH-2 during annual sampling. No sediment build up noted.		
Client Name: East Delavan Avenue LLC	Photo Date: Sept. 2020	Project: Saginaw – Buffalo Site Site No. 915152
Photo No. 4		
Direction Photo Taken: Looking northwest.		
Description: Typical. Pavement in good condition.		

Client Name: East Delavan Avenue LLC	Photo Date: Sept. 2020	Project: Saginaw – Buffalo Site Site No. 915152
Photo No. 5		
Direction Photo Taken: Looking West.		
Description: Typical. Pavement in good condition. Traffic cones for City of Buffalo school bus training.		

Appendix B – Supplemental Emerging Contaminant Sampling and Annual Storm Sewer Sampling Summary Tables – September 2020

Table 1
Saginaw Site (Site #915152)
Emerging Contaminants Groundwater Sampling Results
December 2019 and September 2020

	NYSDEC 1,4-Dioxane and PFAS Guidance (b)	MW-1				MW-5		MW-202				MW-203		MW-204		MW-99 (a)		MW-204		MW-99 (a)		MW-205		MW-206		MW-208		MW-209		MW-210		MW-211		
		12/10/2019		9/24/2020		12/10/2019		12/10/2019		9/24/2020		12/10/2019		12/10/2019				9/24/2020				12/10/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019		9/24/2020		
SVOCs (µg/L)																																		
1,4-Dioxane	1	0.2	U	0.2	U	1.87		0.2	U	0.2	U	0.175	J	0.591		0.56		0.39		0.44		0.218		0.2	U	NS		0.2	U	0.2	U	3.61		7.5	E J *LR*
PFOS/PFAS (ng/L)																																		
Perfluorobutanoic Acid (PFBA)	100	0.481	J	2.6	J	28.6		7.25		11		17.1		28.8		22.2		21		21		15.7		4.87		NS		2.73		3.3		40.8		28	
Perfluoropentanoic Acid (PFPeA)	100	0.412	J	1.2	J	127		4.83		9.5		30.6		106		80.1		55		55		21.1		2.26		NS		1.79	J	1.24	J	199		120	
Perfluorobutanesulfonic Acid (PFBS)	100	0.273	J	0.84	J	1.28	J	2.2		2.6		0.677	J	5.39		2.37		1.9	J	1.7	J	1.41	J	1.6	J	NS		1.85	J	2.98		2.03	U	0.73	J
Perfluorohexanoic Acid (PFHxA)	100	0.542	J	0.83	J	55		5.98		4.8		18.2		60.2		36.8		31		30		14.1		2.06		NS		1.24	J	1.52	J	84		55	
Perfluoroheptanoic Acid (PFHpA)	100	1.92	U	0.77	J	32.8		1.92	J	2.8		13.4		42.3		28.5		29		28		7.21		1.19	J	NS		0.858	J	1.09	J	62.4		41	
Perfluorohexanesulfonic Acid (PFHxS)	100	1.92	U	1.9	U	1.89	U	11.5		14		3.38	B	89.2		1.98	U	2	U	1.9	U	3.07		1.86	J	NS		1.87	U	0.901	J	2.03	U	1.8	U
Perfluorooctanoic Acid (PFOA)	10	0.588	J	1.2	J	12.8		6.24		5.6		8.22		75.3		17.6		15		16		26.7		4.36		NS		1.15	J	3.24		23.1		20	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	100	1.92	U	4.8	U	43.9	B	1.96	U	4.7	U	2.02	U	280		114		44		50		2.57		1.99	U	NS		1.87	U	2.14	U	173		120	F1 J *MSH*
Perfluoroheptanesulfonic Acid (PFHpS)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	4.2		1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		1.87	U	2.14	U	2.03	U	1.8	U
Perfluorononanoic Acid (PFNA)	100	1.92	U	1.9	U	1.31	J	1.96	U	0.96	J	0.944	J	11.3		8.95		7.5		7.3		0.968	J	1.99	U	NS		1.87	U	0.738	J	7.72		9.3	
Perfluorooctanesulfonic Acid (PFOS)	10	1.92	U	1.9	U	2.96	B	11.3		8.5		4.67	B	153		1.98	U	2.7		2.8		7.52		3.1		NS		0.936	J	2.14		9.65		6.3	I J *ISH*
Perfluorododecanoic Acid (PFDA)	100	1.92	U	1.9	U	1.89	U	1.96	U	0.61	J	2.02	U	1.24	J	0.866	J	0.98	J	0.84	J	1.97	U	1.99	U	NS		1.87	U	2.14	U	0.598	J	1.4	J1 J *ISH*
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	50.1		39.9		34		34		1.97	U	1.99	U	NS		1.87	U	2.14	U	21.2		25	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	100	1.92	U	4.8	U	1.89	U	1.96	U	4.7	U	2.02	U	2	U	2.02		5.1	U	4.8	U	1.97	U	1.99	U	NS		2.37		2.14	U	2.03	U	4.6	U
Perfluoroundecanoic Acid (PFUnA)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		1.87	U	2.14	U	2.03	U	1.8	U
Perfluorodecanesulfonic Acid (PFDS)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		1.87	U	2.14	U	2.03	U	1.8	U
Perfluorooctanesulfonamide (FOSA)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		1.87	U	2.14	U	2.03	U	1.8	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100	1.92	U	4.8	U	1.89	U	1.96	U	4.7	U	2.02	U	2	U	1.98	U	5.1	U	4.8	U	1.97	U	1.99	U	NS		3.22		1.12	J	2.03	U	4.6	U
Perfluorododecanoic Acid (PFDoA)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		1.87	U	2.14	U	2.03	U	1.8	U
Perfluorotridecanoic Acid (PFTrDA)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		0.416	J	2.14	U	2.03	U	1.8	U
Perfluorotetradecanoic Acid (PFTA)	100	1.92	U	1.9	U	1.89	U	1.96	U	1.9	U	2.02	U	2	U	1.98	U	2	U	1.9	U	1.97	U	1.99	U	NS		0.491	J	2.14	U	2.03	U	1.8	U
PFOA/PFOS (Total)	500	2.3		7.4		305.7		51.2		60.4		97.2		907.0		353.3		242.1		246.6		100.3		21.3		NS		17.1		18.3		621.5		426.7	

a/ Duplicate sample collected at MW-204.
b/ Ambient Water Quality Standards for PFAS are not available. Guidance values shown are from the October 2020 *Sampling, Analysis, and Assessment of Per-and Polyfluoralkyl Substances (PFAS) Under NYSDECS Part 375 Remedial Programs*
U = Analyte not detected at reporting limit shown; J = estimated value; I =
NS = Sample not collected. Insufficient sample volume post-purging and primary sample (SMP Constitutents) collection.
NE = Comparative standard not established
µg/L = micrograms per liter; ng/L = nanograms per liter
B = Method Blank contained PFHxS, 6:2 FTS, and PFOS above reporting limits and sample lacked sufficient volume for re-extraction.
Third Party Data Validation Codes shown in italics: LR = linear range exceeded; MSH = matrix spike recovery greater than upper limit ; ISH = internal standard response exceeded UCL

Table 2
Saginaw Site (Site #915152)
Annual Storm Sewer Sampling Results
September 2020
SMP Constituents

	MH-2	
	9/24/2020	
Metals (µg/L)		
Lead (Total)	0.48	J
PCBs (µg/L)		
PCB-1016	0.06	U
PCB-1221	0.06	U
PCB-1232	0.06	U
PCB-1242	0.06	U
PCB-1248	0.06	U
PCB-1254	0.06	U
PCB-1260	0.06	U
PCB-1262	0.06	U

Bold text indicates a reportable concentration.
"U" = analyte not detected at reporting limit shown.
"J" = Estimated value. Result less than Reporting Limit but greater than or equal to the Method Detection Limit.

Table 3
Saginaw Site (Site #915152)
Semi-Annual GW Sampling Results
Historical
SMP Constituents

	Class GA GW Standards	MW-1		MW-5		MW-202		MW-203		MW-204		MW-99 (a)		MW-205		MW-206		MW-208		MW-209		MW-210		MW-211	
		12/10/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019				12/10/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019		12/10/2019	
Metals (mg/L)																									
Lead (Total)	0.025	0.01	U	0.104		0.01	U	0.01	U	0.0487		0.037		0.0513		0.456		0.00746	J	0.01	U	0.01	U	0.256	
Lead (Dissolved)	0.025	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
PCBs (µg/L)																									
PCB-1016		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1221		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1232		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1242		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1248	0.09 (b)	1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1254		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1260		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1262		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
PCB-1268		1.04	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

a/ Duplicate sample collected at MW-204.
Bold text indicates a reportable concentration.
Green highlighted values indicate an exceedances of the standard shown.
b/ Applicable standard is the sum of all cogeners.

Table 3
Saginaw Site (Site #915152)
Annual Storm Sewer Sampling Results
Historical

	MH-2			
	12/16/2019		9/24/2020	
Metals (µg/L)				
Lead (Total)	0.01	U	0.48	J
PCBs (µg/L)				
PCB-1016	1.03	U	0.06	U
PCB-1221	1.03	U	0.06	U
PCB-1232	1.03	U	0.06	U
PCB-1242	1.03	U	0.06	U
PCB-1248	1.03	U	0.06	U
PCB-1254	1.03	U	0.06	U
PCB-1260	1.03	U	0.06	U
PCB-1262	1.03	U	0.06	U

Bold text indicates a reportable concentration.
"U" = analyte not detected at reporting limit shown.
"J" = Estimated value. Result less than Reporting Limit but greater than or equal to the Method Detection Limit.

Appendix C – Groundwater Sampling Forms

GROUNDWATER MONITORING WELL PURGE FORM

Site:

Well ID:	MW-204	Depth to Water (ft BTOC):	4.25
Inventum Sampler:	Todd W.	Depth to Product (ft BTOC):	-
Date:	9/24/2020	Total Depth (ft BTOC):	7.2

Purge Details

Time Start:	823	Comments/Notes: Well condition and casing are in good shape.
Time Ended:	837	
Total Purge Volume:	~1gal	

Time	DTW	pH	Temperature	Turbidity	Conductivity	ORP	DO
8:28:00 AM	4.38	7.32	17.63	1	0.905	-108	0.13
8:31:00 AM	4.4	7.4	17.71	0	0.879	-117	0
8:34:00 AM	4.4	7.43	17.77	0.7	0.851	-128	0
8:37:00 AM	4.4	7.44	17.8	0	0.856	-127	0

Sample Details

Sample Date:	9/24/2020	Analysis: PCPFOS/PFAS (537) {250 mL poly x 2 unpreserved}; 1,4-Dioxane (8270SIM) {1-L amber unpreserved).
Sample Time:	840	
Sampled By:	Todd W	Collected duplicate labeled MW-99 w/false time 0848 for same paramters listed above. Collected MS/MSD for same parameters listed above.

GROUNDWATER MONITORING WELL PURGE FORM

Site:

Well ID:	MW-211	Depth to Water (ft BTOC):	4.15
Inventum Sampler:	Todd W.	Depth to Product (ft BTOC):	-
Date:	9/24/2020	Total Depth (ft BTOC):	8.67

Purge Details

Time Start:	1020	Comments/Notes: Well condition and casing are in good shape.
Time Ended:	1030	
Total Purge Volume:	~1gal	

Time	DTW	pH	Temperature	Turbidity	Conductivity	ORP	DO
10:20:00 AM	4.23	7.28	20.84	56.6	1.24	-85	1.05
10:23:00 AM	4.25	7.31	21.8	6.9	1.21	-108	0
10:27:00 AM	4.25	7.36	23.03	0	1.18	-123	0
10:30:00 AM	4.25	7.36	23.26	0	1.17	-125	0

Sample Details

Sample Date:	9/24/2020	Analysis: PCPFOS/PFAS (537) {250 mL poly x 2 unpreserved}; 1,4-Dioxane (8270SIM) {1-L amber unpreserved).
Sample Time:	1040	
Sampled By:	Todd W	

GROUNDWATER MONITORING WELL PURGE FORM			
Site:			
Well ID:	MW-202	Depth to Water (ft BTOC):	5.48
Inventum Sampler:	Todd W.	Depth to Product (ft BTOC):	-
Date:	9/24/2020	Total Depth (ft BTOC):	7.7

Purge Details		
Time Start:	1105	Comments/Notes: Well condition and casing are in good shape.
Time Ended:	1125	
Total Purge Volume:	~1gal	

Time	DTW	pH	Temperature	Turbidity	Conductivity	ORP	DO
11:19:00 AM	6.25	7.41	21.58	46	0.476	-112	1.08
11:22:00 AM	7.13	7.09	19.77	19.7	0.501	-109	0
11:25:00 AM	7.5	7.07	19.02	6.6	0.564	-125	0
Well is purging dry at minimum flow rate. Purg completely dry. Shut off pump to allow recovery than sample.							

Sample Details		
Sample Date:	9/24/2020	Analysis: PCPFOS/PFAS (537) {250 mL poly x 2 unpreserved}; 1,4-Dioxane (8270SIM) {1-L amber unpreserved).
Sample Time:	1145	
Sampled By:	Todd W	

GROUNDWATER MONITORING WELL PURGE FORM

Site:

Well ID:	MW-1	Depth to Water (ft BTOC):	7.76
Inventum Sampler:	Todd W.	Depth to Product (ft BTOC):	-
Date:	9/24/2020	Total Depth (ft BTOC):	8.05

Purge Details

Time Start:	936	Comments/Notes: Well condition and casing are in good shape.
Time Ended:	955	
Total Purge Volume:	~1gal	

Time	DTW	pH	Temperature	Turbidity	Conductivity	ORP	DO
9:40:00 AM	7.62	7.3	18.49	24.6	1.01	-122	15.77
9:43:00 AM	8.03	7.23	18.06	49.3	1.25	-122	1.05
9:44:00 AM	*Well purged dry. Shut off pump & monitor Recovery						
9:48:00 AM	7.97	7.23	18.29	29.7	1.25	-118	0
9:50:00 AM	*Well purged dry. Shut off pump & monitor Recovery						
9:55:00 AM	7.82	7.25	18.04	33.4	1.12	-123	0

Sample Details

Sample Date:	9/24/2020	Analysis: PCPFOS/PFAS (537) {250 mL poly x 2 unpreserved}; 1,4-Dioxane (8270SIM) {1-L amber unpreserved).
Sample Time:	958	
Sampled By:	Todd W	

Appendix D – Laboratory Report

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-175617-1
Client Project/Site: Saginaw site

For:
Inventum Engineering LLC
481 Carlisle Dr
Suite 202
Herndon, Virginia 20170

Attn: Todd Waldrop

Authorized for release by:
10/7/2020 4:32:36 PM
Rebecca Jones, Project Management Assistant I
Rebecca.Jones@Eurofinset.com

Designee for

Brian Fischer, Manager of Project Management
(716)504-9835
Brian.Fischer@Eurofinset.com

Table of Contents

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 480-175617-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-175617-1

Comments
No additional comments.

Receipt
The samples were received on 9/24/2020 2:05 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8º C.

GC/MS Semi VOA
Method 8270D SIM ID: The 1,4-Dioxane result reported for sample MW-211 (480-175617-4) have an E flag qualifier indicating the results are over the calibration range on the raw data. The actual amounts are within the calibration range; however, the E flag is generated based upon the bias corrected concentration. The LIMS system calculates a bias correction based on the recovery of the 1,4-Dioxane-d8 isotope. MW-211 (480-175617-4)

Method 8270D SIM ID: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-211 (480-175617-4), MW-211 (480-175617-4[MS]) and MW-211 (480-175617-4[MSD]). Elevated reporting limits (RLs) are provided.

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

GC Semi VOA
Method 608.3: Surrogate recovery for the following sample was outside control limits: MH-2-92420 (480-175617-7). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

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

LCMS
Method 537 (modified): The method blank for preparation batch 200-159418 and analytical batch 200-159470 contained Perfluorooctanesulfonamide (PFOSA) above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method 537 (modified): Method 537 (modified): The “I” qualifier associated with sample MW-211 (480-175617-4) is applied because the transition mass ratio for the indicated analyte(s) was outside of the established ratio limits. The qualitative identification has some degree of uncertainty, however analyst judgment was used to positively identify the analyte(s).

Method 537 (modified): The matrix spike (MS) recoveries for preparation batch 200-159418 and analytical batch 200-159470 were outside control limits for 1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2). Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

Detection Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Client Sample ID: MW-204 — Lab Sample ID: 480-175617-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.39		0.20	0.10	ug/L	1		8270D SIM ID	Total/NA
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	34		2.0	0.67	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	44		5.1	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.9	J	2.0	0.64	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	21		5.1	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.98	J	2.0	0.47	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	29		2.0	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	31		2.0	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	7.5		2.0	0.59	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.7		2.0	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	15		2.0	1.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	55		2.0	1.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-99 — Lab Sample ID: 480-175617-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	0.44		0.20	0.10	ug/L	1		8270D SIM ID	Total/NA
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	34		1.9	0.63	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	50		4.8	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7	J	1.9	0.60	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	21		4.8	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.84	J	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	28		1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	30		1.9	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	7.3		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.8		1.9	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	16		1.9	0.94	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	55		1.9	1.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-1 — Lab Sample ID: 480-175617-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.84	J	1.9	0.61	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	2.6	J	4.8	1.1	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.77	J	1.9	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.83	J	1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.2	J	1.9	0.95	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.2	J	1.9	1.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-211 — Lab Sample ID: 480-175617-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,4-Dioxane	7.5	E	1.0	0.50	ug/L	5		8270D SIM ID	Total/NA
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	25		1.8	0.61	ng/L	1		537 (modified)	Total/NA
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	120	F1	4.6	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.73	J	1.8	0.58	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	28		4.6	1.0	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	1.4	J I	1.8	0.42	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Buffalo

Client Sample ID: MW-211 (Continued) — Lab Sample ID: 480-175617-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	41		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	55		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	9.3		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.3	I	1.8	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	20		1.8	0.90	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	120		1.8	1.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-202 — Lab Sample ID: 480-175617-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	2.6		1.9	0.59	ng/L	1		537 (modified)	Total/NA
Perfluorobutanoic acid (PFBA)	11		4.7	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorodecanoic acid (PFDA)	0.61	J	1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.8		1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14		1.9	0.62	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.8		1.9	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.96	J	1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.5		1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.6		1.9	0.91	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	9.5		1.9	1.0	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EQS-092420 — Lab Sample ID: 480-175617-6

No Detections.

Client Sample ID: MH-2-92420 — Lab Sample ID: 480-175617-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	0.48	J	1.0	0.17	ug/L	1		200.8	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Client Sample ID: MW-204

Date Collected: 09/24/20 08:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.39**		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 17:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*30*		*15 - 110*	*09/28/20 15:00*	*09/29/20 17:02*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	**34**		2.0	0.67	ng/L		10/01/20 08:45	10/01/20 19:10	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	**44**		5.1	0.73	ng/L		10/01/20 08:45	10/01/20 19:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.1	0.95	ng/L		10/01/20 08:45	10/01/20 19:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.1	0.80	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorobutanesulfonic acid (PFBS)	**1.9**	**J**	2.0	0.64	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorobutanoic acid (PFBA)	**21**		5.1	1.1	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.49	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorodecanoic acid (PFDA)	**0.98**	**J**	2.0	0.47	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.47	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.40	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluoroheptanoic acid (PFHpA)	**29**		2.0	0.47	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.68	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorohexanoic acid (PFHxA)	**31**		2.0	0.84	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorononanoic acid (PFNA)	**7.5**		2.0	0.59	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.58	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorooctanesulfonic acid (PFOS)	**2.7**		2.0	0.89	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorooctanoic acid (PFOA)	**15**		2.0	1.0	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluoropentanoic acid (PFPeA)	**55**		2.0	1.1	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.60	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.44	ng/L		10/01/20 08:45	10/01/20 19:10	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.74	ng/L		10/01/20 08:45	10/01/20 19:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C2 PFDoA	*84*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C2 PFHxA	*83*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C2 PFUnA	*85*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C3 PFBS	*88*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C4 PFBA	*76*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C4 PFHpA	*85*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C4 PFOA	*97*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C4 PFOS	*104*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C5 PFNA	*99*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C5 PFPeA	*83*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
13C8 FOSA	*72*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
18O2 PFHxS	*91*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
d3-NMeFOSAA	*92*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:10*	*1*

Client Sample ID: MW-204

Date Collected: 09/24/20 08:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-1
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	114		25 - 150	10/01/20 08:45	10/01/20 19:10	1
M2-8:2 FTS	108		25 - 150	10/01/20 08:45	10/01/20 19:10	1

Client Sample ID: MW-99

Date Collected: 09/24/20 08:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**0.44**		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 17:25	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	28		15 - 110	09/28/20 15:00	09/29/20 17:25	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	**34**		1.9	0.63	ng/L		10/01/20 08:45	10/01/20 19:18	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	**50**		4.8	0.69	ng/L		10/01/20 08:45	10/01/20 19:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	0.89	ng/L		10/01/20 08:45	10/01/20 19:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	0.76	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**	**J**	1.9	0.60	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorobutanoic acid (PFBA)	**21**		4.8	1.1	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.46	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorodecanoic acid (PFDA)	**0.84**	**J**	1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.37	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluoroheptanoic acid (PFHpA)	**28**		1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.64	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorohexanoic acid (PFHxA)	**30**		1.9	0.79	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorononanoic acid (PFNA)	**7.3**		1.9	0.55	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.55	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorooctanesulfonic acid (PFOS)	**2.8**		1.9	0.83	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorooctanoic acid (PFOA)	**16**		1.9	0.94	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluoropentanoic acid (PFPeA)	**55**		1.9	1.0	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.56	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.41	ng/L		10/01/20 08:45	10/01/20 19:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.70	ng/L		10/01/20 08:45	10/01/20 19:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	90		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C2 PFDoA	76		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C2 PFHxA	85		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C2 PFTeDA	72		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C2 PFUnA	88		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C3 PFBS	84		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C4 PFBA	76		25 - 150	10/01/20 08:45	10/01/20 19:18	1

Client Sample ID: MW-99

Date Collected: 09/24/20 08:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-2

Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	85		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C4 PFOA	92		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C4 PFOS	92		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C5 PFNA	94		50 - 150	10/01/20 08:45	10/01/20 19:18	1
13C5 PFPeA	84		25 - 150	10/01/20 08:45	10/01/20 19:18	1
13C8 FOSA	69		25 - 150	10/01/20 08:45	10/01/20 19:18	1
18O2 PFHxS	86		50 - 150	10/01/20 08:45	10/01/20 19:18	1
d3-NMeFOSAA	87		50 - 150	10/01/20 08:45	10/01/20 19:18	1
d5-NEtFOSAA	92		50 - 150	10/01/20 08:45	10/01/20 19:18	1
M2-6:2 FTS	107		25 - 150	10/01/20 08:45	10/01/20 19:18	1
M2-8:2 FTS	99		25 - 150	10/01/20 08:45	10/01/20 19:18	1

Client Sample ID: MW-1

Date Collected: 09/24/20 09:58
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 17:48	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	31		15 - 110	09/28/20 15:00	09/29/20 17:48	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		1.9	0.64	ng/L		10/01/20 08:45	10/01/20 19:26	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		4.8	0.69	ng/L		10/01/20 08:45	10/01/20 19:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	0.90	ng/L		10/01/20 08:45	10/01/20 19:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	0.76	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorobutanesulfonic acid (PFBS)	**0.84**	**J**	1.9	0.61	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	4.8	1.1	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.46	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.38	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluoroheptanoic acid (PFHpA)	**0.77**	**J**	1.9	0.44	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.65	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorohexanoic acid (PFHxA)	**0.83**	**J**	1.9	0.80	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.56	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.55	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.84	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorooctanoic acid (PFOA)	**1.2**	**J**	1.9	0.95	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluoropentanoic acid (PFPeA)	**1.2**	**J**	1.9	1.0	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.57	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.41	ng/L		10/01/20 08:45	10/01/20 19:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.70	ng/L		10/01/20 08:45	10/01/20 19:26	1

Client Sample ID: MW-1

Date Collected: 09/24/20 09:58
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-3
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	84		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C2 PFDoA	75		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C2 PFHxA	96		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C2 PFTeDA	74		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C2 PFUnA	76		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C3 PFBS	94		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C4 PFBA	84		25 - 150	10/01/20 08:45	10/01/20 19:26	1
13C4 PFHpA	96		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C4 PFOA	96		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C4 PFOS	90		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C5 PFNA	91		50 - 150	10/01/20 08:45	10/01/20 19:26	1
13C5 PFPeA	91		25 - 150	10/01/20 08:45	10/01/20 19:26	1
13C8 FOSA	75		25 - 150	10/01/20 08:45	10/01/20 19:26	1
18O2 PFHxS	97		50 - 150	10/01/20 08:45	10/01/20 19:26	1
d3-NMeFOSAA	78		50 - 150	10/01/20 08:45	10/01/20 19:26	1
d5-NEtFOSAA	81		50 - 150	10/01/20 08:45	10/01/20 19:26	1
M2-6:2 FTS	101		25 - 150	10/01/20 08:45	10/01/20 19:26	1
M2-8:2 FTS	90		25 - 150	10/01/20 08:45	10/01/20 19:26	1

Client Sample ID: MW-211

Date Collected: 09/24/20 10:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-4
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	**7.5**	**E**	1.0	0.50	ug/L		09/28/20 15:00	09/30/20 18:48	5

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Dioxane-d8	27		15 - 110	09/28/20 15:00	09/30/20 18:48	5

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	**25**		1.8	0.61	ng/L		10/01/20 08:45	10/01/20 19:34	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	**120**	**F1**	4.6	0.66	ng/L		10/01/20 08:45	10/01/20 19:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	0.86	ng/L		10/01/20 08:45	10/01/20 19:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	0.73	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorobutanesulfonic acid (PFBS)	**0.73**	**J**	1.8	0.58	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorobutanoic acid (PFBA)	**28**		4.6	1.0	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.44	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorodecanoic acid (PFDA)	**1.4**	**J I**	1.8	0.42	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.42	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.36	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluoroheptanoic acid (PFHpA)	**41**		1.8	0.42	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.62	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorohexanoic acid (PFHxA)	**55**		1.8	0.77	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorononanoic acid (PFNA)	**9.3**		1.8	0.53	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.53	ng/L		10/01/20 08:45	10/01/20 19:34	1

Client Sample ID: MW-211

Date Collected: 09/24/20 10:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**6.3**	**I**	1.8	0.80	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorooctanoic acid (PFOA)	**20**		1.8	0.90	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluoropentanoic acid (PFPeA)	**120**		1.8	1.0	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.54	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.40	ng/L		10/01/20 08:45	10/01/20 19:34	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.67	ng/L		10/01/20 08:45	10/01/20 19:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*95*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C2 PFDoA	*84*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C2 PFHxA	*75*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C2 PFUnA	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C3 PFBS	*108*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C4 PFBA	*76*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C4 PFHpA	*87*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C4 PFOA	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C4 PFOS	*87*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C5 PFNA	*101*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C5 PFPeA	*99*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
13C8 FOSA	*51*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
18O2 PFHxS	*76*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
d3-NMeFOSAA	*123*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
M2-6:2 FTS	*150*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*
M2-8:2 FTS	*122*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:34*	*1*

Client Sample ID: MW-202

Date Collected: 09/24/20 11:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 18:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*23*		*15 - 110*	*09/28/20 15:00*	*09/29/20 18:10*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		1.9	0.62	ng/L		10/01/20 08:45	10/01/20 19:59	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		4.7	0.67	ng/L		10/01/20 08:45	10/01/20 19:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	0.87	ng/L		10/01/20 08:45	10/01/20 19:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	0.74	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorobutanesulfonic acid (PFBS)	**2.6**		1.9	0.59	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorobutanoic acid (PFBA)	**11**		4.7	1.1	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9	0.45	ng/L		10/01/20 08:45	10/01/20 19:59	1

Client Sample ID: MW-202

Date Collected: 09/24/20 11:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	**0.61**	**J**	1.9	0.43	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.43	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9	0.36	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluoroheptanoic acid (PFHpA)	**2.8**		1.9	0.43	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorohexanesulfonic acid (PFHxS)	**14**		1.9	0.62	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorohexanoic acid (PFHxA)	**4.8**		1.9	0.77	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorononanoic acid (PFNA)	**0.96**	**J**	1.9	0.54	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.9	0.53	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorooctanesulfonic acid (PFOS)	**8.5**		1.9	0.81	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorooctanoic acid (PFOA)	**5.6**		1.9	0.91	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluoropentanoic acid (PFPeA)	**9.5**		1.9	1.0	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.55	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.40	ng/L		10/01/20 08:45	10/01/20 19:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.68	ng/L		10/01/20 08:45	10/01/20 19:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*94*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C2 PFDoA	*84*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C2 PFHxA	*103*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C2 PFUnA	*86*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C3 PFBS	*99*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C4 PFBA	*81*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C4 PFHpA	*100*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C4 PFOA	*96*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C4 PFOS	*95*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C5 PFNA	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C5 PFPeA	*95*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
13C8 FOSA	*75*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
18O2 PFHxS	*101*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*10/01/20 08:45*	*10/01/20 19:59*	*1*

Client Sample ID: EQS-092420

Date Collected: 09/24/20 11:55
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-6

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 18:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*36*		*15 - 110*	*09/28/20 15:00*	*09/29/20 18:33*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		1.8	0.61	ng/L		10/01/20 08:45	10/01/20 20:08	1

Client Sample ID: EQS-092420

Lab Sample ID: 480-175617-6

Date Collected: 09/24/20 11:55

Matrix: Water

Date Received: 09/24/20 14:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		4.6	0.67	ng/L		10/01/20 08:45	10/01/20 20:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	0.86	ng/L		10/01/20 08:45	10/01/20 20:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	0.73	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.58	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorobutanoic acid (PFBA)	ND		4.6	1.0	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.44	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.43	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.43	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.36	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.43	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.62	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.77	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.54	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.8	0.53	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.80	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.91	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	1.0	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.55	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.40	ng/L		10/01/20 08:45	10/01/20 20:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.68	ng/L		10/01/20 08:45	10/01/20 20:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*100*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C2 PFDoA	*72*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C2 PFHxA	*102*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C2 PFTeDA	*70*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C2 PFUnA	*93*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C3 PFBS	*99*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C4 PFBA	*114*		*25 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C4 PFHpA	*102*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C4 PFOA	*100*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C4 PFOS	*105*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C5 PFNA	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C5 PFPeA	*109*		*25 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
13C8 FOSA	*69*		*25 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
18O2 PFHxS	*102*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
d5-NEtFOSAA	*82*		*50 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
M2-6:2 FTS	*100*		*25 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*10/01/20 08:45*	*10/01/20 20:08*	*1*

Client Sample ID: MH-2-92420

Lab Sample ID: 480-175617-7

Date Collected: 09/24/20 12:45

Matrix: Water

Date Received: 09/24/20 14:05

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 02:32	1

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Client Sample ID: MH-2-92420
Date Collected: 09/24/20 12:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-7
Matrix: Water

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 02:32	1
PCB-1232	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 02:32	1
PCB-1242	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 02:32	1
PCB-1248	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 02:32	1
PCB-1254	ND		0.060	0.031	ug/L		09/30/20 15:17	10/02/20 02:32	1
PCB-1260	ND		0.060	0.031	ug/L		09/30/20 15:17	10/02/20 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*30*	*X*	*36 - 121*	*09/30/20 15:17*	*10/02/20 02:32*	*1*
DCB Decachlorobiphenyl	*32*	*X*	*36 - 121*	*09/30/20 15:17*	*10/02/20 02:32*	*1*
Tetrachloro-m-xylene (Surr)	*80*		*42 - 135*	*09/30/20 15:17*	*10/02/20 02:32*	*1*
Tetrachloro-m-xylene (Surr)	*90*		*42 - 135*	*09/30/20 15:17*	*10/02/20 02:32*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	**0.48**	**J**	1.0	0.17	ug/L		09/28/20 09:35	09/29/20 18:16	1

Surrogate Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCBP1	DCBP2	TCX1	TCX2
Lab Sample ID	Client Sample ID	(36-121)	(36-121)	(42-135)	(42-135)
480-175617-7	MH-2-92420	32 X	30 X	90	80
LCS 480-551917/2-A	Lab Control Sample	41	39	84	78
LCSD 480-551917/3-A	Lab Control Sample Dup	47	44	85	80
MB 480-551917/1-A	Method Blank	45	42	91	85

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene (Surr)

Isotope Dilution Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

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

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	DXE (15-110)							
480-175617-1	MW-204	30							
480-175617-2	MW-99	28							
480-175617-3	MW-1	31							
480-175617-4	MW-211	27							
480-175617-4 MS	MW-211	27							
480-175617-4 MSD	MW-211	29							
480-175617-5	MW-202	23							
480-175617-6	EQS-092420	36							
LCS 480-551539/2-A	Lab Control Sample	34							
MB 480-551539/1-A	Method Blank	31							

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDA (50-150)	PFDoA (50-150)	PFHxA (50-150)	PFTDA (50-150)	PFUnA (50-150)	C3PFBS (50-150)	PFBA (25-150)	C4PFHA (50-150)
480-175617-1	MW-204	94	84	83	82	85	88	76	85
480-175617-2	MW-99	90	76	85	72	88	84	76	85
480-175617-3	MW-1	84	75	96	74	76	94	84	96
480-175617-4	MW-211	95	84	75	85	98	108	76	87
480-175617-4 MS	MW-211	88	81	77	84	91	106	71	87
480-175617-4 MSD	MW-211	89	84	72	82	93	96	72	82
480-175617-5	MW-202	94	84	103	84	86	99	81	100
480-175617-6	EQS-092420	100	72	102	70	93	99	114	102
LCS 200-159418/2-A	Lab Control Sample	95	84	101	70	87	100	109	95
MB 200-159418/1-A	Method Blank	98	79	104	74	81	98	106	100

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOA (50-150)	PFOS (50-150)	PFNA (50-150)	PFPeA (25-150)	PFOSA (25-150)	PFHxS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)
480-175617-1	MW-204	97	104	99	83	72	91	92	93
480-175617-2	MW-99	92	92	94	84	69	86	87	92
480-175617-3	MW-1	96	90	91	91	75	97	78	81
480-175617-4	MW-211	98	87	101	99	51	76	123	125
480-175617-4 MS	MW-211	97	87	98	94	48	74	103	126
480-175617-4 MSD	MW-211	96	85	96	90	50	72	111	121
480-175617-5	MW-202	96	95	98	95	75	101	85	92
480-175617-6	EQS-092420	100	105	98	109	69	102	89	82
LCS 200-159418/2-A	Lab Control Sample	95	104	94	103	57	103	89	84
MB 200-159418/1-A	Method Blank	97	104	100	101	53	98	93	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)						
480-175617-1	MW-204	114	108						
480-175617-2	MW-99	107	99						
480-175617-3	MW-1	101	90						
480-175617-4	MW-211	150	122						

Isotope Dilution Summary

Client: Inventum Engineering LLC
Job ID: 480-175617-1
Project/Site: Saginaw site

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

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)								
480-175617-4 MS	MW-211	126	115								
480-175617-4 MSD	MW-211	126	114								
480-175617-5	MW-202	111	108								
480-175617-6	EQS-092420	100	108								
LCS 200-159418/2-A	Lab Control Sample	93	96								
MB 200-159418/1-A	Method Blank	97	100								

Surrogate Legend

PFDA = 13C2 PFDA
PFDoA = 13C2 PFDoA
PFHxA = 13C2 PFHxA
PFTDA = 13C2 PFTeDA
PFUnA = 13C2 PFUnA
C3PFBS = 13C3 PFBS
PFBA = 13C4 PFBA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFOS = 13C4 PFOS
PFNA = 13C5 PFNA
PFPeA = 13C5 PFPeA
PFOSA = 13C8 FOSA
PFHxS = 18O2 PFHxS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

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

Lab Sample ID: MB 480-551539/1-A
Matrix: Water
Analysis Batch: 551674

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551539

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		09/28/20 15:00	09/29/20 15:09	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*09/28/20 15:00*	*09/29/20 15:09*	*1*

Lab Sample ID: LCS 480-551539/2-A
Matrix: Water
Analysis Batch: 551674

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551539

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			1.00	1.15		ug/L		115	40 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*34*		*15 - 110*

Lab Sample ID: 480-175617-4 MS
Matrix: Water
Analysis Batch: 551928

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 551539

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	7.5	E	1.00	8.49	E 4	ug/L		95	40 - 140		

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8	*27*		*15 - 110*

Lab Sample ID: 480-175617-4 MSD
Matrix: Water
Analysis Batch: 551928

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 551539

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	7.5	E	1.00	7.88	E 4	ug/L		33	40 - 140	7	20

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8	*29*		*15 - 110*

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 480-551917/1-A
Matrix: Water
Analysis Batch: 552133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551917

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1221	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1232	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1242	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1248	ND		0.060	0.038	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1254	ND		0.060	0.031	ug/L		09/30/20 15:17	10/02/20 00:10	1
PCB-1260	ND		0.060	0.031	ug/L		09/30/20 15:17	10/02/20 00:10	1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC) (Continued)

Lab Sample ID: MB 480-551917/1-A
Matrix: Water
Analysis Batch: 552133

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551917

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	42		36 - 121	09/30/20 15:17	10/02/20 00:10	1
DCB Decachlorobiphenyl	45		36 - 121	09/30/20 15:17	10/02/20 00:10	1
Tetrachloro-m-xylene (Surr)	85		42 - 135	09/30/20 15:17	10/02/20 00:10	1
Tetrachloro-m-xylene (Surr)	91		42 - 135	09/30/20 15:17	10/02/20 00:10	1

Lab Sample ID: LCS 480-551917/2-A
Matrix: Water
Analysis Batch: 552133

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551917

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			1.00	1.00		ug/L		100	69 - 123		
PCB-1260			1.00	0.911		ug/L		91	69 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	39		36 - 121
DCB Decachlorobiphenyl	41		36 - 121
Tetrachloro-m-xylene (Surr)	78		42 - 135
Tetrachloro-m-xylene (Surr)	84		42 - 135

Lab Sample ID: LCSD 480-551917/3-A
Matrix: Water
Analysis Batch: 552133

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 551917

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			1.00	1.06		ug/L		106	69 - 123	6	30
PCB-1260			1.00	0.969		ug/L		97	69 - 120	6	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
DCB Decachlorobiphenyl	44		36 - 121
DCB Decachlorobiphenyl	47		36 - 121
Tetrachloro-m-xylene (Surr)	80		42 - 135
Tetrachloro-m-xylene (Surr)	85		42 - 135

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-159418/1-A
Matrix: Water
Analysis Batch: 159470

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 159418

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	ND		2.0	0.66	ng/L		10/01/20 08:45	10/01/20 18:53	1
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	ND		5.0	0.72	ng/L		10/01/20 08:45	10/01/20 18:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	0.93	ng/L		10/01/20 08:45	10/01/20 18:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	0.79	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.63	ng/L		10/01/20 08:45	10/01/20 18:53	1

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

Lab Sample ID: MB 200-159418/1-A
Matrix: Water
Analysis Batch: 159470

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 159418

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	1.1	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.48	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.46	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.46	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.39	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.46	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.67	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.83	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.58	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorooctanesulfonamide (PFOSA)	0.644	J	2.0	0.57	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.87	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.98	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	1.1	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.59	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.43	ng/L		10/01/20 08:45	10/01/20 18:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.73	ng/L		10/01/20 08:45	10/01/20 18:53	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFDA	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C2 PFDoA	*79*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C2 PFHxA	*104*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C2 PFTeDA	*74*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C2 PFUnA	*81*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C3 PFBS	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C4 PFBA	*106*		*25 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C4 PFHpA	*100*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C4 PFOA	*97*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C4 PFOS	*104*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C5 PFNA	*100*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C5 PFPeA	*101*		*25 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
13C8 FOSA	*53*		*25 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
18O2 PFHxS	*98*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*10/01/20 08:45*	*10/01/20 18:53*	*1*

Lab Sample ID: LCS 200-159418/2-A
Matrix: Water
Analysis Batch: 159470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 159418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	38.3	39.0		ng/L		102	50 - 150
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	37.9	37.4		ng/L		99	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.6		ng/L		96	70 - 130

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

Lab Sample ID: LCS 200-159418/2-A
Matrix: Water
Analysis Batch: 159470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 159418

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	40.9		ng/L		102	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	35.9		ng/L		102	70 - 130
Perfluorobutanoic acid (PFBA)	40.0	37.5		ng/L		94	50 - 150
Perfluorodecanesulfonic acid (PFDS)	38.6	31.3		ng/L		81	50 - 150
Perfluorodecanoic acid (PFDA)	40.0	36.8		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	40.0	34.1		ng/L		85	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.7		ng/L		94	50 - 150
Perfluoroheptanoic acid (PFHpA)	40.0	40.4		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.8		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	40.0	37.8		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	40.0	40.0		ng/L		100	70 - 130
Perfluorooctanesulfonamide (PFOSA)	40.0	41.0		ng/L		103	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	34.2		ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	40.0	40.2		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	37.1		ng/L		93	50 - 150
Perfluorotetradecanoic acid (PFTeA)	40.0	39.9		ng/L		100	70 - 130
Perfluorotridecanoic acid (PFTriA)	40.0	34.2		ng/L		85	70 - 130
Perfluoroundecanoic acid (PFUnA)	40.0	42.8		ng/L		107	70 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFDA	*95*		*50 - 150*
13C2 PFDoA	*84*		*50 - 150*
13C2 PFHxA	*101*		*50 - 150*
13C2 PFTeDA	*70*		*50 - 150*
13C2 PFUnA	*87*		*50 - 150*
13C3 PFBS	*100*		*50 - 150*
13C4 PFBA	*109*		*25 - 150*
13C4 PFHpA	*95*		*50 - 150*
13C4 PFOA	*95*		*50 - 150*
13C4 PFOS	*104*		*50 - 150*
13C5 PFNA	*94*		*50 - 150*
13C5 PFPeA	*103*		*25 - 150*
13C8 FOSA	*57*		*25 - 150*
18O2 PFHxS	*103*		*50 - 150*
d3-NMeFOSAA	*89*		*50 - 150*
d5-NEtFOSAA	*84*		*50 - 150*
M2-6:2 FTS	*93*		*25 - 150*
M2-8:2 FTS	*96*		*25 - 150*

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

Lab Sample ID: 480-175617-4 MS
Matrix: Water
Analysis Batch: 159470

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 159418

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	25		34.6	58.6		ng/L		97	40 - 160
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	120	F1	34.3	180	F1	ng/L		169	40 - 160
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		36.2	31.4		ng/L		87	40 - 160
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		36.2	41.1		ng/L		114	40 - 160
Perfluorobutanesulfonic acid (PFBS)	0.73	J	32.0	31.0		ng/L		95	40 - 160
Perfluorobutanoic acid (PFBA)	28		36.2	59.0		ng/L		86	40 - 160
Perfluorodecanesulfonic acid (PFDS)	ND		34.9	33.2		ng/L		95	40 - 160
Perfluorodecanoic acid (PFDA)	1.4	J I	36.2	35.4		ng/L		94	40 - 160
Perfluorododecanoic acid (PFDoA)	ND		36.2	35.0		ng/L		97	40 - 160
Perfluoroheptanesulfonic Acid (PFHpS)	ND		34.4	37.6		ng/L		109	40 - 160
Perfluoroheptanoic acid (PFHpA)	41		36.2	74.5		ng/L		93	40 - 160
Perfluorohexanesulfonic acid (PFHxS)	ND		32.9	30.0		ng/L		91	40 - 160
Perfluorohexanoic acid (PFHxA)	55		36.2	88.0		ng/L		91	40 - 160
Perfluorononanoic acid (PFNA)	9.3		36.2	43.3		ng/L		94	40 - 160
Perfluorooctanesulfonamide (PFOSA)	ND		36.2	39.1		ng/L		108	40 - 160
Perfluorooctanesulfonic acid (PFOS)	6.3	I	33.6	38.5		ng/L		96	40 - 160
Perfluorooctanoic acid (PFOA)	20		36.2	55.3		ng/L		98	40 - 160
Perfluoropentanoic acid (PFPeA)	120		36.2	161		ng/L		105	40 - 160
Perfluorotetradecanoic acid (PFTeA)	ND		36.2	37.2		ng/L		103	40 - 160
Perfluorotridecanoic acid (PFTriA)	ND		36.2	32.5		ng/L		90	40 - 160
Perfluoroundecanoic acid (PFUnA)	ND		36.2	35.9		ng/L		99	40 - 160

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFDA	*88*		*50 - 150*
13C2 PFDoA	*81*		*50 - 150*
13C2 PFHxA	*77*		*50 - 150*
13C2 PFTeDA	*84*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C3 PFBS	*106*		*50 - 150*
13C4 PFBA	*71*		*25 - 150*
13C4 PFHpA	*87*		*50 - 150*
13C4 PFOA	*97*		*50 - 150*
13C4 PFOS	*87*		*50 - 150*
13C5 PFNA	*98*		*50 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C8 FOSA	*48*		*25 - 150*
18O2 PFHxS	*74*		*50 - 150*
d3-NMeFOSAA	*103*		*50 - 150*

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

Lab Sample ID: 480-175617-4 MS
Matrix: Water
Analysis Batch: 159470

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 159418

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
d5-NEtFOSAA	*126*		*50 - 150*
M2-6:2 FTS	*126*		*25 - 150*
M2-8:2 FTS	*115*		*25 - 150*

Lab Sample ID: 480-175617-4 MSD
Matrix: Water
Analysis Batch: 159470

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 159418

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	25		34.8	59.0		ng/L		98	40 - 160	1	30
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	120	F1	34.5	173		ng/L		147	40 - 160	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		36.4	34.9		ng/L		96	40 - 160	10	20
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		36.4	34.0		ng/L		94	40 - 160	19	20
Perfluorobutanesulfonic acid (PFBS)	0.73	J	32.2	33.5		ng/L		102	40 - 160	8	20
Perfluorobutanoic acid (PFBA)	28		36.4	60.8		ng/L		91	40 - 160	3	30
Perfluorodecanesulfonic acid (PFDS)	ND		35.1	36.8		ng/L		105	40 - 160	10	30
Perfluorodecanoic acid (PFDA)	1.4	J I	36.4	35.3		ng/L		93	40 - 160	0	20
Perfluorododecanoic acid (PFDoA)	ND		36.4	36.2		ng/L		100	40 - 160	3	20
Perfluoroheptanesulfonic Acid (PFHpS)	ND		34.6	36.5		ng/L		106	40 - 160	3	30
Perfluoroheptanoic acid (PFHpA)	41		36.4	77.0		ng/L		99	40 - 160	3	20
Perfluorohexanesulfonic acid (PFHxS)	ND		33.1	29.9		ng/L		90	40 - 160	1	20
Perfluorohexanoic acid (PFHxA)	55		36.4	91.0		ng/L		99	40 - 160	3	20
Perfluorononanoic acid (PFNA)	9.3		36.4	46.1		ng/L		101	40 - 160	6	20
Perfluorooctanesulfonamide (PFOSA)	ND		36.4	38.9		ng/L		107	40 - 160	1	30
Perfluorooctanesulfonic acid (PFOS)	6.3	I	33.8	39.1		ng/L		97	40 - 160	2	20
Perfluorooctanoic acid (PFOA)	20		36.4	54.6		ng/L		96	40 - 160	1	20
Perfluoropentanoic acid (PFPeA)	120		36.4	157		ng/L		95	40 - 160	2	30
Perfluorotetradecanoic acid (PFTeA)	ND		36.4	35.7		ng/L		98	40 - 160	4	20
Perfluorotridecanoic acid (PFTriA)	ND		36.4	37.2		ng/L		102	40 - 160	13	20
Perfluoroundecanoic acid (PFUnA)	ND		36.4	36.1		ng/L		99	40 - 160	1	20

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C2 PFDA	*89*		*50 - 150*
13C2 PFDoA	*84*		*50 - 150*
13C2 PFHxA	*72*		*50 - 150*
13C2 PFTeDA	*82*		*50 - 150*
13C2 PFUnA	*93*		*50 - 150*
13C3 PFBS	*96*		*50 - 150*

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

Lab Sample ID: 480-175617-4 MSD
Matrix: Water
Analysis Batch: 159470

Client Sample ID: MW-211
Prep Type: Total/NA
Prep Batch: 159418

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*72*		*25 - 150*
13C4 PFHpA	*82*		*50 - 150*
13C4 PFOA	*96*		*50 - 150*
13C4 PFOS	*85*		*50 - 150*
13C5 PFNA	*96*		*50 - 150*
13C5 PFPeA	*90*		*25 - 150*
13C8 FOSA	*50*		*25 - 150*
18O2 PFHxS	*72*		*50 - 150*
d3-NMeFOSAA	*111*		*50 - 150*
d5-NEtFOSAA	*121*		*50 - 150*
M2-6:2 FTS	*126*		*25 - 150*
M2-8:2 FTS	*114*		*25 - 150*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 480-551408/1-A
Matrix: Water
Analysis Batch: 551800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 551408

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.0	0.17	ug/L		09/28/20 09:35	09/29/20 17:34	1

Lab Sample ID: LCS 480-551408/2-A
Matrix: Water
Analysis Batch: 551800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 551408

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	20.0	20.82		ug/L		104	85 - 115

GC/MS Semi VOA

Prep Batch: 551539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-1	MW-204	Total/NA	Water	3510C	
480-175617-2	MW-99	Total/NA	Water	3510C	
480-175617-3	MW-1	Total/NA	Water	3510C	
480-175617-4	MW-211	Total/NA	Water	3510C	
480-175617-5	MW-202	Total/NA	Water	3510C	
480-175617-6	EQS-092420	Total/NA	Water	3510C	
MB 480-551539/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-551539/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-175617-4 MS	MW-211	Total/NA	Water	3510C	
480-175617-4 MSD	MW-211	Total/NA	Water	3510C	

Analysis Batch: 551674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-1	MW-204	Total/NA	Water	8270D SIM ID	551539
480-175617-2	MW-99	Total/NA	Water	8270D SIM ID	551539
480-175617-3	MW-1	Total/NA	Water	8270D SIM ID	551539
480-175617-5	MW-202	Total/NA	Water	8270D SIM ID	551539
480-175617-6	EQS-092420	Total/NA	Water	8270D SIM ID	551539
MB 480-551539/1-A	Method Blank	Total/NA	Water	8270D SIM ID	551539
LCS 480-551539/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	551539

Analysis Batch: 551928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-4	MW-211	Total/NA	Water	8270D SIM ID	551539
480-175617-4 MS	MW-211	Total/NA	Water	8270D SIM ID	551539
480-175617-4 MSD	MW-211	Total/NA	Water	8270D SIM ID	551539

GC Semi VOA

Prep Batch: 551917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-7	MH-2-92420	Total/NA	Water	3510C	
MB 480-551917/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-551917/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-551917/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 552133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-7	MH-2-92420	Total/NA	Water	608.3	551917
MB 480-551917/1-A	Method Blank	Total/NA	Water	608.3	551917
LCS 480-551917/2-A	Lab Control Sample	Total/NA	Water	608.3	551917
LCSD 480-551917/3-A	Lab Control Sample Dup	Total/NA	Water	608.3	551917

LCMS

Prep Batch: 159418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-1	MW-204	Total/NA	Water	3535	
480-175617-2	MW-99	Total/NA	Water	3535	
480-175617-3	MW-1	Total/NA	Water	3535	
480-175617-4	MW-211	Total/NA	Water	3535	
480-175617-5	MW-202	Total/NA	Water	3535	

LCMS (Continued)

Prep Batch: 159418 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-6	EQS-092420	Total/NA	Water	3535	
MB 200-159418/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-159418/2-A	Lab Control Sample	Total/NA	Water	3535	
480-175617-4 MS	MW-211	Total/NA	Water	3535	
480-175617-4 MSD	MW-211	Total/NA	Water	3535	

Analysis Batch: 159470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-1	MW-204	Total/NA	Water	537 (modified)	159418
480-175617-2	MW-99	Total/NA	Water	537 (modified)	159418
480-175617-3	MW-1	Total/NA	Water	537 (modified)	159418
480-175617-4	MW-211	Total/NA	Water	537 (modified)	159418
480-175617-5	MW-202	Total/NA	Water	537 (modified)	159418
480-175617-6	EQS-092420	Total/NA	Water	537 (modified)	159418
MB 200-159418/1-A	Method Blank	Total/NA	Water	537 (modified)	159418
LCS 200-159418/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	159418
480-175617-4 MS	MW-211	Total/NA	Water	537 (modified)	159418
480-175617-4 MSD	MW-211	Total/NA	Water	537 (modified)	159418

Metals

Prep Batch: 551408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-7	MH-2-92420	Total/NA	Water	200.8	
MB 480-551408/1-A	Method Blank	Total/NA	Water	200.8	
LCS 480-551408/2-A	Lab Control Sample	Total/NA	Water	200.8	

Analysis Batch: 551800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-175617-7	MH-2-92420	Total/NA	Water	200.8	551408
MB 480-551408/1-A	Method Blank	Total/NA	Water	200.8	551408
LCS 480-551408/2-A	Lab Control Sample	Total/NA	Water	200.8	551408

Lab Chronicle

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Client Sample ID: MW-204
Date Collected: 09/24/20 08:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	551674	09/29/20 17:02	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 19:10	BWC	TAL BUR

Client Sample ID: MW-99
Date Collected: 09/24/20 08:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	551674	09/29/20 17:25	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 19:18	BWC	TAL BUR

Client Sample ID: MW-1
Date Collected: 09/24/20 09:58
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	551674	09/29/20 17:48	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 19:26	BWC	TAL BUR

Client Sample ID: MW-211
Date Collected: 09/24/20 10:40
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		5	551928	09/30/20 18:48	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 19:34	BWC	TAL BUR

Client Sample ID: MW-202
Date Collected: 09/24/20 11:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	551674	09/29/20 18:10	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 19:59	BWC	TAL BUR

Lab Chronicle

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Client Sample ID: EQS-092420

Date Collected: 09/24/20 11:55
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551539	09/28/20 15:00	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	551674	09/29/20 18:33	PJQ	TAL BUF
Total/NA	Prep	3535			159418	10/01/20 08:45	ND	TAL BUR
Total/NA	Analysis	537 (modified)		1	159470	10/01/20 20:08	BWC	TAL BUR

Client Sample ID: MH-2-92420

Date Collected: 09/24/20 12:45
Date Received: 09/24/20 14:05

Lab Sample ID: 480-175617-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			551917	09/30/20 15:17	ATG	TAL BUF
Total/NA	Analysis	608.3		1	552133	10/02/20 02:32	W1T	TAL BUF
Total/NA	Prep	200.8			551408	09/28/20 09:35	ADM	TAL BUF
Total/NA	Analysis	200.8		1	551800	09/29/20 18:16	KMP	TAL BUF

Laboratory References:

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

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

Accreditation/Certification Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-01-21

Laboratory: Eurofins TestAmerica, Burlington

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

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-23
Connecticut	State	PH-0751	09-30-21
DE Haz. Subst. Cleanup Act (HSCA)	State	N/A	05-16-21
Florida	NELAP	E87467	06-30-21
Minnesota	NELAP	050-999-436	12-31-20
New Hampshire	NELAP	2006	12-18-20
New Jersey	NELAP	VT972	06-30-21
New York	NELAP	10391	04-01-21
Pennsylvania	NELAP	68-00489	04-30-21
Rhode Island	State	LAO00298	12-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00272	08-09-20 *
Vermont	State	VT4000	12-31-20
Virginia	NELAP	460209	12-14-20
Wisconsin	State	399133350	08-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
200.8	Metals (ICP/MS)	EPA	TAL BUF
200.8	Preparation, Total Metals	EPA	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
EPA = US Environmental Protection Agency
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Inventum Engineering LLC
Project/Site: Saginaw site

Job ID: 480-175617-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-175617-1	MW-204	Water	09/24/20 08:40	09/24/20 14:05	
480-175617-2	MW-99	Water	09/24/20 08:45	09/24/20 14:05	
480-175617-3	MW-1	Water	09/24/20 09:58	09/24/20 14:05	
480-175617-4	MW-211	Water	09/24/20 10:40	09/24/20 14:05	
480-175617-5	MW-202	Water	09/24/20 11:45	09/24/20 14:05	
480-175617-6	EQS-092420	Water	09/24/20 11:55	09/24/20 14:05	
480-175617-7	MH-2-92420	Water	09/24/20 12:45	09/24/20 14:05	

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Todd Waldrop	Lab PM:	Carrier Tracking No(s):	COC No: 480-150665-33450.1
Client Contact: Todd Waldrop	Phone: 571.217.3627	E-Mail: todd.waldrop@inventumeng.com		Page: Page 1 of 1
Company: Inventum Engineering LLC				Job #:
Address: 481 Carlisle Dr Suite 202	Due Date Requested:			
City: Herndon	TAT Requested (days): STANDARD			
State, Zip: VA, 20170				
Phone: 571.217.3627	PO #:			
Email: todd.waldrop@inventumeng.com	WO #:			
Project Name: Inventum- Saginaw	Project #:			
Site: SAGINAW	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA -	8270D_SIM_MS_ID -	200.8 - Pb only	608.3_PCB_PREC -	Total Number of containers	Special Instructions/Note:
Preservation Code:							N	N	D	N		
MW-204	9/24/20	0840	G	Water			2	2				
MW-99	9/24/20	0845	G	Water			2	2				
MW-1	9/24/20	0958	G	Water			2	1				*ONLY ABLE TO GET ONE (1) 1-L AMBER FOR 8270 SIM
MW-211	9/24/20	1040	G	Water			2	2				
MW-211-MS/MSD	9/24/20	1040	G	Water			2	2				
MW-202	9/24/20	1145	G	Water			2	1				*ONLY COULD GET ONE (1) 1-L AMBER FOR 8270 SIM
EQB-924/20	9/24/20	1155	G	Water			2	1				
MW-2-92420	9/24/20	1245	G	Water					1	2		

9/24/20

480-175617 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if sample
☐ Return To Client ☒ Disposal By Lab

Deliverable Requested: I, II, III, (IV), Other (specify) NYSDEC Level B

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Todd	9/24/20 1405	INVENTUM			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				9/25/20 1105	JH

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.8 #1

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fischer, Brian J	Carrier Tracking No(s):	COC No: 480-58839.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Brian.Fischer@Eurofinset.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-175617-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 10/6/2020			
City: South Burlington	TAT Requested (days):			
State, Zip: VT, 05403	PO #:			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	WO #:			
Email:	Project #: 48022804			
Project Name: Saginaw site	SSOW#:			
Site:				

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solic, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_IVWT PFAS, Standard List (21 analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MW-204 (480-175617-1)	9/24/20	08:40 Eastern		Water			X	2	
MW-99 (480-175617-2)	9/24/20	08:45 Eastern		Water			X	2	
MW-1 (480-175617-3)	9/24/20	09:58 Eastern		Water			X	2	
MW-211 (480-175617-4)	9/24/20	10:40 Eastern		Water			X	2	
MW-211 (480-175617-4MS)	9/24/20	10:40 Eastern	MS	Water			X		
MW-211 (480-175617-4MSD)	9/24/20	10:40 Eastern	MSD	Water			X		
MW-202 (480-175617-5)	9/24/20	11:45 Eastern		Water			X		
EQS-092420 (480-175617-6)	9/24/20	11:55 Eastern		Water			X		

480-175617 Chain of Custody

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[signature]	9/25/20 1755				
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 9/26/20 1000	Company ETA

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

10/7/2020


Do Not Lift Using This Tag
Part # 159469-494 REV2 EXP 12/20
eurofins
Environment Testing
TestAmerica
ORIGIN ID:DKKA (716) 691-2600
SAMPLE RECEIPT
EUROFINS TESTAMERICA BUFFALO
10 HAZELWOOD DR
AMHERST, NY 14228
UNITED STATES US
SHIP DATE: 25SEP20
ACTWGT: 23.20 LB
CAD: 846654/CAFE3406
DIMS: 19x15x10 IN
BILL RECIPIENT
TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990
REF: TA BURLINGTON
FedEx
Express
SATURDAY 12:00P
PRIORITY OVERNIGHT
TRK# 0201 1888 3861 7708
XO BTVA
05403
VT-US BTV
56DC6/1545/05A2

Login Sample Receipt Checklist

Client: Inventum Engineering LLC

Job Number: 480-175617-1

Login Number: 175617
List Number: 1
Creator: Sabuda, Brendan D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.8 #1 ICE
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Inventum Engineering LLC

Job Number: 480-175617-1

Login Number: 175617
List Number: 2
Creator: Dawicki, Don C

List Source: Eurofins TestAmerica, Burlington
List Creation: 09/26/20 12:46 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1149900
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	1.7C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment B – IC-EC Forms

Enclosure 2

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 915152

Site Name Saginaw - Buffalo

Site Address: 320 Scajaquada St. Zip Code: 14215
City/Town: Buffalo
County: Erie
Site Acreage: ~~8.631~~ 7.2478

Reporting Period: May 04, 2020 to May 04, 2021

	YES	NO
1. Is the information above correct?	X	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Industrial	X	☐
7. Are all ICs in place and functioning as designed?	X	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 915152 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
~~101.24-1-3~~	East Delavan Property, LLC	
101.24-1-3.1		Monitoring Plan O&M Plan

i) Inspection and Maintenance of Parking Lot #4.
ii) Groundwater and Sewer Monitoring according to the Operation and Maintenance Manual, dated April 2, 2001.
iii) Modification to O&M Frequency Dated January 4, 2004.
iv) Modification to O&M Frequency Dated September 22, 2008.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
~~101.24-1-3~~	
101.24-1-3.1	Cover System

Asphalt Parking Lot Cover.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document. **N/A**

YES	NO
X	

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 915152

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I John. P. Black (print name) at 481 Carlisle Drive, Suite 202, Herndon, VA 20170 (print business address),

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date: 6/30/2021

EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I John P. Black (print name) at 481 Carlisle Drive
Suite 202
Herndon, VA 20170 (print business address),

am certifying as a Professional Engineer for the Owner (Owner or Remedial Party)

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

6/30/2021
Date