Ms. Alyssa Sellwood, P.E.
Complex Sites Project Manager – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
101 South Webster Street
PO Box 7921
Madison, WI 53707

Arcadis U.S., Inc.
126 North Jefferson Street
Milwaukee, Wisconsin 53202
www.arcadis.com

Date:
November 25, 2020

Tyco Environmental Assessment Call Line:
(800) 314-1381

Responsible Party:
Tyco Fire Products LP
2700 Industrial Parkway S
Marinette, WI 54143

Site Name:
Tyco Fire Technology Center

BRRTS No.:
02-38-580694

Subject:
Sample Results Notification, Tyco Fire Technology Center PFAS, 2700 Industrial Parkway South, Marinette, Wisconsin
BRRTS Activity#: 02-38-580694

Dear Ms. Sellwood:

On behalf of Tyco Fire Products LP (Tyco), Arcadis is providing this Sample Results Notification for off-site investigation activities related to the Tyco Fire Technology Center (FTC) per- or polyfluoroalkyl substances (PFAS) site located at 2700 Industrial Parkway South in Marinette, Wisconsin (Site).

This Sample Results Notification is being provided to satisfy NR716.14(2) for groundwater samples that were collected in the City of Marinette on October 29, 2020. We recorded the sample location, date, and other information and had the sample tested at an accredited, independent laboratory. That testing is now complete, and the results are summarized in the attached table with sample locations depicted in the attached figure.

Groundwater samples were collected around the City of Marinette to refine the groundwater model that was recently submitted to the Wisconsin Department of Natural Resources (WDNR). These additional results are consistent with the model. One sample that was taken north of the FTC and in close proximity to a site listed on the WDNR Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web database as activity #: 02-38-000017 shows a PFAS level exceedance, which we are further investigating.

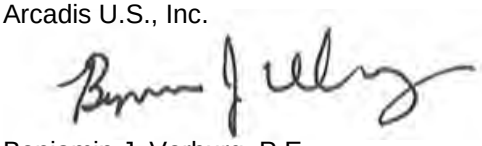
The owners of the properties accessed to collect the samples were notified of the results collected on their property. Copies of those letters are attached.

These results will be combined with other previously collected and future planned sampling results and evaluated comprehensively in a future submittal.

Please do not hesitate to call us if you have any questions.

Sincerely,

Arcadis U.S., Inc.



Benjamin J. Verburg, P.E.
Principal Engineer

Copies:
David Neste
Bridget Kelly
Jeff Danko
Scott Wahl

Attachment:
Summary Results Table
Sample Locations Figure
Laboratory Report
Owner Notification Letter

			Location	PZ-26-11	PZ-27-12	PZ-28-14	PZ-28-54	PZ-35-37	PZ-35-48	PZ-35-48
			Sample Date	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020
			Sample Type	N	N	N	N	N	N	FD
Chemical Name	Recommended Enforcement Standard (ES)	Recommended Preventive Action Limit (PAL)	Units							
FOSA			ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	1.8 J
NEtFOSA			ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
NEtFOSAA			ng/l	< 4.5 U	< 4.5 U	< 4.5 U	< 4.6 U	< 4.6 U	< 4.5 U	< 4.6 U
NEtFOSE			ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFOA			ng/l	*4.3*	**310**	**53**	**83**	< 1.8 U	< 1.8 U	< 1.9 U
PFOS			ng/l	0.49 J	**70**	*15 JN*	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
Total Combined PFAS	20 (1)	2 (1)	ng/l	*4.79*	**380**	**68**	**83**	ND	ND	ND
10:2 FTS	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
4:2 FTS	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	0.46 J	< 1.8 U	< 1.8 U	< 1.9 U
6:2 FTS	--	--	ng/l	< 4.5 U	2.5 J	< 4.5 U	2.5 J	< 4.6 U	< 4.5 U	< 4.6 U
8:2 FTS	--	--	ng/l	< 1.8 U	0.74 J	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
DONA	3000	600	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
F-53B Major	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
F-53B Minor	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
GenX	300	30	ng/l	< 3.6 U	< 3.6 U	< 3.6 U	< 3.7 U	< 3.7 U	< 3.6 U	< 3.7 U
NMeFOSA			ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
NMeFOSAA	--	--	ng/l	< 4.5 U	< 4.5 U	< 4.5 U	< 4.6 U	< 4.6 U	< 4.5 U	< 4.6 U
NMeFOSE			ng/l	< 3.6 U	< 3.6 U	< 3.6 U	< 3.7 U	< 3.7 U	< 3.6 U	< 3.7 U
PFBA	10000	2000	ng/l	8.8	15	80	10	< 4.6 U	< 4.5 U	< 4.6 U
PFBS	450000	90000	ng/l	1.5 J	0.54 J	5.0	1.0 J	< 1.8 U	< 1.8 U	< 1.9 U
PFDA	300	60	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFDoA	500	100	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFDoS	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFDS	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFHpA	--	--	ng/l	3.7	17	84	39	< 1.8 U	< 1.8 U	< 1.9 U
PFHpS	--	--	ng/l	< 1.8 U	0.68 J	0.22 J	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFHxA	150000	30000	ng/l	6.8	37	220	44	< 1.8 U	< 1.8 U	< 1.9 U
PFHxDA	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFHxS	40	4	ng/l	0.61 J	2.2	**110**	0.58 J	< 1.8 U	< 1.8 U	< 1.9 U
PFNA	30	3	ng/l	< 1.8 U	0.80 J	*4.3*	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFNS	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFODA	400000	80000	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFPeA	--	--	ng/l	9.3	32	160	24	< 1.8 U	< 1.8 U	< 1.9 U
PFPeS	--	--	ng/l	< 1.8 U	< 1.8 U	1.2 J	0.33 J	< 1.8 U	< 1.8 U	< 1.9 U
PFTeA	10000	2000	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFTriA	--	--	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U
PFUnA	3000	600	ng/l	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.9 U

Notes:
Concentrations above Recommended Enforcement Standard (ES) are bolded
Concentrations above Recommended Preventive Action Limit (PAL) are italicized

< RL
(1) = Combined criteria for FOSA, NEtFOSE, NEtFOSA, NetFOSAA, PFOS, and PFOA
ND = not detected above the reporting limit
J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample
JN = The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only
U = The result is non-detect.

PFOA = Perfluorooctanoic acid (C8)
PFOS = Perfluorooctanesulfonic acid (C8)
PFBS = Perfluorobutanesulfonic acid (C4)
PFHpA = Perfluoroheptanoic acid (C7)
PFHxS = Perfluorohexanesulfonic acid (C6)
PFNA = Perfluorononanoic acid (C9)
PFDA = Perfluorodecanoic acid (C10)
PFDoA = Perfluorododecanoic acid (C12)
PFHxA = Perfluorohexanoic acid (C6)
PFTeA = Perfluorotetradecanoic acid (C14)
PFTriA = Perfluorotridecanoic acid (C13)
PFUnA = Perfluoroundecanoic acid (C11)
NEtFOSAA = N-ethylperfluorooctanesulfonamidoacetic acid (C12)
NMeFOSAA = N-methylperfluorooctanesulfonamidoacetic acid (C11)
PFBA = Perfluorobutanoic acid (C4)
PFPeA = Perfluoropentanoic acid (C5)
PFHxDA = Perfluoro-n-hexadecanoic acid (C16)
PFODA = Perfluoro-n-octadecanoic acid (C18)
PFPeS = Perfluoropentanesulfonic acid (C5)
PFHpS = Perfluoroheptanesulfonic acid (C7)
PFNS = Perfluorononanesulfonic acid (C9)
PFDS = Perfluorodecanesulfonic acid (C10)
PFDoS = Perfluorododecanesulfonic acid (C12)
FOSA = Perfluorooctanesulfonamide (C8)
NEtFOSA = N ethylperfluorooctanesulfonamide (C10)
NMeFOSA = N methylperfluorooctanesulfonamide (C9)
NMeFOSE = N methylperfluorooctanesulfonamidoethanol (C11)
NEtFOSE = N ethylperfluorooctanesulfonamidoethanol (C12)
4:2 FTS = 4:2 fluorotelomer sulfonate (C6)
6:2 FTS = 6:2 fluorotelomer sulfonate (C8)
8:2 FTS = 8:2 fluorotelomer sulfonate (C10)
10:2 FTS = 10:2 fluorotelomer sulfonate (C12)
DONA = 4,8 Dioxa 3H perfluorononanoic acid (C7)
GenX = Hexafluoropropylene oxide dimer acid (C6)
F-53B Major = 9 chlorohexadecafluoro 3 oxanonane 1 sulfonic acid (C8)
F-53B Minor = 11 chloroeicosafluoro 3 oxaundecane 1 sulfonic acid (C10)

Location	PZ-26-11
Date	10/29/2020
PFOA	4.3
PFOS	0.49 J

Location	PZ-27-12
Date	10/29/2020
PFOA	310
PFOS	70

Location	PZ-28-54
Date	10/29/2020
PFOA	83
PFOS	< 1.8 U

Location	PZ-28-14
Date	10/29/2020
PFOA	53
PFOS	15 JN

Location	PZ-35-37
Date	10/29/2020
PFOA	< 1.8 U
PFOS	< 1.8 U

Location	PZ-35-48
Date	10/29/2020
PFOA	< 1.8 U [<1.9 U]
PFOS	< 1.8 U [<1.9 U]

LEGEND:

- MONITORING WELL
- APPROXIMATE SITE PROPERTY BOUNDARY
- ROAD
- DITCH/STREAM
- WATERBODY

NOTES:

1. DITCH/STREAM DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
2. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
3. AERIAL IMAGERY: 5/14/2017 DIGITALGLOBE, VIVID-USA.
4. PFOS = PERFLUOROOCTANESULFONIC ACID
5. PFOA = PERFLUOROOCTANOIC ACID
6. PFOA & PFOS ARE REPORTED IN NANOGRAMS PER LITER (ng/l)
7. ANALYTICAL RESULT DETECTIONS ARE BOLDED
8. VALIDATION QUALIFIERS:
< = LESS THAN REPORTING LIMIT
J = THE RESULT IS AN ESTIMATED QUANTITY. THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE
JN = THE ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION. THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
U = THE RESULT IS NON-DETECT.

0 2,000 4,000

TYCO FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN

GROUNDWATER ANALYTICAL RESULTS

ARCADIS

FIGURE
1

City: Minneapolis/Citrix Div/Group: IMDVC Created By: Last Saved By: MSMiller
TYCO Marinette, WI
D:\Tyco_Marinette\TRANSFER_LOCAL\MXD\2020-11\Fig1_MW_PZ_Network_Databoxes_All.mxd 11/24/2020 12:39:43 PM

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-190409-1
Client Project/Site: Marinette Supp Site Inv - 30062360 00004

For:
ARCADIS U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Attn: Lisa Rutkowski

Authorized for release by:
11/10/2020 4:25:15 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

Table of Contents

Job ID: 500-190409-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-190409-1

Comments
No additional comments.

Receipt
The samples were received on 10/31/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2º C, 2.0º C and 4.7º C.

LCMS
Method 537 (modified): The “I” qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has/have some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.
500-190409-7

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

Organic Prep
Method 3535: The following samples contain a thin layer of sediments at the bottom of the bottle prior to extraction: 500-190409-3 and 500-190409-7. 320-428967 Method: 3535 PFC-W

Method 3535: The following sample was brown prior to extraction: 500-190409-3. 320-428967 Method: 3535 PFC-W

Method 3535: The following samples were yellow prior to extraction: 500-190409-4 and 500-190409-6. 320-428967 Method: 3535 PFC-W

Method 3535: The following samples are light yellow after extraction/final volume: 500-190409-3 and 500-190409-6. 320-428967 Method: 3535 PFC-W

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

Method Summary

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-190409-1	PZ-35-48	Water	10/29/20 08:05	10/31/20 10:00	
500-190409-2	PZ-35-37	Water	10/29/20 08:50	10/31/20 10:00	
500-190409-3	PZ-26-11	Water	10/29/20 09:50	10/31/20 10:00	
500-190409-4	PZ-27-12	Water	10/29/20 10:40	10/31/20 10:00	
500-190409-5	Field Blank-10-29-2020	Water	10/29/20 10:45	10/31/20 10:00	
500-190409-6	PZ-28-54	Water	10/29/20 11:35	10/31/20 10:00	
500-190409-7	PZ-28-14	Water	10/29/20 12:15	10/31/20 10:00	
500-190409-8	DUP-01 (102920)	Water	10/29/20 00:00	10/31/20 10:00	

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-48
Date Collected: 10/29/20 08:05
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.5		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.44	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.24	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.99	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.85	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.51	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.87	ng/L		11/06/20 05:05	11/07/20 10:48	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 10:48	1
NEtFOSA	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 10:48	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 10:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.5		4.5	1.1	ng/L		11/06/20 05:05	11/07/20 10:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.5		4.5	1.2	ng/L		11/06/20 05:05	11/07/20 10:48	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 10:48	1
NEtFOSE	<1.8		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 10:48	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 10:48	1
6:2 FTS	<4.5		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 10:48	1
8:2 FTS	<1.8		1.8	0.41	ng/L		11/06/20 05:05	11/07/20 10:48	1
10:2 FTS	<1.8		1.8	0.60	ng/L		11/06/20 05:05	11/07/20 10:48	1
DONA	<1.8		1.8	0.36	ng/L		11/06/20 05:05	11/07/20 10:48	1
HFPO-DA (GenX)	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 10:48	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 10:48	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 10:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C5 PFPeA	*78*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C2 PFHxA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C4 PFHpA	*87*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C4 PFOA	*91*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C5 PFNA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*
13C2 PFDA	*86*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:48*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-48
Lab Sample ID: 500-190409-1
Date Collected: 10/29/20 08:05
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	81		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C2 PFDoA	84		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C2 PFTeDA	75		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C2 PFHxDA	87		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C3 PFBS	83		25 - 150	11/06/20 05:05	11/07/20 10:48	1
18O2 PFHxS	88		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C4 PFOS	89		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C8 FOSA	90		25 - 150	11/06/20 05:05	11/07/20 10:48	1
d3-NMeFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 10:48	1
d5-NEtFOSAA	90		25 - 150	11/06/20 05:05	11/07/20 10:48	1
d-N-MeFOSA-M	68		20 - 150	11/06/20 05:05	11/07/20 10:48	1
d-N-EtFOSA-M	54		20 - 150	11/06/20 05:05	11/07/20 10:48	1
d7-N-MeFOSE-M	31		10 - 120	11/06/20 05:05	11/07/20 10:48	1
d9-N-EtFOSE-M	26		10 - 120	11/06/20 05:05	11/07/20 10:48	1
M2-4:2 FTS	88		25 - 150	11/06/20 05:05	11/07/20 10:48	1
M2-6:2 FTS	91		25 - 150	11/06/20 05:05	11/07/20 10:48	1
M2-8:2 FTS	96		25 - 150	11/06/20 05:05	11/07/20 10:48	1
13C3 HFPO-DA	83		25 - 150	11/06/20 05:05	11/07/20 10:48	1

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-37
Date Collected: 10/29/20 08:50
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.6		4.6	2.2	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.45	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.53	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.23	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.25	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	1.0	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.50	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.67	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.82	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.86	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.50	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.34	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.89	ng/L		11/06/20 05:05	11/07/20 10:57	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.90	ng/L		11/06/20 05:05	11/07/20 10:57	1
NEtFOSA	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 10:57	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 10:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		4.6	1.1	ng/L		11/06/20 05:05	11/07/20 10:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		4.6	1.2	ng/L		11/06/20 05:05	11/07/20 10:57	1
NMeFOSE	<3.7		3.7	1.3	ng/L		11/06/20 05:05	11/07/20 10:57	1
NEtFOSE	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 10:57	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 10:57	1
6:2 FTS	<4.6		4.6	2.3	ng/L		11/06/20 05:05	11/07/20 10:57	1
8:2 FTS	<1.8		1.8	0.42	ng/L		11/06/20 05:05	11/07/20 10:57	1
10:2 FTS	<1.8		1.8	0.61	ng/L		11/06/20 05:05	11/07/20 10:57	1
DONA	<1.8		1.8	0.37	ng/L		11/06/20 05:05	11/07/20 10:57	1
HFPO-DA (GenX)	<3.7		3.7	1.4	ng/L		11/06/20 05:05	11/07/20 10:57	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 10:57	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 10:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*66*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C5 PFPeA	*82*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C2 PFHxA	*86*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C4 PFHpA	*90*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C4 PFOA	*90*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C5 PFNA	*84*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*
13C2 PFDA	*86*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:57*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-37
Lab Sample ID: 500-190409-2
Date Collected: 10/29/20 08:50
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	90		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C2 PFDoA	83		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C2 PFTeDA	87		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C2 PFHxDA	93		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C3 PFBS	85		25 - 150	11/06/20 05:05	11/07/20 10:57	1
18O2 PFHxS	92		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C4 PFOS	91		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C8 FOSA	88		25 - 150	11/06/20 05:05	11/07/20 10:57	1
d3-NMeFOSAA	92		25 - 150	11/06/20 05:05	11/07/20 10:57	1
d5-NEtFOSAA	96		25 - 150	11/06/20 05:05	11/07/20 10:57	1
d-N-MeFOSA-M	70		20 - 150	11/06/20 05:05	11/07/20 10:57	1
d-N-EtFOSA-M	54		20 - 150	11/06/20 05:05	11/07/20 10:57	1
d7-N-MeFOSE-M	32		10 - 120	11/06/20 05:05	11/07/20 10:57	1
d9-N-EtFOSE-M	31		10 - 120	11/06/20 05:05	11/07/20 10:57	1
M2-4:2 FTS	83		25 - 150	11/06/20 05:05	11/07/20 10:57	1
M2-6:2 FTS	97		25 - 150	11/06/20 05:05	11/07/20 10:57	1
M2-8:2 FTS	97		25 - 150	11/06/20 05:05	11/07/20 10:57	1
13C3 HFPO-DA	82		25 - 150	11/06/20 05:05	11/07/20 10:57	1

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-26-11
Date Collected: 10/29/20 09:50
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**8.8**		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoropentanoic acid (PFPeA)	**9.3**		1.8	0.44	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorohexanoic acid (PFHxA)	**6.8**		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoroheptanoic acid (PFHpA)	**3.7**		1.8	0.23	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorooctanoic acid (PFOA)	**4.3**		1.8	0.77	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.24	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.99	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.50	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.85	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorobutanesulfonic acid (PFBS)	**1.5**	**J**	1.8	0.18	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorohexanesulfonic acid (PFHxS)	**0.61**	**J**	1.8	0.51	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorooctanesulfonic acid (PFOS)	**0.49**	**J**	1.8	0.49	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 11:24	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.89	ng/L		11/06/20 05:05	11/07/20 11:24	1
NEtFOSA	<1.8		1.8	0.79	ng/L		11/06/20 05:05	11/07/20 11:24	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 11:24	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.5		4.5	1.1	ng/L		11/06/20 05:05	11/07/20 11:24	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.5		4.5	1.2	ng/L		11/06/20 05:05	11/07/20 11:24	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 11:24	1
NEtFOSE	<1.8		1.8	0.77	ng/L		11/06/20 05:05	11/07/20 11:24	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:24	1
6:2 FTS	<4.5		4.5	2.3	ng/L		11/06/20 05:05	11/07/20 11:24	1
8:2 FTS	<1.8		1.8	0.42	ng/L		11/06/20 05:05	11/07/20 11:24	1
10:2 FTS	<1.8		1.8	0.61	ng/L		11/06/20 05:05	11/07/20 11:24	1
DONA	<1.8		1.8	0.36	ng/L		11/06/20 05:05	11/07/20 11:24	1
HFPO-DA (GenX)	<3.6		3.6	1.4	ng/L		11/06/20 05:05	11/07/20 11:24	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:24	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*46*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:24*	*1*
13C5 PFPeA	*76*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:24*	*1*
13C2 PFHxA	*87*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:24*	*1*
13C4 PFHpA	*94*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:24*	*1*
13C4 PFOA	*98*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:24*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-26-11
Lab Sample ID: 500-190409-3
Date Collected: 10/29/20 09:50
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	96		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C2 PFDA	96		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C2 PFUnA	95		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C2 PFDoA	94		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C2 PFTeDA	94		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C2 PFHxDA	80		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C3 PFBS	89		25 - 150	11/06/20 05:05	11/07/20 11:24	1
18O2 PFHxS	99		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C4 PFOS	100		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C8 FOSA	98		25 - 150	11/06/20 05:05	11/07/20 11:24	1
d3-NMeFOSAA	89		25 - 150	11/06/20 05:05	11/07/20 11:24	1
d5-NEtFOSAA	96		25 - 150	11/06/20 05:05	11/07/20 11:24	1
d-N-MeFOSA-M	60		20 - 150	11/06/20 05:05	11/07/20 11:24	1
d-N-EtFOSA-M	48		20 - 150	11/06/20 05:05	11/07/20 11:24	1
d7-N-MeFOSE-M	36		10 - 120	11/06/20 05:05	11/07/20 11:24	1
d9-N-EtFOSE-M	35		10 - 120	11/06/20 05:05	11/07/20 11:24	1
M2-4:2 FTS	119		25 - 150	11/06/20 05:05	11/07/20 11:24	1
M2-6:2 FTS	133		25 - 150	11/06/20 05:05	11/07/20 11:24	1
M2-8:2 FTS	113		25 - 150	11/06/20 05:05	11/07/20 11:24	1
13C3 HFPO-DA	87		25 - 150	11/06/20 05:05	11/07/20 11:24	1

Client Sample ID: PZ-27-12
Date Collected: 10/29/20 10:40
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoropentanoic acid (PFPeA)	**32**		1.8	0.44	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorohexanoic acid (PFHxA)	**37**		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoroheptanoic acid (PFHpA)	**17**		1.8	0.23	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorooctanoic acid (PFOA)	**310**		1.8	0.77	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorononanoic acid (PFNA)	**0.80**	**J**	1.8	0.24	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.99	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.50	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.85	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorobutanesulfonic acid (PFBS)	**0.54**	**J**	1.8	0.18	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorohexanesulfonic acid (PFHxS)	**2.2**		1.8	0.51	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.68**	**J**	1.8	0.17	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorooctanesulfonic acid (PFOS)	**70**		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 11:33	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 11:33	1
NEtFOSA	<1.8		1.8	0.79	ng/L		11/06/20 05:05	11/07/20 11:33	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 11:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.5		4.5	1.1	ng/L		11/06/20 05:05	11/07/20 11:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.5		4.5	1.2	ng/L		11/06/20 05:05	11/07/20 11:33	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 11:33	1
NEtFOSE	<1.8		1.8	0.77	ng/L		11/06/20 05:05	11/07/20 11:33	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:33	1
6:2 FTS	**2.5**	**J**	4.5	2.3	ng/L		11/06/20 05:05	11/07/20 11:33	1
8:2 FTS	**0.74**	**J**	1.8	0.42	ng/L		11/06/20 05:05	11/07/20 11:33	1
10:2 FTS	<1.8		1.8	0.60	ng/L		11/06/20 05:05	11/07/20 11:33	1
DONA	<1.8		1.8	0.36	ng/L		11/06/20 05:05	11/07/20 11:33	1
HFPO-DA (GenX)	<3.6		3.6	1.4	ng/L		11/06/20 05:05	11/07/20 11:33	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:33	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*52*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:33*	*1*
13C5 PFPeA	*74*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:33*	*1*
13C2 PFHxA	*82*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:33*	*1*
13C4 PFHpA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:33*	*1*
13C4 PFOA	*94*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:33*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-27-12
Lab Sample ID: 500-190409-4
Date Collected: 10/29/20 10:40
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	92		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C2 PFDA	94		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C2 PFUnA	93		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C2 PFDoA	82		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C2 PFTeDA	76		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C2 PFHxDA	91		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C3 PFBS	88		25 - 150	11/06/20 05:05	11/07/20 11:33	1
18O2 PFHxS	92		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C4 PFOS	92		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C8 FOSA	93		25 - 150	11/06/20 05:05	11/07/20 11:33	1
d3-NMeFOSAA	84		25 - 150	11/06/20 05:05	11/07/20 11:33	1
d5-NEtFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 11:33	1
d-N-MeFOSA-M	51		20 - 150	11/06/20 05:05	11/07/20 11:33	1
d-N-EtFOSA-M	44		20 - 150	11/06/20 05:05	11/07/20 11:33	1
d7-N-MeFOSE-M	33		10 - 120	11/06/20 05:05	11/07/20 11:33	1
d9-N-EtFOSE-M	36		10 - 120	11/06/20 05:05	11/07/20 11:33	1
M2-4:2 FTS	109		25 - 150	11/06/20 05:05	11/07/20 11:33	1
M2-6:2 FTS	108		25 - 150	11/06/20 05:05	11/07/20 11:33	1
M2-8:2 FTS	107		25 - 150	11/06/20 05:05	11/07/20 11:33	1
13C3 HFPO-DA	82		25 - 150	11/06/20 05:05	11/07/20 11:33	1

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: Field Blank-10-29-2020
Lab Sample ID: 500-190409-5

Date Collected: 10/29/20 10:45
Matrix: Water
Date Received: 10/31/20 10:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.5		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.44	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.24	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.99	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.84	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.51	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.87	ng/L		11/06/20 05:05	11/07/20 11:42	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 11:42	1
NEtFOSA	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 11:42	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 11:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.5		4.5	1.1	ng/L		11/06/20 05:05	11/07/20 11:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.5		4.5	1.2	ng/L		11/06/20 05:05	11/07/20 11:42	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 11:42	1
NEtFOSE	<1.8		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 11:42	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:42	1
6:2 FTS	<4.5		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 11:42	1
8:2 FTS	<1.8		1.8	0.41	ng/L		11/06/20 05:05	11/07/20 11:42	1
10:2 FTS	<1.8		1.8	0.60	ng/L		11/06/20 05:05	11/07/20 11:42	1
DONA	<1.8		1.8	0.36	ng/L		11/06/20 05:05	11/07/20 11:42	1
HFPO-DA (GenX)	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 11:42	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 11:42	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 11:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C5 PFPeA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C2 PFHxA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C4 PFHpA	*91*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C4 PFOA	*95*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C5 PFNA	*90*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*
13C2 PFDA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 11:42*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: Field Blank-10-29-2020
Lab Sample ID: 500-190409-5
Date Collected: 10/29/20 10:45
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	85		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C2 PFDoA	92		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C2 PFTeDA	87		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C2 PFHxDA	93		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C3 PFBS	89		25 - 150	11/06/20 05:05	11/07/20 11:42	1
18O2 PFHxS	94		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C4 PFOS	93		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C8 FOSA	86		25 - 150	11/06/20 05:05	11/07/20 11:42	1
d3-NMeFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 11:42	1
d5-NEtFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 11:42	1
d-N-MeFOSA-M	87		20 - 150	11/06/20 05:05	11/07/20 11:42	1
d-N-EtFOSA-M	72		20 - 150	11/06/20 05:05	11/07/20 11:42	1
d7-N-MeFOSE-M	39		10 - 120	11/06/20 05:05	11/07/20 11:42	1
d9-N-EtFOSE-M	32		10 - 120	11/06/20 05:05	11/07/20 11:42	1
M2-4:2 FTS	89		25 - 150	11/06/20 05:05	11/07/20 11:42	1
M2-6:2 FTS	98		25 - 150	11/06/20 05:05	11/07/20 11:42	1
M2-8:2 FTS	101		25 - 150	11/06/20 05:05	11/07/20 11:42	1
13C3 HFPO-DA	85		25 - 150	11/06/20 05:05	11/07/20 11:42	1

Client Sample ID: PZ-28-54
Date Collected: 10/29/20 11:35
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**10**		4.6	2.2	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoropentanoic acid (PFPeA)	**24**		1.8	0.45	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorohexanoic acid (PFHxA)	**44**		1.8	0.54	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoroheptanoic acid (PFHpA)	**39**		1.8	0.23	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorooctanoic acid (PFOA)	**83**		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.25	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	1.0	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.51	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.67	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.82	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.87	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorobutanesulfonic acid (PFBS)	**1.0**	**J**	1.8	0.18	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoropentanesulfonic acid (PFPeS)	**0.33**	**J**	1.8	0.28	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorohexanesulfonic acid (PFHxS)	**0.58**	**J**	1.8	0.53	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.18	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.50	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.34	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.30	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.90	ng/L		11/06/20 05:05	11/07/20 12:10	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.90	ng/L		11/06/20 05:05	11/07/20 12:10	1
NEtFOSA	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 12:10	1
NMeFOSA	<1.8		1.8	0.40	ng/L		11/06/20 05:05	11/07/20 12:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		4.6	1.1	ng/L		11/06/20 05:05	11/07/20 12:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		4.6	1.2	ng/L		11/06/20 05:05	11/07/20 12:10	1
NMeFOSE	<3.7		3.7	1.3	ng/L		11/06/20 05:05	11/07/20 12:10	1
NEtFOSE	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 12:10	1
4:2 FTS	**0.46**	**J**	1.8	0.22	ng/L		11/06/20 05:05	11/07/20 12:10	1
6:2 FTS	**2.5**	**J**	4.6	2.3	ng/L		11/06/20 05:05	11/07/20 12:10	1
8:2 FTS	<1.8		1.8	0.42	ng/L		11/06/20 05:05	11/07/20 12:10	1
10:2 FTS	<1.8		1.8	0.62	ng/L		11/06/20 05:05	11/07/20 12:10	1
DONA	<1.8		1.8	0.37	ng/L		11/06/20 05:05	11/07/20 12:10	1
HFPO-DA (GenX)	<3.7		3.7	1.4	ng/L		11/06/20 05:05	11/07/20 12:10	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 12:10	1
F-53B Minor	<1.8		1.8	0.30	ng/L		11/06/20 05:05	11/07/20 12:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*51*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:10*	*1*
13C5 PFPeA	*78*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:10*	*1*
13C2 PFHxA	*89*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:10*	*1*
13C4 PFHpA	*92*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:10*	*1*
13C4 PFOA	*97*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:10*	*1*

Client Sample ID: PZ-28-54
Lab Sample ID: 500-190409-6
Date Collected: 10/29/20 11:35
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	92		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C2 PFDA	93		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C2 PFUnA	91		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C2 PFDoA	88		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C2 PFTeDA	91		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C2 PFHxDA	77		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C3 PFBS	85		25 - 150	11/06/20 05:05	11/07/20 12:10	1
18O2 PFHxS	94		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C4 PFOS	96		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C8 FOSA	91		25 - 150	11/06/20 05:05	11/07/20 12:10	1
d3-NMeFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 12:10	1
d5-NEtFOSAA	93		25 - 150	11/06/20 05:05	11/07/20 12:10	1
d-N-MeFOSA-M	60		20 - 150	11/06/20 05:05	11/07/20 12:10	1
d-N-EtFOSA-M	49		20 - 150	11/06/20 05:05	11/07/20 12:10	1
d7-N-MeFOSE-M	32		10 - 120	11/06/20 05:05	11/07/20 12:10	1
d9-N-EtFOSE-M	32		10 - 120	11/06/20 05:05	11/07/20 12:10	1
M2-4:2 FTS	113		25 - 150	11/06/20 05:05	11/07/20 12:10	1
M2-6:2 FTS	114		25 - 150	11/06/20 05:05	11/07/20 12:10	1
M2-8:2 FTS	112		25 - 150	11/06/20 05:05	11/07/20 12:10	1
13C3 HFPO-DA	86		25 - 150	11/06/20 05:05	11/07/20 12:10	1

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-28-14
Date Collected: 10/29/20 12:15
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**80**		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoropentanoic acid (PFPeA)	**160**		1.8	0.44	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorohexanoic acid (PFHxA)	**220**		1.8	0.52	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoroheptanoic acid (PFHpA)	**84**		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorooctanoic acid (PFOA)	**53**		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorononanoic acid (PFNA)	**4.3**		1.8	0.24	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.99	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.49	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.84	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorobutanesulfonic acid (PFBS)	**5.0**		1.8	0.18	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoropentanesulfonic acid (PFPeS)	**1.2**	**J**	1.8	0.27	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorohexanesulfonic acid (PFHxS)	**110**		1.8	0.51	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluoroheptanesulfonic Acid (PFHpS)	**0.22**	**J**	1.8	0.17	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorooctanesulfonic acid (PFOS)	**15**	**I**	1.8	0.48	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.87	ng/L		11/06/20 05:05	11/07/20 12:19	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		11/06/20 05:05	11/07/20 12:19	1
NEtFOSA	<1.8		1.8	0.78	ng/L		11/06/20 05:05	11/07/20 12:19	1
NMeFOSA	<1.8		1.8	0.39	ng/L		11/06/20 05:05	11/07/20 12:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.5		4.5	1.1	ng/L		11/06/20 05:05	11/07/20 12:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.5		4.5	1.2	ng/L		11/06/20 05:05	11/07/20 12:19	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 12:19	1
NEtFOSE	<1.8		1.8	0.76	ng/L		11/06/20 05:05	11/07/20 12:19	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 12:19	1
6:2 FTS	<4.5		4.5	2.2	ng/L		11/06/20 05:05	11/07/20 12:19	1
8:2 FTS	<1.8		1.8	0.41	ng/L		11/06/20 05:05	11/07/20 12:19	1
10:2 FTS	<1.8		1.8	0.60	ng/L		11/06/20 05:05	11/07/20 12:19	1
DONA	<1.8		1.8	0.36	ng/L		11/06/20 05:05	11/07/20 12:19	1
HFPO-DA (GenX)	<3.6		3.6	1.3	ng/L		11/06/20 05:05	11/07/20 12:19	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/06/20 05:05	11/07/20 12:19	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/06/20 05:05	11/07/20 12:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:19*	*1*
13C5 PFPeA	*82*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:19*	*1*
13C2 PFHxA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:19*	*1*
13C4 PFHpA	*91*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:19*	*1*
13C4 PFOA	*98*		*25 - 150*	*11/06/20 05:05*	*11/07/20 12:19*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-28-14
Lab Sample ID: 500-190409-7
Date Collected: 10/29/20 12:15
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	92		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C2 PFDA	96		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C2 PFUnA	88		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C2 PFDoA	88		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C2 PFTeDA	84		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C2 PFHxDA	95		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C3 PFBS	85		25 - 150	11/06/20 05:05	11/07/20 12:19	1
18O2 PFHxS	92		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C4 PFOS	94		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C8 FOSA	92		25 - 150	11/06/20 05:05	11/07/20 12:19	1
d3-NMeFOSAA	90		25 - 150	11/06/20 05:05	11/07/20 12:19	1
d5-NEtFOSAA	91		25 - 150	11/06/20 05:05	11/07/20 12:19	1
d-N-MeFOSA-M	65		20 - 150	11/06/20 05:05	11/07/20 12:19	1
d-N-EtFOSA-M	55		20 - 150	11/06/20 05:05	11/07/20 12:19	1
d7-N-MeFOSE-M	40		10 - 120	11/06/20 05:05	11/07/20 12:19	1
d9-N-EtFOSE-M	39		10 - 120	11/06/20 05:05	11/07/20 12:19	1
M2-4:2 FTS	91		25 - 150	11/06/20 05:05	11/07/20 12:19	1
M2-6:2 FTS	102		25 - 150	11/06/20 05:05	11/07/20 12:19	1
M2-8:2 FTS	99		25 - 150	11/06/20 05:05	11/07/20 12:19	1
13C3 HFPO-DA	86		25 - 150	11/06/20 05:05	11/07/20 12:19	1

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: DUP-01 (102920)
Date Collected: 10/29/20 00:00
Date Received: 10/31/20 10:00

Lab Sample ID: 500-190409-8
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.6		4.6	2.2	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoropentanoic acid (PFPeA)	<1.9		1.9	0.45	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	0.54	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	0.23	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	0.79	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	0.25	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.29	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.0	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.51	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.68	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.83	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.87	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	0.19	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.28	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9	0.53	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	0.18	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorooctanesulfonic acid (PFOS)	<1.9		1.9	0.50	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.34	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.30	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.90	ng/L		11/06/20 05:05	11/07/20 14:08	1
Perfluorooctanesulfonamide (FOSA)	**1.8**	**J**	1.9	0.91	ng/L		11/06/20 05:05	11/07/20 14:08	1
NEtFOSA	<1.9		1.9	0.81	ng/L		11/06/20 05:05	11/07/20 14:08	1
NMeFOSA	<1.9		1.9	0.40	ng/L		11/06/20 05:05	11/07/20 14:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		4.6	1.1	ng/L		11/06/20 05:05	11/07/20 14:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		4.6	1.2	ng/L		11/06/20 05:05	11/07/20 14:08	1
NMeFOSE	<3.7		3.7	1.3	ng/L		11/06/20 05:05	11/07/20 14:08	1
NEtFOSE	<1.9		1.9	0.79	ng/L		11/06/20 05:05	11/07/20 14:08	1
4:2 FTS	<1.9		1.9	0.22	ng/L		11/06/20 05:05	11/07/20 14:08	1
6:2 FTS	<4.6		4.6	2.3	ng/L		11/06/20 05:05	11/07/20 14:08	1
8:2 FTS	<1.9		1.9	0.43	ng/L		11/06/20 05:05	11/07/20 14:08	1
10:2 FTS	<1.9		1.9	0.62	ng/L		11/06/20 05:05	11/07/20 14:08	1
DONA	<1.9		1.9	0.37	ng/L		11/06/20 05:05	11/07/20 14:08	1
HFPO-DA (GenX)	<3.7		3.7	1.4	ng/L		11/06/20 05:05	11/07/20 14:08	1
F-53B Major	<1.9		1.9	0.22	ng/L		11/06/20 05:05	11/07/20 14:08	1
F-53B Minor	<1.9		1.9	0.30	ng/L		11/06/20 05:05	11/07/20 14:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*61*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*
13C5 PFPeA	*74*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*
13C2 PFHxA	*82*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*
13C4 PFHpA	*84*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*
13C4 PFOA	*86*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*
13C5 PFNA	*80*		*25 - 150*	*11/06/20 05:05*	*11/07/20 14:08*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: DUP-01 (102920)
Lab Sample ID: 500-190409-8
Date Collected: 10/29/20 00:00
Matrix: Water
Date Received: 10/31/20 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	81		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C2 PFUnA	84		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C2 PFDoA	86		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C2 PFTeDA	80		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C2 PFHxDA	86		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C3 PFBS	78		25 - 150	11/06/20 05:05	11/07/20 14:08	1
18O2 PFHxS	83		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C4 PFOS	88		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C8 FOSA	85		25 - 150	11/06/20 05:05	11/07/20 14:08	1
d3-NMeFOSAA	86		25 - 150	11/06/20 05:05	11/07/20 14:08	1
d5-NEtFOSAA	86		25 - 150	11/06/20 05:05	11/07/20 14:08	1
d-N-MeFOSA-M	64		20 - 150	11/06/20 05:05	11/07/20 14:08	1
d-N-EtFOSA-M	51		20 - 150	11/06/20 05:05	11/07/20 14:08	1
d7-N-MeFOSE-M	32		10 - 120	11/06/20 05:05	11/07/20 14:08	1
d9-N-EtFOSE-M	30		10 - 120	11/06/20 05:05	11/07/20 14:08	1
M2-4:2 FTS	79		25 - 150	11/06/20 05:05	11/07/20 14:08	1
M2-6:2 FTS	88		25 - 150	11/06/20 05:05	11/07/20 14:08	1
M2-8:2 FTS	88		25 - 150	11/06/20 05:05	11/07/20 14:08	1
13C3 HFPO-DA	79		25 - 150	11/06/20 05:05	11/07/20 14:08	1

Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Qualifiers

LCMS

Qualifier	Qualifier Description
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.

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

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-428967/1-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428967

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0	0.19	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		11/06/20 05:05	11/07/20 10:20	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		11/06/20 05:05	11/07/20 10:20	1
NEtFOSA	<2.0		2.0	0.87	ng/L		11/06/20 05:05	11/07/20 10:20	1
NMeFOSA	<2.0		2.0	0.43	ng/L		11/06/20 05:05	11/07/20 10:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<5.0		5.0	1.2	ng/L		11/06/20 05:05	11/07/20 10:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<5.0		5.0	1.3	ng/L		11/06/20 05:05	11/07/20 10:20	1
NMeFOSE	<4.0		4.0	1.4	ng/L		11/06/20 05:05	11/07/20 10:20	1
NEtFOSE	<2.0		2.0	0.85	ng/L		11/06/20 05:05	11/07/20 10:20	1
4:2 FTS	<2.0		2.0	0.24	ng/L		11/06/20 05:05	11/07/20 10:20	1
6:2 FTS	<5.0		5.0	2.5	ng/L		11/06/20 05:05	11/07/20 10:20	1
8:2 FTS	<2.0		2.0	0.46	ng/L		11/06/20 05:05	11/07/20 10:20	1
10:2 FTS	<2.0		2.0	0.67	ng/L		11/06/20 05:05	11/07/20 10:20	1
DONA	<2.0		2.0	0.40	ng/L		11/06/20 05:05	11/07/20 10:20	1
HFPO-DA (GenX)	<4.0		4.0	1.5	ng/L		11/06/20 05:05	11/07/20 10:20	1
F-53B Major	<2.0		2.0	0.24	ng/L		11/06/20 05:05	11/07/20 10:20	1
F-53B Minor	<2.0		2.0	0.32	ng/L		11/06/20 05:05	11/07/20 10:20	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:20*	*1*
13C5 PFPeA	*88*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:20*	*1*
13C2 PFHxA	*87*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:20*	*1*
13C4 PFHpA	*89*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:20*	*1*
13C4 PFOA	*96*		*25 - 150*	*11/06/20 05:05*	*11/07/20 10:20*	*1*

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

Lab Sample ID: MB 320-428967/1-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428967

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	91		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C2 PFDA	93		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C2 PFUnA	92		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C2 PFDoA	88		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C2 PFTeDA	83		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C2 PFHxDA	90		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C3 PFBS	90		25 - 150	11/06/20 05:05	11/07/20 10:20	1
18O2 PFHxS	95		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C4 PFOS	96		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C8 FOSA	87		25 - 150	11/06/20 05:05	11/07/20 10:20	1
d3-NMeFOSAA	98		25 - 150	11/06/20 05:05	11/07/20 10:20	1
d5-NEtFOSAA	102		25 - 150	11/06/20 05:05	11/07/20 10:20	1
d-N-MeFOSA-M	62		20 - 150	11/06/20 05:05	11/07/20 10:20	1
d-N-EtFOSA-M	47		20 - 150	11/06/20 05:05	11/07/20 10:20	1
d7-N-MeFOSE-M	29		10 - 120	11/06/20 05:05	11/07/20 10:20	1
d9-N-EtFOSE-M	24		10 - 120	11/06/20 05:05	11/07/20 10:20	1
M2-4:2 FTS	94		25 - 150	11/06/20 05:05	11/07/20 10:20	1
M2-6:2 FTS	103		25 - 150	11/06/20 05:05	11/07/20 10:20	1
M2-8:2 FTS	102		25 - 150	11/06/20 05:05	11/07/20 10:20	1
13C3 HFPO-DA	84		25 - 150	11/06/20 05:05	11/07/20 10:20	1

Lab Sample ID: LCS 320-428967/2-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428967

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	43.8		ng/L		109	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	38.7		ng/L		97	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	42.7		ng/L		107	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	41.9		ng/L		105	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	38.9		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	40.0	44.5		ng/L		111	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	45.4		ng/L		113	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	42.9		ng/L		107	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	43.3		ng/L		108	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	45.7		ng/L		114	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	50.5		ng/L		126	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	41.2		ng/L		103	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	40.0	42.2		ng/L		105	58 - 145
Perfluorobutanesulfonic acid (PFBS)	35.4	38.0		ng/L		108	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	37.5	43.5		ng/L		116	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.1		ng/L		96	59 - 119

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

Lab Sample ID: LCS 320-428967/2-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428967

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.7		ng/L		109	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	39.6		ng/L		107	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	42.0		ng/L		109	75 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	43.3		ng/L		112	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	38.7	42.5		ng/L		110	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	45.0		ng/L		113	73 - 133
NMeFOSA	40.0	43.0		ng/L		107	67 - 154
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	42.9		ng/L		107	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	41.9		ng/L		105	76 - 136
NMeFOSE	40.0	38.0		ng/L		95	70 - 130
NEtFOSE	40.0	43.9		ng/L		110	71 - 131
4:2 FTS	37.4	40.5		ng/L		108	79 - 139
6:2 FTS	37.9	39.3		ng/L		104	59 - 175
8:2 FTS	38.3	42.9		ng/L		112	75 - 135
10:2 FTS	38.6	39.2		ng/L		102	64 - 142
DONA	37.7	40.2		ng/L		107	79 - 139
HFPO-DA (GenX)	40.0	41.9		ng/L		105	51 - 173
F-53B Major	37.3	39.8		ng/L		107	75 - 135
F-53B Minor	37.7	37.6		ng/L		100	54 - 114

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*86*		*25 - 150*
13C5 PFPeA	*89*		*25 - 150*
13C2 PFHxA	*88*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*93*		*25 - 150*
13C5 PFNA	*89*		*25 - 150*
13C2 PFDA	*88*		*25 - 150*
13C2 PFUnA	*93*		*25 - 150*
13C2 PFDoA	*94*		*25 - 150*
13C2 PFTeDA	*83*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C3 PFBS	*90*		*25 - 150*
18O2 PFHxS	*95*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*87*		*25 - 150*
d3-NMeFOSAA	*97*		*25 - 150*
d5-NEtFOSAA	*99*		*25 - 150*
d-N-MeFOSA-M	*76*		*20 - 150*
d-N-EtFOSA-M	*60*		*20 - 150*
d7-N-MeFOSE-M	*36*		*10 - 120*
d9-N-EtFOSE-M	*26*		*10 - 120*
M2-4:2 FTS	*91*		*25 - 150*

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

Lab Sample ID: LCS 320-428967/2-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428967

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-6:2 FTS	96		25 - 150
M2-8:2 FTS	95		25 - 150
13C3 HFPO-DA	88		25 - 150

Lab Sample ID: LCSD 320-428967/3-A
Matrix: Water
Analysis Batch: 429491

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 428967

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.7		ng/L		107	76 - 136	2	30
Perfluoropentanoic acid (PFPeA)			40.0	36.8		ng/L		92	71 - 131	5	30
Perfluorohexanoic acid (PFHxA)			40.0	41.6		ng/L		104	73 - 133	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	41.0		ng/L		103	72 - 132	2	30
Perfluorooctanoic acid (PFOA)			40.0	37.0		ng/L		93	70 - 130	5	30
Perfluorononanoic acid (PFNA)			40.0	43.0		ng/L		107	75 - 135	4	30
Perfluorodecanoic acid (PFDA)			40.0	42.7		ng/L		107	76 - 136	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	41.1		ng/L		103	68 - 128	4	30
Perfluorododecanoic acid (PFDoA)			40.0	40.5		ng/L		101	71 - 131	7	30
Perfluorotridecanoic acid (PFTriA)			40.0	44.4		ng/L		111	71 - 131	3	30
Perfluorotetradecanoic acid (PFTeA)			40.0	46.7		ng/L		117	70 - 130	8	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	45.4		ng/L		113	76 - 136	10	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	43.7		ng/L		109	58 - 145	3	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.0		ng/L		105	67 - 127	3	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	41.8		ng/L		111	66 - 126	4	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	33.9		ng/L		93	59 - 119	4	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.0		ng/L		102	76 - 136	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.1		ng/L		103	70 - 130	4	30
Perfluorononanesulfonic acid (PFNS)			38.4	40.2		ng/L		105	75 - 135	4	30
Perfluorodecanesulfonic acid (PFDS)			38.6	40.1		ng/L		104	71 - 131	8	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	39.5		ng/L		102	67 - 127	7	30
Perfluorooctanesulfonamide (FOSA)			40.0	43.8		ng/L		110	73 - 133	3	30
NMeFOSA			40.0	41.1		ng/L		103	67 - 154	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	41.2		ng/L		103	76 - 136	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	42.5		ng/L		106	76 - 136	1	30
NMeFOSE			40.0	38.7		ng/L		97	70 - 130	2	30
NEtFOSE			40.0	40.9		ng/L		102	71 - 131	7	30

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

Lab Sample ID: LCSD 320-428967/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 429491 **Prep Batch: 428967**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4:2 FTS			37.4	41.0		ng/L		110	79 - 139	1	30
6:2 FTS			37.9	34.5		ng/L		91	59 - 175	13	30
8:2 FTS			38.3	40.6		ng/L		106	75 - 135	6	30
10:2 FTS			38.6	40.3		ng/L		104	64 - 142	3	30
DONA			37.7	37.5		ng/L		99	79 - 139	7	30
HFPO-DA (GenX)			40.0	41.0		ng/L		103	51 - 173	2	30
F-53B Major			37.3	38.6		ng/L		103	75 - 135	3	30
F-53B Minor			37.7	37.1		ng/L		98	54 - 114	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*89*		*25 - 150*
13C5 PFPeA	*92*		*25 - 150*
13C2 PFHxA	*91*		*25 - 150*
13C4 PFHpA	*92*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C5 PFNA	*91*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFUnA	*92*		*25 - 150*
13C2 PFDoA	*95*		*25 - 150*
13C2 PFTeDA	*89*		*25 - 150*
13C2 PFHxDA	*91*		*25 - 150*
13C3 PFBS	*94*		*25 - 150*
18O2 PFHxS	*95*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
13C8 FOSA	*90*		*25 - 150*
d3-NMeFOSAA	*103*		*25 - 150*
d5-NEtFOSAA	*99*		*25 - 150*
d-N-MeFOSA-M	*82*		*20 - 150*
d-N-EtFOSA-M	*75*		*20 - 150*
d7-N-MeFOSE-M	*46*		*10 - 120*
d9-N-EtFOSE-M	*39*		*10 - 120*
M2-4:2 FTS	*93*		*25 - 150*
M2-6:2 FTS	*104*		*25 - 150*
M2-8:2 FTS	*99*		*25 - 150*
13C3 HFPO-DA	*90*		*25 - 150*

Lab Sample ID: 500-190409-2 MS **Client Sample ID: PZ-35-37**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 429491 **Prep Batch: 428967**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	<4.6		36.3	39.6		ng/L		109	76 - 136
Perfluoropentanoic acid (PFPeA)	<1.8		36.3	36.4		ng/L		100	71 - 131
Perfluorohexanoic acid (PFHxA)	<1.8		36.3	38.1		ng/L		105	73 - 133
Perfluoroheptanoic acid (PFHpA)	<1.8		36.3	38.4		ng/L		106	72 - 132
Perfluorooctanoic acid (PFOA)	<1.8		36.3	34.5		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	<1.8		36.3	39.8		ng/L		110	75 - 135
Perfluorodecanoic acid (PFDA)	<1.8		36.3	38.5		ng/L		106	76 - 136

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

Lab Sample ID: 500-190409-2 MS
Matrix: Water
Analysis Batch: 429491

Client Sample ID: PZ-35-37
Prep Type: Total/NA
Prep Batch: 428967

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	<1.8		36.3	37.0		ng/L		102	68 - 128
Perfluorododecanoic acid (PFDoA)	<1.8		36.3	35.3		ng/L		97	71 - 131
Perfluorotridecanoic acid (PFTriA)	<1.8		36.3	36.6		ng/L		101	71 - 131
Perfluorotetradecanoic acid (PFTeA)	<1.8		36.3	45.3		ng/L		125	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		36.3	36.9		ng/L		102	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		36.3	36.2		ng/L		100	58 - 145
Perfluorobutanesulfonic acid (PFBS)	<1.8		32.1	34.4		ng/L		107	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	<1.8		34.1	40.0		ng/L		118	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	<1.8		33.0	33.8		ng/L		102	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		34.6	36.1		ng/L		104	76 - 136
Perfluorooctanesulfonic acid (PFOS)	<1.8		33.7	35.8		ng/L		106	70 - 130
Perfluorononanesulfonic acid (PFNS)	<1.8		34.9	37.6		ng/L		108	75 - 135
Perfluorodecanesulfonic acid (PFDS)	<1.8		35.0	39.4		ng/L		113	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	<1.8		35.1	37.8		ng/L		107	67 - 127
Perfluorooctanesulfonamide (FOSA)	<1.8		36.3	41.5		ng/L		114	73 - 133
NMeFOSA	<1.8		36.3	37.1		ng/L		102	67 - 154
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		36.3	37.1		ng/L		102	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		36.3	41.3		ng/L		114	76 - 136
NMeFOSE	<3.7		36.3	39.7		ng/L		109	70 - 130
NEtFOSE	<1.8		36.3	37.6		ng/L		104	71 - 131
4:2 FTS	<1.8		33.9	34.0		ng/L		100	79 - 139
6:2 FTS	<4.6		34.4	31.7		ng/L		92	59 - 175
8:2 FTS	<1.8		34.8	37.2		ng/L		107	75 - 135
10:2 FTS	<1.8		35.0	36.0		ng/L		103	64 - 142
DONA	<1.8		34.2	35.9		ng/L		105	79 - 139
HFPO-DA (GenX)	<3.7		36.3	37.9		ng/L		104	51 - 173
F-53B Major	<1.8		33.8	34.9		ng/L		103	75 - 135
F-53B Minor	<1.8		34.2	34.9		ng/L		102	54 - 114

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C4 PFBA	*66*		*25 - 150*
13C5 PFPeA	*78*		*25 - 150*
13C2 PFHxA	*85*		*25 - 150*
13C4 PFHpA	*85*		*25 - 150*
13C4 PFOA	*91*		*25 - 150*
13C5 PFNA	*86*		*25 - 150*

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

Lab Sample ID: 500-190409-2 MS **Client Sample ID: PZ-35-37**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 429491 **Prep Batch: 428967**

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFDA	*89*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2 PFTeDA	*82*		*25 - 150*
13C2 PFHxDA	*91*		*25 - 150*
13C3 PFBS	*83*		*25 - 150*
18O2 PFHxS	*87*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*
13C8 FOSA	*90*		*25 - 150*
d3-NMeFOSAA	*96*		*25 - 150*
d5-NEtFOSAA	*93*		*25 - 150*
d-N-MeFOSA-M	*65*		*20 - 150*
d-N-EtFOSA-M	*53*		*20 - 150*
d7-N-MeFOSE-M	*35*		*10 - 120*
d9-N-EtFOSE-M	*31*		*10 - 120*
M2-4:2 FTS	*85*		*25 - 150*
M2-6:2 FTS	*93*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*
13C3 HFPO-DA	*81*		*25 - 150*

Lab Sample ID: 500-190409-2 MSD **Client Sample ID: PZ-35-37**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 429491 **Prep Batch: 428967**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	<4.6		36.6	39.7		ng/L		109	76 - 136	0	30
Perfluoropentanoic acid (PFPeA)	<1.8		36.6	36.2		ng/L		99	71 - 131	1	30
Perfluorohexanoic acid (PFHxA)	<1.8		36.6	37.7		ng/L		103	73 - 133	1	30
Perfluoroheptanoic acid (PFHpA)	<1.8		36.6	38.3		ng/L		105	72 - 132	0	30
Perfluorooctanoic acid (PFOA)	<1.8		36.6	35.6		ng/L		97	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<1.8		36.6	39.4		ng/L		108	75 - 135	1	30
Perfluorodecanoic acid (PFDA)	<1.8		36.6	39.4		ng/L		108	76 - 136	2	30
Perfluoroundecanoic acid (PFUnA)	<1.8		36.6	40.1		ng/L		110	68 - 128	8	30
Perfluorododecanoic acid (PFDoA)	<1.8		36.6	40.0		ng/L		109	71 - 131	12	30
Perfluorotridecanoic acid (PFTriA)	<1.8		36.6	46.2		ng/L		126	71 - 131	23	30
Perfluorotetradecanoic acid (PFTeA)	<1.8		36.6	44.1		ng/L		120	70 - 130	3	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		36.6	40.2		ng/L		110	76 - 136	9	30
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		36.6	39.5		ng/L		108	58 - 145	9	30
Perfluorobutanesulfonic acid (PFBS)	<1.8		32.3	33.9		ng/L		105	67 - 127	1	30
Perfluoropentanesulfonic acid (PFPeS)	<1.8		34.3	40.0		ng/L		117	66 - 126	0	30
Perfluorohexanesulfonic acid (PFHxS)	<1.8		33.3	32.8		ng/L		99	59 - 119	3	30

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

Lab Sample ID: 500-190409-2 MSD
Matrix: Water
Analysis Batch: 429491

Client Sample ID: PZ-35-37
Prep Type: Total/NA
Prep Batch: 428967

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		34.8	36.7		ng/L		105	76 - 136	2	30
Perfluorooctanesulfonic acid (PFOS)	<1.8		34.0	36.3		ng/L		107	70 - 130	1	30
Perfluorononanesulfonic acid (PFNS)	<1.8		35.1	37.9		ng/L		108	75 - 135	1	30
Perfluorodecanesulfonic acid (PFDS)	<1.8		35.3	37.7		ng/L		107	71 - 131	4	30
Perfluorododecanesulfonic acid (PFDoS)	<1.8		35.4	39.1		ng/L		110	67 - 127	4	30
Perfluorooctanesulfonamide (FOSA)	<1.8		36.6	41.7		ng/L		114	73 - 133	1	30
NMeFOSA	<1.8		36.6	37.8		ng/L		103	67 - 154	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<4.6		36.6	36.9		ng/L		101	76 - 136	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<4.6		36.6	38.4		ng/L		105	76 - 136	7	30
NMeFOSE	<3.7		36.6	35.3		ng/L		96	70 - 130	12	30
NEtFOSE	<1.8		36.6	38.8		ng/L		106	71 - 131	3	30
4:2 FTS	<1.8		34.2	35.5		ng/L		104	79 - 139	4	30
6:2 FTS	<4.6		34.7	34.1		ng/L		98	59 - 175	7	30
8:2 FTS	<1.8		35.1	41.2		ng/L		118	75 - 135	10	30
10:2 FTS	<1.8		35.3	41.0		ng/L		116	64 - 142	13	30
DONA	<1.8		34.5	35.2		ng/L		102	79 - 139	2	30
HFPO-DA (GenX)	<3.7		36.6	38.5		ng/L		105	51 - 173	2	30
F-53B Major	<1.8		34.1	35.1		ng/L		103	75 - 135	0	30
F-53B Minor	<1.8		34.5	34.8		ng/L		101	54 - 114	0	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C4 PFBA	*69*		*25 - 150*
13C5 PFPeA	*82*		*25 - 150*
13C2 PFHxA	*88*		*25 - 150*
13C4 PFHpA	*88*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*90*		*25 - 150*
13C2 PFDA	*88*		*25 - 150*
13C2 PFUnA	*90*		*25 - 150*
13C2 PFDoA	*85*		*25 - 150*
13C2 PFTeDA	*80*		*25 - 150*
13C2 PFHxDA	*91*		*25 - 150*
13C3 PFBS	*89*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
13C8 FOSA	*91*		*25 - 150*
d3-NMeFOSAA	*102*		*25 - 150*
d5-NEtFOSAA	*100*		*25 - 150*
d-N-MeFOSA-M	*70*		*20 - 150*
d-N-EtFOSA-M	*57*		*20 - 150*
d7-N-MeFOSE-M	*38*		*10 - 120*
d9-N-EtFOSE-M	*32*		*10 - 120*
M2-4:2 FTS	*86*		*25 - 150*

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

Lab Sample ID: 500-190409-2 MSD
Matrix: Water
Analysis Batch: 429491

Client Sample ID: PZ-35-37
Prep Type: Total/NA
Prep Batch: 428967

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
M2-6:2 FTS	100		25 - 150
M2-8:2 FTS	91		25 - 150
13C3 HFPO-DA	84		25 - 150

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-48
Lab Sample ID: 500-190409-1
Date Collected: 10/29/20 08:05
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 10:48	K1S	TAL SAC

Client Sample ID: PZ-35-37
Lab Sample ID: 500-190409-2
Date Collected: 10/29/20 08:50
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 10:57	K1S	TAL SAC

Client Sample ID: PZ-26-11
Lab Sample ID: 500-190409-3
Date Collected: 10/29/20 09:50
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 11:24	K1S	TAL SAC

Client Sample ID: PZ-27-12
Lab Sample ID: 500-190409-4
Date Collected: 10/29/20 10:40
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 11:33	K1S	TAL SAC

Client Sample ID: Field Blank-10-29-2020
Lab Sample ID: 500-190409-5
Date Collected: 10/29/20 10:45
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 11:42	K1S	TAL SAC

Client Sample ID: PZ-28-54
Lab Sample ID: 500-190409-6
Date Collected: 10/29/20 11:35
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 12:10	K1S	TAL SAC

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-28-14
Lab Sample ID: 500-190409-7
Date Collected: 10/29/20 12:15
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 12:19	K1S	TAL SAC

Client Sample ID: DUP-01 (102920)
Lab Sample ID: 500-190409-8
Date Collected: 10/29/20 00:00
Matrix: Water
Date Received: 10/31/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			428967	11/06/20 05:05	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	429491	11/07/20 14:08	K1S	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc. Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-21

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins

Client Information	Sampler: L. Reuteman	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-85891-38818.1
Client Contact: Lisa Rutkowski	Phone:	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of X 1
Company: ARCADIS U.S., Inc		Analysis Requested		Job #: 500-190409
Address: 126 North Jefferson Street Suite 400	Due Date Requested:			Preservation Codes:
City: Milwaukee	TAT Requested (days): Standard			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)
State, Zip: WI, 53202	PO #: 30015294.00020			
Phone: 500-190409 COC	WO #:			Other:
Email: lisa.rutkowski@arcadis.com	Project #: 50018123			
Project Name: Marinette Supp Site Inv - 30015294.00020	SSOW#:			
Site				

	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 - PFAS, Extended List (36 Analytes)	Total Number of containers	Special Instructions/Note:
				Preservation Code:				N		
1	PZ-35-48	10/29/20	805	G	Water	N	N	X		
2	PZ-35-37		850		Water		Y			MS/MSD
3	PZ-26-11		950		Water		N			
4	PZ-27-12		1040		Water					
5	Field Blank-10-29-2020		1045		Water					Field Blank
6	PZ-28-54		1135		Water					
7	PZ-28-14		1215		Water					
8	DUP-01 (102920)		—		Water					Duplicate
					Water					
					Water					
					Water					

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

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

Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	10/30/20 900	Arcadis		10-30-20 900	TA
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	10-30-20 1700	TA		10/31/20 1000	TA-CHI
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 1.9→2.0, 4.3→4.7, 3.1→3.2

Ver: 01/16/2019

ORIGIN ID:RRLA (262) 202-5955
SHIPPING
TESTAMERICA
4125 N 124TH ST

BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 30OCT20
ACTWGT: 57.80 LB
CAD: 525155/CAFE3406

BILL RECIPIENT

TO SAMPLE RECEIPT
TESTAMERICA LABS
2417 BOND STREET

UNIVERSITY PARK IL 60484
(708) 534-6200

500-190409 Wayb

INV:
PO:
REF:
DEPT:

FedEx Express

1 of 3

TRK# 0201 7125 4943 5069
MASTER

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO JOTA

60484
IL-US ORD

Testing

ORIGIN ID:RRLA (262) 202-5955
SHIPPING
TESTAMERICA
4125 N 124TH ST

BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 30OCT20
ACTWGT: 57.70 LB
CAD: 525155/CAFE3406

BILL RECIPIENT

TO SAMPLE RECEIPT
TESTAMERICA LABS
2417 BOND STREET

UNIVERSITY PARK IL 60484
(708) 534-6200

INV:
PO:
REF:
DEPT:

FedEx Express

2 of 3

MPS# 0263 7125 4943 5070
Mstr# 7125 4943 5069

0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO JOTA

60484
IL-US ORD


ORIGIN ID:RRLA (262) 202-5955
SHIPPING
TESTAMERICA
4125 N 124TH ST

BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 30OCT20
ACTWGT: 54.35 LB
CAD: 525155/CAFE3406

BILL RECIPIENT

TO SAMPLE RECEIPT
TESTAMERICA LABS
2417 BOND STREET

UNIVERSITY PARK IL 60484
(708) 534-6200 REF:
INV:
PO: DEPT:

FedEx
Express

3 of 3
MPS# 0263 7125 4943 5080
Mstr# 7125 4943 5069

SATURDAY 12:00P
PRIORITY OVERNIGHT

0201

XO JOTA

60484
IL-US ORD

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-141662.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandra.fredrick@eurofinset.com	State of Origin: Wisconsin	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Wisconsin		Job #: 500-190409-1
Address: 880 Riverside Parkway,	Due Date Requested: 11/12/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marinette Supp Site Inv - 30015294.00020	Project #: 50018123			
Site:	SSOW#:			

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Extended List (36 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PZ-35-48 (500-190409-1)	10/29/20	08:05 Central		Water			X	2	
PZ-35-37 (500-190409-2)	10/29/20	08:50 Central		Water			X	2	
PZ-35-37 (500-190409-2MS)	10/29/20	08:50 Central	MS	Water			X	2	
PZ-35-37 (500-190409-2MSD)	10/29/20	08:50 Central	MSD	Water			X	2	
PZ-26-11 (500-190409-3)	10/29/20	09:50 Central		Water			X	2	
PZ-27-12 (500-190409-4)	10/29/20	10:40 Central		Water			X	2	
Field Blank-10-29-2020 (500-190409-5)	10/29/20	10:45 Central		Water			X	2	
PZ-28-54 (500-190409-6)	10/29/20	11:35 Central		Water			X	2	
PZ-28-14 (500-190409-7)	10/29/20	12:15 Central		Water			X	2	

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 compliance 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
1	[signature]	11/2/20 1505	E.T.A	[signature]	11/4/20 920	E.T.A
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact:	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
☐ Yes ☐ No	133437F / 136365	0.0/0.5

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-141662.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: sandra.fredrick@eurofinset.com	State of Origin: Wisconsin	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Wisconsin		Job #: 500-190409-1
Address: 880 Riverside Parkway, .	Due Date Requested: 11/12/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Marinette Supp Site Inv - 30015294.00020	Project #: 50018123			
Site:	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 - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Extended List (36 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
DUP-01 (102920) (500-190409-8)	10/29/20	Central		Water			X	2	

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 compliance to Eurofins TestAmerica.

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	11/2/20 1500	EA	[signature]	11/4/20 9Lm	EA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: 1334375 / 1363635	Cooler Temperature(s) °C and Other Remarks: 0.0/0.5

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-190409-1

Login Number: 190409
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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	
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	
Cooler Temperature is recorded.	True	2.0,4.7,1.2
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 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.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-190409-1

Login Number: 190409
List Number: 2
Creator: Saephan, Kae C

List Source: Eurofins TestAmerica, Sacramento
List Creation: 11/04/20 01:01 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	1334375/1363635
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	ob: 0.0C corr: 0.5C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	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	

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Sacramento
Sample Receiving Notes

500-190409 Field Sheet

Job: _____

Tracking # : 1328 7440 8409

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Therm. ID: DK6 Corr. Factor: (+) / - 0.5 °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 1334375 / 1363635

Cooler ID: —

Temp Observed: 0.0 °C Corrected: 0.5 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐

Initials: SO Date: 11/4/20

Unpacking/Labeling The Samples	Yes	No	NA
CoC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Sample containers have legible labels?	☑	☐	☐
Sample custody seal?	☐	☐	☑
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided?	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: [illegible] Date: 11/04/20

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: [illegible] Date: 11/04/20

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Method: 537 (modified) - Fluorinated Alkyl Substances

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

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-190409-1	PZ-35-48	63	78	88	87	91	88	86	81
500-190409-2	PZ-35-37	66	82	86	90	90	84	86	90
500-190409-2 MS	PZ-35-37	66	78	85	85	91	86	89	88
500-190409-2 MSD	PZ-35-37	69	82	88	88	92	90	88	90
500-190409-3	PZ-26-11	46	76	87	94	98	96	96	95
500-190409-4	PZ-27-12	52	74	82	88	94	92	94	93
500-190409-5	Field Blank-10-29-2020	84	88	88	91	95	90	88	85
500-190409-6	PZ-28-54	51	78	89	92	97	92	93	91
500-190409-7	PZ-28-14	63	82	88	91	98	92	96	88
500-190409-8	DUP-01 (102920)	61	74	82	84	86	80	81	84
LCS 320-428967/2-A	Lab Control Sample	86	89	88	92	93	89	88	93
LCSD 320-428967/3-A	Lab Control Sample Dup	89	92	91	92	99	91	95	92
MB 320-428967/1-A	Method Blank	85	88	87	89	96	91	93	92

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	d3NMFOS (25-150)
500-190409-1	PZ-35-48	84	75	87	83	88	89	90	93
500-190409-2	PZ-35-37	83	87	93	85	92	91	88	92
500-190409-2 MS	PZ-35-37	92	82	91	83	87	91	90	96
500-190409-2 MSD	PZ-35-37	85	80	91	89	92	96	91	102
500-190409-3	PZ-26-11	94	94	80	89	99	100	98	89
500-190409-4	PZ-27-12	82	76	91	88	92	92	93	84
500-190409-5	Field Blank-10-29-2020	92	87	93	89	94	93	86	93
500-190409-6	PZ-28-54	88	91	77	85	94	96	91	93
500-190409-7	PZ-28-14	88	84	95	85	92	94	92	90
500-190409-8	DUP-01 (102920)	86	80	86	78	83	88	85	86
LCS 320-428967/2-A	Lab Control Sample	94	83	95	90	95	93	87	97
LCSD 320-428967/3-A	Lab Control Sample Dup	95	89	91	94	95	99	90	103
MB 320-428967/1-A	Method Blank	88	83	90	90	95	96	87	98

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (20-150)	dEtFOSA (20-150)	NMFM (10-120)	NEFM (10-120)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-190409-1	PZ-35-48	90	68	54	31	26	88	91	96
500-190409-2	PZ-35-37	96	70	54	32	31	83	97	97
500-190409-2 MS	PZ-35-37	93	65	53	35	31	85	93	95
500-190409-2 MSD	PZ-35-37	100	70	57	38	32	86	100	91
500-190409-3	PZ-26-11	96	60	48	36	35	119	133	113
500-190409-4	PZ-27-12	93	51	44	33	36	109	108	107
500-190409-5	Field Blank-10-29-2020	93	87	72	39	32	89	98	101
500-190409-6	PZ-28-54	93	60	49	32	32	113	114	112
500-190409-7	PZ-28-14	91	65	55	40	39	91	102	99
500-190409-8	DUP-01 (102920)	86	64	51	32	30	79	88	88
LCS 320-428967/2-A	Lab Control Sample	99	76	60	36	26	91	96	95
LCSD 320-428967/3-A	Lab Control Sample Dup	99	82	75	46	39	93	104	99
MB 320-428967/1-A	Method Blank	102	62	47	29	24	94	103	102

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)
500-190409-1	PZ-35-48	83

Isotope Dilution Summary

Client: ARCADIS U.S., Inc. Job ID: 500-190409-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

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	HFPODA (25-150)						
500-190409-2	PZ-35-37	82						
500-190409-2 MS	PZ-35-37	81						
500-190409-2 MSD	PZ-35-37	84						
500-190409-3	PZ-26-11	87						
500-190409-4	PZ-27-12	82						
500-190409-5	Field Blank-10-29-2020	85						
500-190409-6	PZ-28-54	86						
500-190409-7	PZ-28-14	86						
500-190409-8	DUP-01 (102920)	79						
LCS 320-428967/2-A	Lab Control Sample	88						
LCSD 320-428967/3-A	Lab Control Sample Dup	90						
MB 320-428967/1-A	Method Blank	84						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA