



February 23, 2021

Mr. Samuel Edwards
Luvata Appleton, LLC
553 Carter Street
Kimberly, WI 54136

Subject: Post-remedial Groundwater Sampling Results
BRRTS#: 02-45-000015

Dear Mr. Edwards:

In accordance with the executed Agreement to Provide Access for Sampling Activities, and in accordance with Wisconsin Department of Natural Resources (WDNR) regulation NR 716.14, EnviroForensics, LLC (EnviroForensics) is providing the results of groundwater samples collected on the Luvata Appleton LLC property located at 908 North Lawe Street in Appleton, Wisconsin. The groundwater samples were collected on December 29, 2020 and analyzed for total dissolved chromium, iron, and manganese. Groundwater samples were collected from monitoring wells MW-19R, MW-20R, MW-26R, MW-28R, and MW-30R, which are located as shown on attached **Figure 1**.

In addition groundwater samples were collected from wells MW-19R, MW-20R, MW-21, MW-22, and MW-28R and analyzed for polyfluorinated alkyl substances (PFAS). These substances are considered emerging contaminants by the WDNR and have been associated with plating and other machining operations.

The sampling activities were conducted at the direction of the WDNR as part of the post-remedial monitoring that they require. The WDNR has assigned the following identification to the former cleaning facility: BRRTS# 02-45-000015. The chemical of concern (COC) is total dissolved chromium.

The Responsible Party is:

Albany International.
P.O. Box 1939
Appleton, WI 54913

Sampling Results

The sample analytical results are summarized and compared to public health criteria in the attached **Table 1**. Excerpts from the laboratory reports that relate to the groundwater samples are also attached.

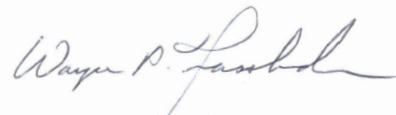
Document: 6486-2384
EnviroForensics, LLC
N16 W23390 Stone Ridge Dr, Suite G, Waukesha, WI 53188
Phone: 262-290-4001 • Fax 317-972-7875

As can be seen in the attached **Table 1**, the wells sampled did not contain chromium at concentrations above the laboratory detection limits. Both iron and manganese concentrations continue to decrease as these minerals are reactants that either drive or result from the chromium sequestering reaction and are expected to diminish over time.

As seen in **Table 2**, several PFAS were detected in all wells. Currently, there are no Wisconsin regulatory standards for these compounds; however, the WDNR is considering a groundwater enforcement standard (ES) of 20 nanograms per liter (20 parts per trillion) for both PFOA and PFOS either singly or in combination. Given this proposed standard, all wells except MW-20R and MW-21 contained PFOA or PFOS in concentrations exceeding the proposed ES. The highest concentrations of combined PFOA and PFOS were detected in property boundary well MW-22. This well is in the up-gradient direction of groundwater flow and may indicate that the source of the PFAS is not on the your property. We have contacted the local fire department and have requested information regarding whether PFAS-containing fire fighting foam was ever used in the area. It is likely that additional historical use investigations will be implemented in the near future to determine the likelihood of PFAS sources within the area.

If you have any questions or concerns, please contact me at 414-982-3988 or by email at wfassbender@enviroforensics.com. The WDNR project manager, Jeremy Mitchell, can be reached at 920-366-6830. We greatly appreciate your help and patience with this matter.

Sincerely,
EnviroForensics, LLC

A handwritten signature in black ink that reads "Wayne P. Fassbender".














Wayne Fassbender, PG, PMP
Senior Project Manager

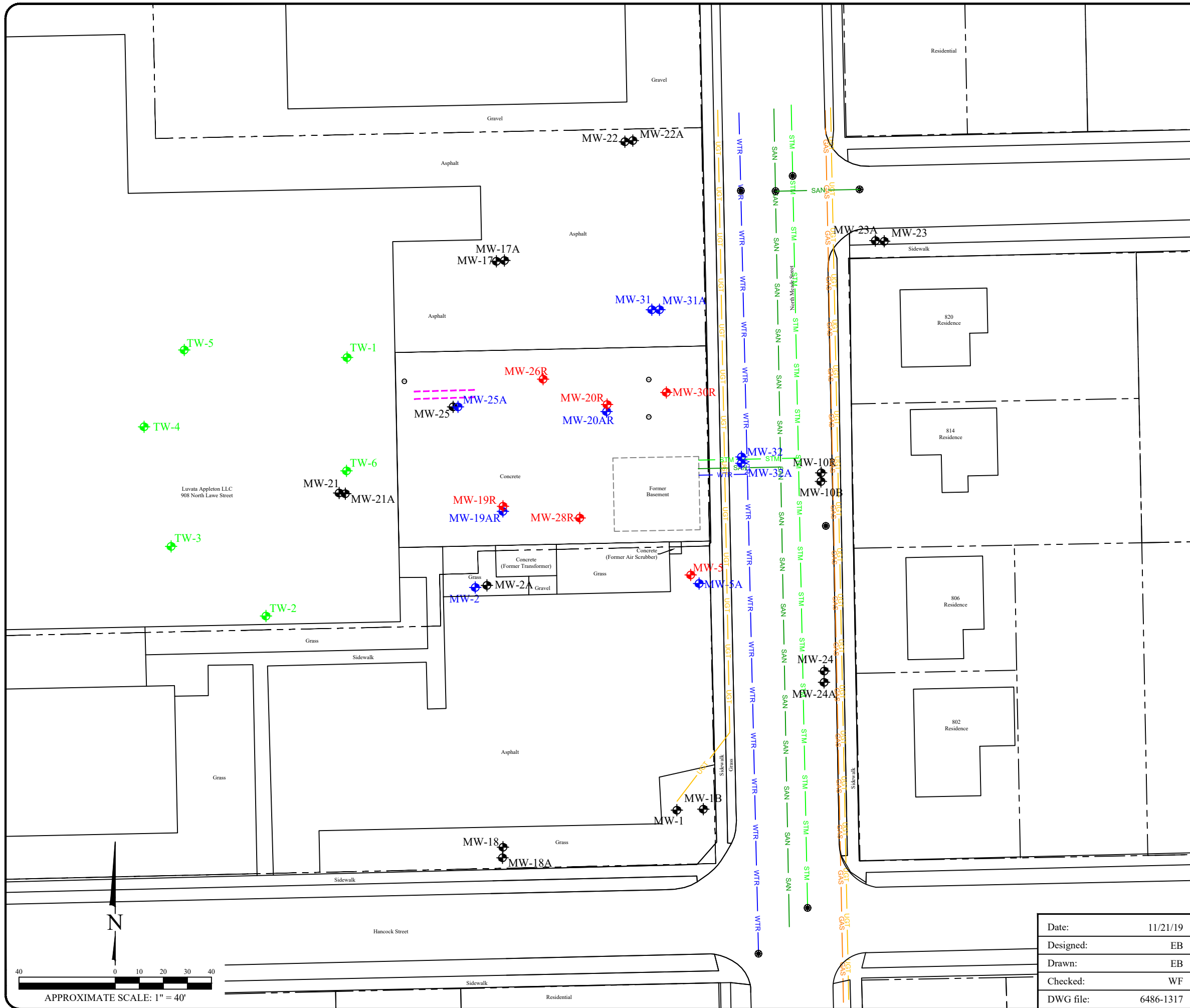
Copy: Jeremy Mitchell, Wisconsin Department of Natural Resources

Attachments:

Figure 1: Post-remediation Groundwater Monitoring Well Network
Table 1: Groundwater Remediation Performance Monitoring Data
Table 2: PFAS Groundwater Analytical Results
Groundwater Laboratory Analytical Report Excerpts

Legend

-  Property boundary
-  GAS Underground gas utility line
-  WTR Underground water utility line
-  SAN Underground sanitary utility line
-  UGT Fiber optics line
-  STM Underground storm utility line
-  Pipe chase
-  Floor drain
-  Manhole
-  TW-1 1-inch diameter groundwater monitoring well for sampling of chlorinated compounds
-  Monitoring well designated for remediation performance monitoring
-  Monitoring well designated for plume distribution evaluation
-  Monitoring well designated to be sampled once pre-closure



POST-REMEDIATION GROUNDWATER MONITORING WELL NETWORK

Albany International - Luvata Site
908 North Lawe Street
Appleton, Wisconsin

Date:	11/21/19
Designed:	EB
Drawn:	EB
Checked:	WF
DWG file:	6486-1317



825 North Capitol Avenue • Indianapolis, IN 46204
EnviroForensics.com

Figure	1
Project	6486

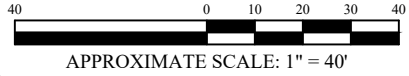


TABLE 1
GROUNDWATER REMEDIATION PERFORMANCE MONITORING DATA
Former Appleton Wire Facility
908 North Lawe Street, Appleton, Wisconsin

Monitoring Well Identification	Screen Interval	Remediaion Status	Sample Date	Dissolved Metals			
				Chromium	Manganese	Iron	
Reporting Units				µg/L	µg/L	µg/L	
NR-140 Enforcement Standard (ES)				100	300	300*	
NR-140 Preventative Action Limit (PAL)				10	60	150*	
MW-19/19R DUP-1	4.8 - 14.8	Pre	6/29/2017	23,600	NA	NA	
			8/31/2017	13,600	NA	NA	
			4/23/18	18,900	<11.3	<155	
		Post Pilot Test		7/16/18	172	948	22,400
				8/20/18	97.6	1640	88,200
				1/21/2019	16.1	608	12,200
		Post Full Scale		4/10/2020	<3.9	59.4	6,870
				6/30/2020	<3.9	111	8,880
				9/29/2020	<3.9	40.6	2,930
12/29/2020	<3.9			32.1	120		
			12/29/2020	<3.9	23.3	30 J	
MW-20/20R DUP-1	5.1 - 15.1	Pre	6/28/2017	265,000	NA	NA	
			8/31/2017	331,000	NA	NA	
			04/23/18	296,000	<11.3	<155	
		Post Pilot Test		07/16/18	161,000	99.1	929 J
				08/20/18	174,000	73.1	156
				1/21/2019	179,000	37.1	<35.4
		Post Full Scale		4/10/2020	7.0	114	9,250
				6/30/2020	10.9	166	23,000
				9/29/2020	16.7	178	17,800
				9/29/2020	22.8	179	17,200
				12/29/2020	<3.9	160	1,950

TABLE 1
GROUNDWATER REMEDIATION PERFORMANCE MONITORING DATA
Former Appleton Wire Facility
908 North Lawe Street, Appleton, Wisconsin

Monitoring Well Identification	Screen Interval	Remediaion Status	Sample Date	Dissolved Metals		
				Chromium	Manganese	Iron
Reporting Units				µg/L	µg/L	µg/L
MW-26/26R	4.0 - 14.0	Pre	6/28/2017	72,900	NA	NA
			8/31/2017	84,900	NA	NA
		Post Pilot Test	07/16/18	21,600	115	3,550
			08/20/18	17,100	15.6	<15.5
			1/21/2019	26,700	1.5 J	<35.4
		Post Full Scale	4/10/2020	<3.9	17.9	220
			7/1/2020	<3.9	39.3	110
			9/29/2020	<3.9	98.3	910
			12/29/2020	<3.9	87.2	40 J
MW-28/28R	4.0 - 14.0	Pre	06/28/17	3,890	43.2	53.6 J
			8/31/2017	390	NA	NA
		Post Full Scale	4/10/2020**	<3.9	67.8	680 J
			6/30/2020	<3.9	206	20,800
			9/29/2020	<3.9	<4.2	90 J
			12/29/2020	<3.9	62.6	<30
MW-30/30R	4.8 - 14.8	Pre	8/31/2017	3,540	NA	NA
		Post Full Scale	4/10/2020	<3.9	20.1	900
			7/1/2020	<3.9	<4.2	80 J
			9/29/2020	<3.9	52.2	2,240
			12/29/2020	<3.9	23.3	30 J

Notes:
Bolded values are above laboratory detection limits
Bolded and blue colored values are above the groundwater preventative action limit (PAL)
Bolded and orange colored values are above the groundwater enforcement standard (ES)
J = Analyte concentration detected between the laboratory Reporting Limit and Method Detection Limit
* = Values based on Public Welfare Groundwater Quality Standards
** = Purging and sampling performed using low-flow methods. All other samples collected using a bailer.
NA = Not Analyzed
µg/L = micrograms per liter

TABLE 2
PFAS GROUNDWATER ANALYTICAL RESULTS
 Albany International - Luvata Site
 908 N. Lawe St., Appleton, Wisconsin

Monitoring Well	Sample Date	PFOA	PFOS	PFHxA	PFHxS	PFHpA	PFHpS	PFBA	PFBS	PFNA	PFNS	PFDA	PFDS	PFPeA	PFPeS	HFPO-DA	PFDoA	PFDoS	PFUnA	PFTrDA	PFTrDA	4:2 FTSA	6:2 FTSA	8:2 FTSA	10:2 FTSA	9CL-PF3ON	11CL-PF3O	DONA	FOSA	N-MeFOSA	N-EFOSA	N-MeFOSA	N-MeFOSE	N-EFOSE	N-EFOSE
Proposed Groundwater Enforcement Standard		20*	20*	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
MW-19R	6/30/2020	43.8	8.08	27.8	5.59	26.7	0.788 J	799	324	4.36	<0.688	0.602 J	<0.627	31.3	2.18	<0.726	<0.529	<0.713	<0.560	<0.552	<0.488	<0.622	<0.705	<0.615	<0.597	<0.578	<0.542	<0.579	<5.60	<0.739	<0.590	<1.1	<0.557	<0.906	<0.568
	12/29/2020	52	16	34	6.5 J	31	NR	1000	830	5.9 J	<1.9	<1.9	<1.9	40	8.9	NR	<1.9	NR	NR	<1.9	<1.9	<3.8	<3.8	<3.8	<3.8	<3.8	<3.8	NR	NR	<3.8	<3.8	<7.6	<3.8	<3.8	<3.8
MW-20R	6/30/2020	17.1	4.03	25.1	1.95	NR	<0.730	98.9	NR	<0.788	<0.913	<0.718	<0.832	NR	<0.495	3.25	<0.701	<0.945	<0.743	<0.732	<0.647	3.34	<0.935	<0.815	<0.792	<0.767	<0.720	NR	<7.43	<0.980	<0.783	<1.47	<0.739	<1.2	<0.754
	12/29/2020	10	<0.97	<0.97	<0.97	<0.97	NR	180	40	<0.97	<0.97	<0.97	<0.97	<0.97	<0.97	NR	<0.97	NR	NR	<0.97	<0.97	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	NR	NR	<1.9	<1.9	<3.9	<1.9	<1.9	<1.9
	12/29/2020 DUP	10	<1.2	<1.2	<1.2	<1.2	NR	220	54	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	NR	<1.2	NR	NR	<1.2	<1.2	<2.4	<2.4	<2.4	<2.4	<2.4	<2.4	NR	NR	<2.4	<2.4	<4.8	<2.4	<2.4	<2.4
MW-21	12/29/2020	9.8	<0.99	4.0	3.4 J	3.8 J	NR	150	89	<0.99	<0.99	<0.99	<0.99	2.7 J	1.6 J	NR	<0.99	NR	NR	<0.99	<0.99	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	NR	NR	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0
MW-22	12/29/2020	60	53	22	7.3	19	NR	83	26	<1.0	<1.0	<1.0	<1.0	12	1.9 J	NR	<1.0	NR	NR	<1.0	<1.0	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	NR	NR	<2.1	<2.1	<4.1	<2.1	<2.1	<2.1
MW-28R	6/30/2020	30.2	16.2	15.3	3.23	13.3	<0.854	575FRB	27.1	6.7	<1.07	<0.839	<0.972	13.6	1.93	<1.13	<0.820	<1.11	<0.869	<0.856	<0.757	<0.964	<1.09	<0.953	<0.926	<0.896	<0.841	<0.898	<8.69	<1.15	<0.915	<1.72	<0.865	<1.41	<0.881
	12/29/2020	16	9.5	8	<0.89	5.4	NR	43	14	3.3 J	<0.89	<0.89	<0.89	7.1	<0.89	NR	<0.89	NR	NR	<0.89	<0.89	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	NR	NR	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8

Notes:
 All concentrations reported in units of nanograms per liter (ng/L)
Bolded and orange shaded values are above proposed groundwater enforcement standards
Bolded values are above detection limits
 * Proposed groundwater standard applies to individual compound or combined PFOA and PFOS
 J = Analyte concentration detected between the laboratory level of detection and the level of quantification
 FRB = Compound detected in field reagent blank
 NR = Not reported due to failure of laboratory QC
 NE = Not Established

Synergy Environmental Lab, INC

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

WAYNE FASSBENDER
ENVIROFORENSICS
N16 W 23390 STONERIDGE DR
WAUKESHA WI 53188

Report Date 13-Jan-21

Project Name ALBANY
Project # 6486 PO#2020-1948
Lab Code 5038947A
Sample ID 6486 MW-5
Sample Matrix Water
Sample Date 12/29/2020

Invoice # E38947

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	4.11	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	353	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Lab Code 5038947B
Sample ID 6486 MW-19R
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	0.12	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	32.1	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Lab Code 5038947C
Sample ID 6486 MW-20R
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	1.95	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	160	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Project Name ALBANY
Project # 6486 PO#2020-1948

Invoice # E38947

Lab Code 5038947D
Sample ID 6486 MW-26R
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	0.04 "J"	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	87.2	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Lab Code 5038947E
Sample ID 6486 MW-28R
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	< 0.03	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	62.6	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Lab Code 5038947F
Sample ID 6486 MW-30R
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	0.07 "J"	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	< 4.2	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Lab Code 5038947G
Sample ID 6486 DUP-1
Sample Matrix Water
Sample Date 12/29/2020

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Chromium, Dissolved	< 3.9	ug/L	3.9	12.8	1	200.7		1/11/2021	CWT	1
Iron, Dissolved	0.03 "J"	mg/l	0.03	0.1	1	200.7		1/11/2021	CWT	1
Manganese, Dissolved	23.3	ug/L	4.2	13.8	1	200.7		1/11/2021	CWT	1

Project Name ALBANY
Project # 6486 PO#2020-1948

Invoice # E38947

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

LOQ Limit of Quantitation

Code ***Comment***

1 Laboratory QC within limits.

CWT denotes sub contract lab - Certification #445126660

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



A handwritten signature in blue ink, appearing to read "Michael J. [unclear]", is written over a horizontal line.

Environmental Lab, Inc.

www.synergy-lab.net
 1990 Prospect Ct. • Appleton, WI 54914
 920-830-2455 • mrsynergy@wi.twcbc.com

Sample Handling Request

Rush Analysis Date Required: _____
 (Rushes accepted only with prior authorization)
 Normal Turn Around

Lab I.D. # _____
 QUOTE # : _____
 Project #: 6486
 Sampler: (signature) Wayne Faulstich

Project (Name / Location): Albany, Appleton, WI
 Reports To: W. Fassbender Invoice To: Game
 Company: Enviro Forensics Company: _____
 Address: Waukesha, WI Address: _____
 City State Zip: _____ City State Zip: _____
 Phone: 262-490-6472 Phone: _____
 Email: _____ Email: _____

Analysis Requested														Other Analysis			PID/ FID	
DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260)	VOC AIR (TO - 15)	8-PCRA METALS	Dissolved Chromium	Dissolved Iron		Dissolved Manganese
															X	X	X	
															X	X	X	
															X	X	X	
															X	X	X	
															X	X	X	
															X	X	X	
															X	X	X	
															X	X	X	

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
5038947A	6486-MW5	12/29/20	0850	N	1	GW	Ice
B	6486-MW19R	"	0735		1	"	"
C	6486-MW20R	"	0930		1	"	"
D	6486-MW26R	"	0915		1	"	"
E	6486-MW28R	"	0815		1	"	"
F	6486-MW30R	"	0945		1	"	"
G	6486-DuP-1	"			1	"	"
	6486-Trip Blank						

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge, etc.)
Lab to filter and preserve with nitric acid.
Use P.O. # 2020-1948

Sample Integrity - To be completed by receiving lab.
 Method of Shipment: drop
 Temp. of Temp. Blank: _____ °C On Ice: 6
 Cooler seal intact upon receipt: Yes No

Relinquished By: (sign) Wayne Faulstich Time 12:55 Date 12/29/20
 Received By: (sign) _____ Time _____ Date _____
 Received in Laboratory By: (sign) _____ Time: 12:55 Date: 12-29-20

PFAS by LC/MS/MS

Client: **Enviroforensics**

Laboratory ID: **VL31055-004**

Description: **6486-MW19R**

Matrix: **Aqueous**

Date Sampled: **12/29/2020 0725**

Date Received: **12/31/2020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1554	SES	01/11/2021 1020	78998
2	SOP SPE	PFAS by ID SOP	5	01/14/2021 1531	SES	01/11/2021 1020	78998

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		15	3.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3...)	763051-92-9	PFAS by ID SOP	ND		15	3.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		15	3.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		15	3.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		15	3.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		15	3.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		15	3.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		15	3.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		15	3.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		15	3.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		15	3.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		31	7.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		15	3.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		15	3.8	ng/L	1
Perfluoro-1-butanefluoronic acid (PFBS)	375-73-5	PFAS by ID SOP	830		7.6	1.9	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	8.9		7.6	1.9	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		15	3.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	6.5	J	7.6	1.9	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	1000		38	9.5	ng/L	2
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	31		7.6	1.9	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		15	3.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	34		7.6	1.9	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	5.9	J	7.6	1.9	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		15	3.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	52		7.6	1.9	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	40		7.6	1.9	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		7.6	1.9	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	16		7.6	1.9	ng/L	1

Surrogate	Run 1		Acceptance Limits	Run 2		
	Q	% Recovery		Q	% Recovery	
13C2_4:2FTS		94	25-150		113	25-150
13C2_6:2FTS		62	25-150		100	25-150
13C2_8:2FTS		49	25-150		98	25-150
13C2_PFDa		33	25-150		84	25-150
13C2_PFHxDA		32	25-150		98	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Enviroforensics**

Laboratory ID: **VL31055-004**

Description: **6486-MW19R**

Matrix: **Aqueous**

Date Sampled: **12/29/2020 0725**

Date Received: **12/31/2020**

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
13C2_PFTeDA		25	25-150		88	25-150
13C3_PFBS		57	25-150		101	25-150
13C3_PFHxS		58	25-150		101	25-150
13C3-HFPO-DA		61	25-150		100	25-150
13C4_PFBA		42	25-150		100	25-150
13C4_PFHpA		62	25-150		98	25-150
13C5_PFHxA		62	25-150		93	25-150
13C5_PFPeA		59	25-150		99	25-150
13C6_PFDA		52	25-150		89	25-150
13C7_PFUdA		38	25-150		94	25-150
13C8_PFOA		57	25-150		91	25-150
13C8_PFOS		49	25-150		91	25-150
13C8_PFOSA		60	10-150		97	10-150
13C9_PFNA		57	25-150		98	25-150
d-EtFOSA		39	10-150		103	10-150
d5-EtFOSAA		40	25-150		100	25-150
d9-EtFOSE		25	10-150		88	10-150
d-MeFOSA		49	10-150		91	10-150
d3-MeFOSAA		44	25-150		101	25-150
d7-MeFOSE		29	10-150		95	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Enviroforensics	Laboratory ID: VL31055-005
Description: 6486-MW20R	Matrix: Aqueous
Date Sampled: 12/29/2020 0930	
Date Received: 12/31/2020	

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1450	SES	01/11/2021 1020	78998

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	3.9	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	40		3.9	0.97	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	180		3.9	0.97	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.8	1.9	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	10		3.9	0.97	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.9	0.97	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		3.9	0.97	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	177	25-150
13C2_6:2FTS	N	234	25-150
13C2_8:2FTS		130	25-150
13C2_PFDa		58	25-150
13C2_PFHxDA	N	19	25-150
13C2_PFTeDA		30	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Enviroforensics	Laboratory ID: VL31055-005
Description: 6486-MW20R	Matrix: Aqueous
Date Sampled: 12/29/2020 0930	
Date Received: 12/31/2020	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		57	25-150
13C3_PFHxS		72	25-150
13C3-HFPO-DA		45	25-150
13C4_PFBA	N	22	25-150
13C4_PFHpA		58	25-150
13C5_PFHxA		42	25-150
13C5_PFPeA		28	25-150
13C6_PFDA		98	25-150
13C7_PFUdA		79	25-150
13C8_PFOA		82	25-150
13C8_PFOS		78	25-150
13C8_PFOSA		93	10-150
13C9_PFNA		87	25-150
d-EtFOSA		58	10-150
d5-EtFOSAA		80	25-150
d9-EtFOSE		34	10-150
d-MeFOSA		70	10-150
d3-MeFOSAA		87	25-150
d7-MeFOSE		52	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Enviroforensics**

Laboratory ID: **VL31055-006**

Description: **6486-MW21**

Matrix: **Aqueous**

Date Sampled: **12/29/2020 0825**

Date Received: **12/31/2020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1501	SES	01/11/2021 1020	78998

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	4.0	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	89		4.0	0.99	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.6	J	4.0	0.99	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	3.4	J	4.0	0.99	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	150		4.0	0.99	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-heptanoic acid (PFHpa)	375-85-9	PFAS by ID SOP	3.8	J	4.0	0.99	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.0		4.0	0.99	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.9	2.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	9.8		4.0	0.99	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.7	J	4.0	0.99	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.0	0.99	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		4.0	0.99	ng/L	1

Surrogate	Run 1 Q	% Recovery	Acceptance Limits
13C2_4:2FTS		124	25-150
13C2_6:2FTS		93	25-150
13C2_8:2FTS		79	25-150
13C2_PFDa		78	25-150
13C2_PFHxDA		60	25-150
13C2_PFTeDA		70	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Enviroforensics	Laboratory ID: VL31055-006
Description: 6486-MW21	Matrix: Aqueous
Date Sampled: 12/29/2020 0825	
Date Received: 12/31/2020	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		87	25-150
13C3_PFHxS		80	25-150
13C3-HFPO-DA		101	25-150
13C4_PFBa		57	25-150
13C4_PFHpA		93	25-150
13C5_PFHxA		99	25-150
13C5_PFPeA		99	25-150
13C6_PFDa		88	25-150
13C7_PFUdA		82	25-150
13C8_PFOA		92	25-150
13C8_PFOS		67	25-150
13C8_PFOsA		103	10-150
13C9_PFNa		89	25-150
d-EtFOsA		88	10-150
d5-EtFOsAA		77	25-150
d9-EtFOsE		77	10-150
d-MeFOsA		91	10-150
d3-MeFOsAA		87	25-150
d7-MeFOsE		84	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

 Client: **Enviroforensics**

 Laboratory ID: **VL31055-007**

 Description: **6486-MW22**

 Matrix: **Aqueous**

 Date Sampled: **12/29/2020 0920**

 Date Received: **12/31/2020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1512	SES	01/11/2021 1020	78998

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		16	4.1	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	26		4.1	1.0	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	1.9	J	4.1	1.0	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	7.3		4.1	1.0	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	83		4.1	1.0	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpa)	375-85-9	PFAS by ID SOP	19		4.1	1.0	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	22		4.1	1.0	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		8.2	2.1	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	60		4.1	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	12		4.1	1.0	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.1	1.0	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	53		4.1	1.0	ng/L	1

Surrogate	Run 1 Q	% Recovery	Acceptance Limits
13C2_4:2FTS		98	25-150
13C2_6:2FTS		98	25-150
13C2_8:2FTS		93	25-150
13C2_PFDaA		91	25-150
13C2_PFHxDA		57	25-150
13C2_PFTeDA		70	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Enviroforensics	Laboratory ID: VL31055-007
Description: 6486-MW22	Matrix: Aqueous
Date Sampled: 12/29/2020 0920	
Date Received: 12/31/2020	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		100	25-150
13C3_PFHxS		97	25-150
13C3-HFPO-DA		104	25-150
13C4_PFBa		56	25-150
13C4_PFHpA		97	25-150
13C5_PFHxA		98	25-150
13C5_PFPeA		97	25-150
13C6_PFDa		96	25-150
13C7_PFUdA		93	25-150
13C8_PFOA		100	25-150
13C8_PFOS		89	25-150
13C8_PFOsA		106	10-150
13C9_PFNa		95	25-150
d-EtFOsA		98	10-150
d5-EtFOsAA		92	25-150
d9-EtFOsE		71	10-150
d-MeFOsA		109	10-150
d3-MeFOsAA		103	25-150
d7-MeFOsE		82	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: **Enviroforensics**

Laboratory ID: **VL31055-008**

Description: **6486-MW28R**

Matrix: **Aqueous**

Date Sampled: **12/29/2020 0815**

Date Received: **12/31/2020**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	01/13/2021 1522	SES	01/11/2021 1020	78998

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorododecane sulfonic acid (10:2 FTS)	120226-60-0	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		14	3.6	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	14		3.6	0.89	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	43		3.6	0.89	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	5.4		3.6	0.89	ng/L	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	67905-19-5	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	8.0		3.6	0.89	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	3.3	J	3.6	0.89	ng/L	1
Perfluoro-n-octadecanoic acid (PFODA)	16517-11-6	PFAS by ID SOP	ND		7.1	1.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	16		3.6	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	7.1		3.6	0.89	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		3.6	0.89	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	9.5		3.6	0.89	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_4:2FTS	N	217	25-150
13C2_6:2FTS		107	25-150
13C2_8:2FTS		85	25-150
13C2_PFDaA		80	25-150
13C2_PFHxDA		67	25-150
13C2_PFTeDA		65	25-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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PFAS by LC/MS/MS

Client: Enviroforensics	Laboratory ID: VL31055-008
Description: 6486-MW28R	Matrix: Aqueous
Date Sampled: 12/29/2020 0815	
Date Received: 12/31/2020	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C3_PFBs		85	25-150
13C3_PFHxS		87	25-150
13C3-HFPO-DA		99	25-150
13C4_PFBa		88	25-150
13C4_PFHpA		100	25-150
13C5_PFHxA		100	25-150
13C5_PFPeA		93	25-150
13C6_PFDa		93	25-150
13C7_PFUdA		82	25-150
13C8_PFOA		97	25-150
13C8_PFOs		74	25-150
13C8_PFOsA		97	10-150
13C9_PFNa		94	25-150
d-EtFOsA		89	10-150
d5-EtFOsAA		86	25-150
d9-EtFOsE		78	10-150
d-MeFOsA		88	10-150
d3-MeFOsAA		92	25-150
d7-MeFOsE		82	10-150

LOQ = Limit of Quantitation B = Detected in the method blank E = Quantitation of compound exceeded the calibration range DL = Detection Limit
 ND = Not detected at or above the DL N = Recovery is out of criteria P = The RPD between two GC columns exceeds 40% J = Estimated result < LOQ and ≥ DL
 H = Out of holding time W = Reported on wet weight basis

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