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:
December 10, 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 November 17, 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 re-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 continues to show a PFAS level exceedance.

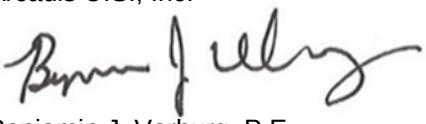
The owners of the properties accessed to collect the samples were notified of the results collected on their property. Copies of those letters are attached.

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

Table 1

			Location	PZ-27-12	PZ-27-12	PZ-35-17
			Sample ID	PZ-27-12 (111720)	DUP-02 (11172020)	PZ-35-17 (111720)
			Sample Date	11/17/2020	11/17/2020	11/17/2020
			Sample Type	N	FD	N
Chemical Name	Recommended Enforcement Standard (ES)	Recommended Preventive Action Limit (PAL)	Units			
PFOA	20 (1)	2 (1)	ng/l	***180 J***	***260 J***	***48***
PFOS	20 (1)	2 (1)	ng/l	***110 JN***	***75 J***	< 1.8 U
PFBS	450000	90000	ng/l	2.8	1.1 J	2.4
PFHpA	--	--	ng/l	14	13	46
PFHxS	40	4	ng/l	1.8 J	1.8 J	*4.3*
PFNA	30	3	ng/l	0.94 J	0.79 J	< 1.8 U
PFDA	300	60	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFDoA	500	100	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFHxA	150000	30000	ng/l	34	31	38
PFTeA	10000	2000	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFTriA	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFUnA	3000	600	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
NEtFOSAA	20 (1)	2 (1)	ng/l	< 4.8 U	< 4.7 U	< 4.6 U
NMeFOSAA	--	--	ng/l	< 4.8 U	< 4.7 U	< 4.6 U
PFBA	10000	2000	ng/l	21	12	32
PFPeA	--	--	ng/l	22	27	44
PFHxDA	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFODA	400000	80000	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFPeS	--	--	ng/l	< 1.9 U	0.35 J	0.86 J
PFHpS	--	--	ng/l	2.8	1.1 J	< 1.8 U
PFNS	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFDS	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
PFDoS	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
FOSA	20 (1)	2 (1)	ng/l	< 1.9 U	***0.96 J***	***1.4 J***
NEtFOSA	20 (1)	2 (1)	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
NMeFOSA	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
NMeFOSE	--	--	ng/l	< 3.8 U	< 3.8 U	< 3.7 U
NEtFOSE	20 (1)	2 (1)	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
4:2 FTS	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
6:2 FTS	--	--	ng/l	< 4.8 U	< 4.7 U	< 4.6 U
8:2 FTS	--	--	ng/l	< 1.9 U	0.73 J	< 1.8 U
10:2 FTS	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
DONA	3000	600	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
GenX	300	30	ng/l	< 3.8 U	< 3.8 U	< 3.7 U
F-53B Major	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U
F-53B Minor	--	--	ng/l	< 1.9 U	< 1.9 U	< 1.8 U

Table 1

Notes:

< Reporting limit

Concentrations above Recommended Enforcement Standard (ES) are boldfaced

Concentrations above Recommended Preventive Action Limit (PAL) are italicized

FD = Field duplicate.

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.

N = normal sample.

U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

(1) = Combined criteria for FOSA, NEtFOSE, NEtFOSA, NetFOSAA, PFOS, and PFOA

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)

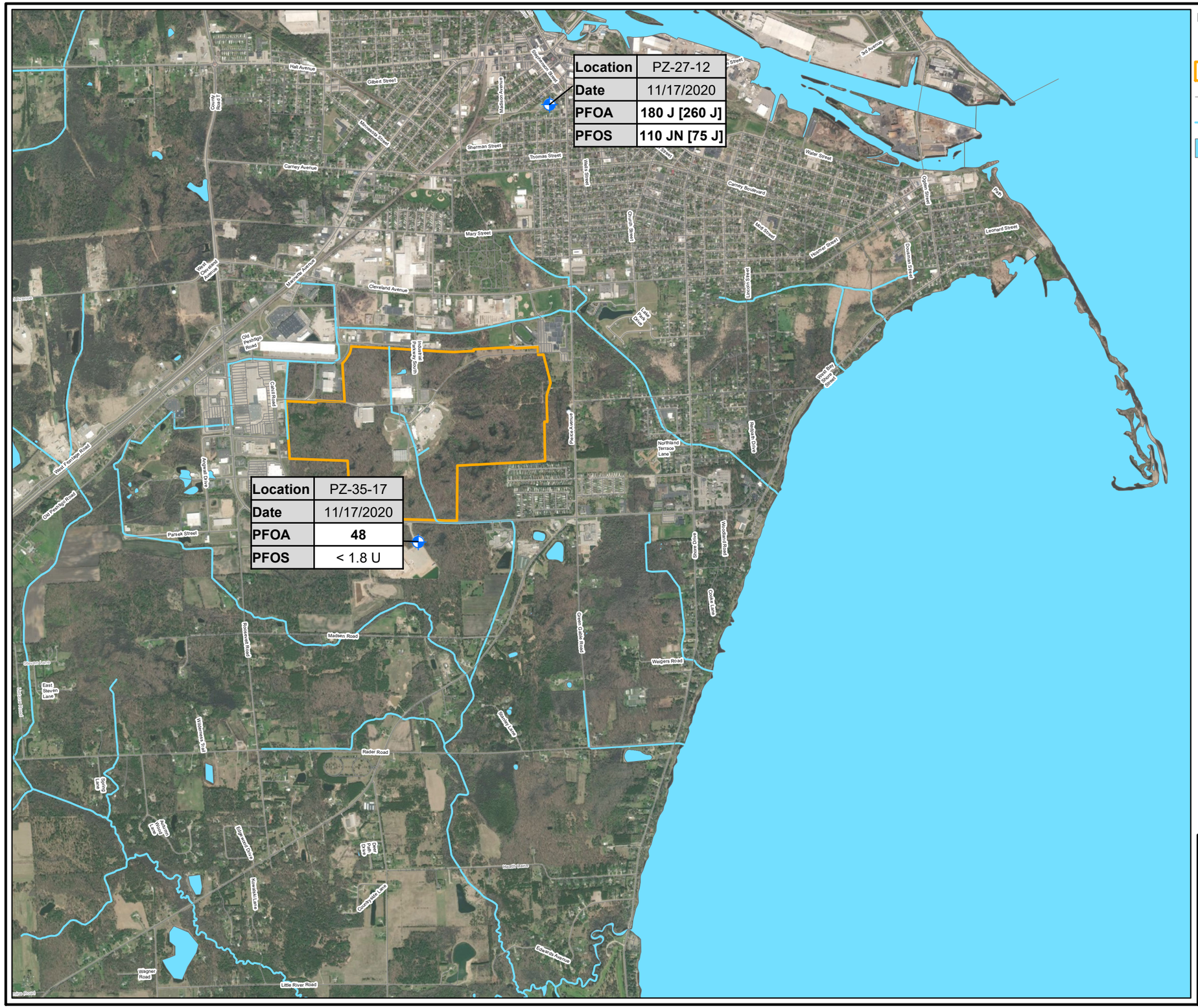
10:2 FTS = 10:2 fluorotelomer sulfonate (C12)

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)



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\2020-12\GroundwaterAnalyticalResults.mxd 12/9/2020 1:45:15 PM

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-66975-1
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

Sandie Fredrick

Authorized for release by:
11/24/2020 11:15:35 AM

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

Table of Contents

Definitions/Glossary

Client: ARCADIS U.S., Inc. Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Qualifiers

LCMS

Qualifier	Qualifier Description
*5	Isotope dilution analyte is outside acceptance limits.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Job ID: 320-66975-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-66975-1

Comments
No additional comments.

Receipt
The samples were received on 11/19/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4º C.

LCMS
Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-434407 recovered above the upper control limit for 10:2 FTS. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated samples are impacted: 320-66975-1, 320-66975-2, 320-66975-3, 320-66975-4 and CCV 320-434407/1.

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/ some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.

320-66975-6

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-434247 recovered above the upper control limit for 10:2 FTS. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported. The associated samples are impacted: 320-66975-1, 320-66975-2, 320-66975-3, 320-66975-4, 320-66975-5, 320-66975-6, CCB 320-434407/15, CCB 320-434407/2, CCB 320-434407/20, CCV 320-434407/1, CCV 320-434407/14, CCV 320-434407/19, CCV 320-434247/3, LCS 320-433989/2-A, LCSD 320-433989/3-A and MB 320-433989/1-A.

Method 537 (modified): Several Isotope Dilution Analyte (IDA) recovery are above the method recommended limit for the following samples: 320-66975-4. The samples were re-analyzed with concurring results and the first set of data are reported. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-6:2 FTS and M2-4:2 FTS the following samples: 320-66975-6. The samples were re-analyzed with concurring results and the first set of data are reported. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

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

Organic Prep
Method 3535: During the solid phase extraction process, the following sample contain non-settable particulates which clogged the solid phase extraction column: 320-66975-5.

3535_PFC
Aqueous
preparation batch 320-433989

Method 3535: The following sample was orange and contained a thin layer of sediment at the bottom of the bottle prior to extraction: 320-66975-5.

3535_PFC
Aqueous
preparation batch 320-433989

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-433989.

Job ID: 320-66975-1 (Continued)

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

3535_PFC
Aqueous

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

Detection Summary

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: EB-01 (11172020) — Lab Sample ID: 320-66975-1

No Detections.

Client Sample ID: EB-02 (11172020) — Lab Sample ID: 320-66975-2

No Detections.

Client Sample ID: Field Blank-11-17-2020 — Lab Sample ID: 320-66975-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.59	J	1.9	0.52	ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP-02 (11172020) — Lab Sample ID: 320-66975-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	12		4.7	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	27		1.9	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	31		1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	260		1.9	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.79	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.35	J	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	1.9	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.1	J	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	75		1.9	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.96	J	1.9	0.93	ng/L	1		537 (modified)	Total/NA
8:2 FTS	0.73	J	1.9	0.43	ng/L	1		537 (modified)	Total/NA

Client Sample ID: PZ-35-17 — Lab Sample ID: 320-66975-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	32		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	44		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	38		1.8	0.54	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	46		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	48		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.4		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.86	J	1.8	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.3		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.4	J	1.8	0.90	ng/L	1		537 (modified)	Total/NA

Client Sample ID: PZ-27-12 — Lab Sample ID: 320-66975-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	21		4.8	2.3	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	22		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	34		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	14		1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	180		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.94	J	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.8		1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8	J	1.9	0.55	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: PZ-27-12 (Continued)
Lab Sample ID: 320-66975-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanesulfonic Acid (PFHpS)	2.8		1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	110	I	1.9	0.52	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: EB-01 (11172020)
Date Collected: 11/17/20 14:25
Date Received: 11/19/20 09:20

Lab Sample ID: 320-66975-1
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	2.1	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.44	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.52	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.22	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.76	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.24	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.98	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.49	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.65	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.79	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.84	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.51	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.48	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.87	ng/L		11/20/20 11:35	11/22/20 06:49	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		11/20/20 11:35	11/22/20 06:49	1
NEtFOSA	<1.8		1.8	0.78	ng/L		11/20/20 11:35	11/22/20 06:49	1
NMeFOSA	<1.8		1.8	0.38	ng/L		11/20/20 11:35	11/22/20 06:49	1
NMeFOSAA	<4.5		4.5	1.1	ng/L		11/20/20 11:35	11/22/20 06:49	1
NEtFOSAA	<4.5		4.5	1.2	ng/L		11/20/20 11:35	11/22/20 06:49	1
NMeFOSE	<3.6		3.6	1.3	ng/L		11/20/20 11:35	11/22/20 06:49	1
NEtFOSE	<1.8		1.8	0.76	ng/L		11/20/20 11:35	11/22/20 06:49	1
4:2 FTS	<1.8		1.8	0.21	ng/L		11/20/20 11:35	11/22/20 06:49	1
6:2 FTS	<4.5		4.5	2.2	ng/L		11/20/20 11:35	11/22/20 06:49	1
8:2 FTS	<1.8		1.8	0.41	ng/L		11/20/20 11:35	11/22/20 06:49	1
10:2 FTS	<1.8		1.8	0.60	ng/L		11/20/20 11:35	11/22/20 06:49	1
DONA	<1.8		1.8	0.36	ng/L		11/20/20 11:35	11/22/20 06:49	1
HFPO-DA (GenX)	<3.6		3.6	1.3	ng/L		11/20/20 11:35	11/22/20 06:49	1
F-53B Major	<1.8		1.8	0.21	ng/L		11/20/20 11:35	11/22/20 06:49	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 06:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C5 PFPeA	*93*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C2 PFHxA	*106*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C4 PFHpA	*104*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C4 PFOA	*108*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C5 PFNA	*99*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C2 PFDA	*102*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*
13C2 PFUnA	*104*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:49*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: EB-01 (11172020)
Lab Sample ID: 320-66975-1
Date Collected: 11/17/20 14:25
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	102		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C2 PFTeDA	120		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C2 PFHxDA	105		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C3 PFBS	96		25 - 150	11/20/20 11:35	11/22/20 06:49	1
18O2 PFHxS	96		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C4 PFOS	103		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C8 FOSA	97		10 - 150	11/20/20 11:35	11/22/20 06:49	1
d3-NMeFOSAA	100		25 - 150	11/20/20 11:35	11/22/20 06:49	1
d5-NEtFOSAA	112		25 - 150	11/20/20 11:35	11/22/20 06:49	1
d-N-MeFOSA-M	75		10 - 150	11/20/20 11:35	11/22/20 06:49	1
d-N-EtFOSA-M	55		10 - 150	11/20/20 11:35	11/22/20 06:49	1
d7-N-MeFOSE-M	32		10 - 150	11/20/20 11:35	11/22/20 06:49	1
d9-N-EtFOSE-M	31		10 - 150	11/20/20 11:35	11/22/20 06:49	1
M2-4:2 FTS	144		25 - 150	11/20/20 11:35	11/22/20 06:49	1
M2-6:2 FTS	123		25 - 150	11/20/20 11:35	11/22/20 06:49	1
M2-8:2 FTS	126		25 - 150	11/20/20 11:35	11/22/20 06:49	1
13C3 HFPO-DA	94		25 - 150	11/20/20 11:35	11/22/20 06:49	1

Client Sample ID: EB-02 (11172020)
Date Collected: 11/17/20 15:15
Date Received: 11/19/20 09:20

Lab Sample ID: 320-66975-2
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		11/20/20 11:35	11/22/20 06:58	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.45	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.53	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.23	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.78	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.25	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	1.0	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.51	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.67	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.82	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.86	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.28	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.52	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.50	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.34	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.89	ng/L		11/20/20 11:35	11/22/20 06:58	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.90	ng/L		11/20/20 11:35	11/22/20 06:58	1
NEtFOSA	<1.8		1.8	0.80	ng/L		11/20/20 11:35	11/22/20 06:58	1
NMeFOSA	<1.8		1.8	0.40	ng/L		11/20/20 11:35	11/22/20 06:58	1
NMeFOSAA	<4.6		4.6	1.1	ng/L		11/20/20 11:35	11/22/20 06:58	1
NEtFOSAA	<4.6		4.6	1.2	ng/L		11/20/20 11:35	11/22/20 06:58	1
NMeFOSE	<3.7		3.7	1.3	ng/L		11/20/20 11:35	11/22/20 06:58	1
NEtFOSE	<1.8		1.8	0.78	ng/L		11/20/20 11:35	11/22/20 06:58	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/20/20 11:35	11/22/20 06:58	1
6:2 FTS	<4.6		4.6	2.3	ng/L		11/20/20 11:35	11/22/20 06:58	1
8:2 FTS	<1.8		1.8	0.42	ng/L		11/20/20 11:35	11/22/20 06:58	1
10:2 FTS	<1.8		1.8	0.62	ng/L		11/20/20 11:35	11/22/20 06:58	1
DONA	<1.8		1.8	0.37	ng/L		11/20/20 11:35	11/22/20 06:58	1
HFPO-DA (GenX)	<3.7		3.7	1.4	ng/L		11/20/20 11:35	11/22/20 06:58	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/20/20 11:35	11/22/20 06:58	1
F-53B Minor	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 06:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C5 PFPeA	*95*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C2 PFHxA	*101*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C4 PFHpA	*104*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C4 PFOA	*114*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C5 PFNA	*104*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C2 PFDA	*105*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*
13C2 PFUnA	*111*		*25 - 150*	*11/20/20 11:35*	*11/22/20 06:58*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: EB-02 (11172020)
Lab Sample ID: 320-66975-2
Date Collected: 11/17/20 15:15
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	109		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C2 PFTeDA	116		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C2 PFHxDA	119		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C3 PFBS	100		25 - 150	11/20/20 11:35	11/22/20 06:58	1
18O2 PFHxS	102		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C4 PFOS	102		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C8 FOSA	99		10 - 150	11/20/20 11:35	11/22/20 06:58	1
d3-NMeFOSAA	100		25 - 150	11/20/20 11:35	11/22/20 06:58	1
d5-NEtFOSAA	109		25 - 150	11/20/20 11:35	11/22/20 06:58	1
d-N-MeFOSA-M	77		10 - 150	11/20/20 11:35	11/22/20 06:58	1
d-N-EtFOSA-M	56		10 - 150	11/20/20 11:35	11/22/20 06:58	1
d7-N-MeFOSE-M	31		10 - 150	11/20/20 11:35	11/22/20 06:58	1
d9-N-EtFOSE-M	30		10 - 150	11/20/20 11:35	11/22/20 06:58	1
M2-4:2 FTS	119		25 - 150	11/20/20 11:35	11/22/20 06:58	1
M2-6:2 FTS	118		25 - 150	11/20/20 11:35	11/22/20 06:58	1
M2-8:2 FTS	125		25 - 150	11/20/20 11:35	11/22/20 06:58	1
13C3 HFPO-DA	98		25 - 150	11/20/20 11:35	11/22/20 06:58	1

Client Sample ID: Field Blank-11-17-2020
Lab Sample ID: 320-66975-3

Date Collected: 11/17/20 15:10
Matrix: Water
Date Received: 11/19/20 09:20

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.8		4.8	2.3	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoropentanoic acid (PFPeA)	<1.9		1.9	0.47	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	0.56	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	0.24	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	0.82	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	0.26	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.30	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.1	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.53	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.3	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.70	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.86	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.91	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	0.19	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.29	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9	0.55	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	0.18	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorooctanesulfonic acid (PFOS)	**0.59**	**J**	1.9	0.52	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.36	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.31	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.93	ng/L		11/20/20 11:35	11/22/20 07:08	1
Perfluorooctanesulfonamide (FOSA)	<1.9		1.9	0.94	ng/L		11/20/20 11:35	11/22/20 07:08	1
NEtFOSA	<1.9		1.9	0.84	ng/L		11/20/20 11:35	11/22/20 07:08	1
NMeFOSA	<1.9		1.9	0.41	ng/L		11/20/20 11:35	11/22/20 07:08	1
NMeFOSAA	<4.8		4.8	1.2	ng/L		11/20/20 11:35	11/22/20 07:08	1
NEtFOSAA	<4.8		4.8	1.3	ng/L		11/20/20 11:35	11/22/20 07:08	1
NMeFOSE	<3.9		3.9	1.3	ng/L		11/20/20 11:35	11/22/20 07:08	1
NEtFOSE	<1.9		1.9	0.82	ng/L		11/20/20 11:35	11/22/20 07:08	1
4:2 FTS	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 07:08	1
6:2 FTS	<4.8		4.8	2.4	ng/L		11/20/20 11:35	11/22/20 07:08	1
8:2 FTS	<1.9		1.9	0.44	ng/L		11/20/20 11:35	11/22/20 07:08	1
10:2 FTS	<1.9		1.9	0.65	ng/L		11/20/20 11:35	11/22/20 07:08	1
DONA	<1.9		1.9	0.39	ng/L		11/20/20 11:35	11/22/20 07:08	1
HFPO-DA (GenX)	<3.9		3.9	1.4	ng/L		11/20/20 11:35	11/22/20 07:08	1
F-53B Major	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 07:08	1
F-53B Minor	<1.9		1.9	0.31	ng/L		11/20/20 11:35	11/22/20 07:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C5 PFPeA	*99*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C2 PFHxA	*105*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C4 PFHpA	*105*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C4 PFOA	*112*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C5 PFNA	*113*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C2 PFDA	*111*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*
13C2 PFUnA	*111*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:08*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: Field Blank-11-17-2020
Lab Sample ID: 320-66975-3
Date Collected: 11/17/20 15:10
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	111		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C2 PFTeDA	133		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C2 PFHxDA	121		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C3 PFBS	100		25 - 150	11/20/20 11:35	11/22/20 07:08	1
18O2 PFHxS	99		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C4 PFOS	107		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C8 FOSA	103		10 - 150	11/20/20 11:35	11/22/20 07:08	1
d3-NMeFOSAA	101		25 - 150	11/20/20 11:35	11/22/20 07:08	1
d5-NEtFOSAA	115		25 - 150	11/20/20 11:35	11/22/20 07:08	1
d-N-MeFOSA-M	71		10 - 150	11/20/20 11:35	11/22/20 07:08	1
d-N-EtFOSA-M	51		10 - 150	11/20/20 11:35	11/22/20 07:08	1
d7-N-MeFOSE-M	27		10 - 150	11/20/20 11:35	11/22/20 07:08	1
d9-N-EtFOSE-M	29		10 - 150	11/20/20 11:35	11/22/20 07:08	1
M2-4:2 FTS	121		25 - 150	11/20/20 11:35	11/22/20 07:08	1
M2-6:2 FTS	122		25 - 150	11/20/20 11:35	11/22/20 07:08	1
M2-8:2 FTS	130		25 - 150	11/20/20 11:35	11/22/20 07:08	1
13C3 HFPO-DA	100		25 - 150	11/20/20 11:35	11/22/20 07:08	1

Client Sample ID: DUP-02 (11172020)
Lab Sample ID: 320-66975-4

Date Collected: 11/17/20 00:00
Matrix: Water
Date Received: 11/19/20 09:20

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**12**		4.7	2.3	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoropentanoic acid (PFPeA)	**27**		1.9	0.46	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorohexanoic acid (PFHxA)	**31**		1.9	0.55	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoroheptanoic acid (PFHpA)	**13**		1.9	0.24	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorooctanoic acid (PFOA)	**260**		1.9	0.80	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorononanoic acid (PFNA)	**0.79**	**J**	1.9	0.26	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.29	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.0	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.52	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.69	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.84	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.89	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.9	0.19	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoropentanesulfonic acid (PFPeS)	**0.35**	**J**	1.9	0.28	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**	**J**	1.9	0.54	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.1**	**J**	1.9	0.18	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorooctanesulfonic acid (PFOS)	**75**		1.9	0.51	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.35	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.30	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.92	ng/L		11/20/20 11:35	11/22/20 07:17	1
Perfluorooctanesulfonamide (FOSA)	**0.96**	**J**	1.9	0.93	ng/L		11/20/20 11:35	11/22/20 07:17	1
NEtFOSA	<1.9		1.9	0.82	ng/L		11/20/20 11:35	11/22/20 07:17	1
NMeFOSA	<1.9		1.9	0.41	ng/L		11/20/20 11:35	11/22/20 07:17	1
NMeFOSAA	<4.7		4.7	1.1	ng/L		11/20/20 11:35	11/22/20 07:17	1
NEtFOSAA	<4.7		4.7	1.2	ng/L		11/20/20 11:35	11/22/20 07:17	1
NMeFOSE	<3.8		3.8	1.3	ng/L		11/20/20 11:35	11/22/20 07:17	1
NEtFOSE	<1.9		1.9	0.80	ng/L		11/20/20 11:35	11/22/20 07:17	1
4:2 FTS	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 07:17	1
6:2 FTS	<4.7		4.7	2.4	ng/L		11/20/20 11:35	11/22/20 07:17	1
8:2 FTS	**0.73**	**J**	1.9	0.43	ng/L		11/20/20 11:35	11/22/20 07:17	1
10:2 FTS	<1.9		1.9	0.63	ng/L		11/20/20 11:35	11/22/20 07:17	1
DONA	<1.9		1.9	0.38	ng/L		11/20/20 11:35	11/22/20 07:17	1
HFPO-DA (GenX)	<3.8		3.8	1.4	ng/L		11/20/20 11:35	11/22/20 07:17	1
F-53B Major	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 07:17	1
F-53B Minor	<1.9		1.9	0.30	ng/L		11/20/20 11:35	11/22/20 07:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*77*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:17*	*1*
13C5 PFPeA	*67*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:17*	*1*
13C2 PFHxA	*101*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:17*	*1*
13C4 PFHpA	*103*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:17*	*1*
13C4 PFOA	*114*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:17*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: DUP-02 (11172020)
Lab Sample ID: 320-66975-4
Date Collected: 11/17/20 00:00
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	114		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C2 PFDA	123		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C2 PFUnA	122		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C2 PFDoA	112		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C2 PFTeDA	135		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C2 PFHxDA	110		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C3 PFBS	85		25 - 150	11/20/20 11:35	11/22/20 07:17	1
18O2 PFHxS	100		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C4 PFOS	110		25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C8 FOSA	113		10 - 150	11/20/20 11:35	11/22/20 07:17	1
d3-NMeFOSAA	111		25 - 150	11/20/20 11:35	11/22/20 07:17	1
d5-NEtFOSAA	120		25 - 150	11/20/20 11:35	11/22/20 07:17	1
d-N-MeFOSA-M	60		10 - 150	11/20/20 11:35	11/22/20 07:17	1
d-N-EtFOSA-M	51		10 - 150	11/20/20 11:35	11/22/20 07:17	1
d7-N-MeFOSE-M	43		10 - 150	11/20/20 11:35	11/22/20 07:17	1
d9-N-EtFOSE-M	44		10 - 150	11/20/20 11:35	11/22/20 07:17	1
M2-4:2 FTS	178	*5	25 - 150	11/20/20 11:35	11/22/20 07:17	1
M2-6:2 FTS	176	*5	25 - 150	11/20/20 11:35	11/22/20 07:17	1
M2-8:2 FTS	176	*5	25 - 150	11/20/20 11:35	11/22/20 07:17	1
13C3 HFPO-DA	90		25 - 150	11/20/20 11:35	11/22/20 07:17	1

Client Sample ID: PZ-35-17
Date Collected: 11/17/20 14:20
Date Received: 11/19/20 09:20

Lab Sample ID: 320-66975-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**32**		4.6	2.2	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoropentanoic acid (PFPeA)	**44**		1.8	0.45	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorohexanoic acid (PFHxA)	**38**		1.8	0.54	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoroheptanoic acid (PFHpA)	**46**		1.8	0.23	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorooctanoic acid (PFOA)	**48**		1.8	0.78	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.25	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.29	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	1.0	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.51	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.67	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.82	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.87	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorobutanesulfonic acid (PFBS)	**2.4**		1.8	0.18	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoropentanesulfonic acid (PFPeS)	**0.86**	**J**	1.8	0.28	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorohexanesulfonic acid (PFHxS)	**4.3**		1.8	0.53	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.18	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.50	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.34	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.30	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.89	ng/L		11/20/20 11:35	11/22/20 07:55	1
Perfluorooctanesulfonamide (FOSA)	**1.4**	**J**	1.8	0.90	ng/L		11/20/20 11:35	11/22/20 07:55	1
NEtFOSA	<1.8		1.8	0.80	ng/L		11/20/20 11:35	11/22/20 07:55	1
NMeFOSA	<1.8		1.8	0.40	ng/L		11/20/20 11:35	11/22/20 07:55	1
NMeFOSAA	<4.6		4.6	1.1	ng/L		11/20/20 11:35	11/22/20 07:55	1
NEtFOSAA	<4.6		4.6	1.2	ng/L		11/20/20 11:35	11/22/20 07:55	1
NMeFOSE	<3.7		3.7	1.3	ng/L		11/20/20 11:35	11/22/20 07:55	1
NEtFOSE	<1.8		1.8	0.78	ng/L		11/20/20 11:35	11/22/20 07:55	1
4:2 FTS	<1.8		1.8	0.22	ng/L		11/20/20 11:35	11/22/20 07:55	1
6:2 FTS	<4.6		4.6	2.3	ng/L		11/20/20 11:35	11/22/20 07:55	1
8:2 FTS	<1.8		1.8	0.42	ng/L		11/20/20 11:35	11/22/20 07:55	1
10:2 FTS	<1.8		1.8	0.62	ng/L		11/20/20 11:35	11/22/20 07:55	1
DONA	<1.8		1.8	0.37	ng/L		11/20/20 11:35	11/22/20 07:55	1
HFPO-DA (GenX)	<3.7		3.7	1.4	ng/L		11/20/20 11:35	11/22/20 07:55	1
F-53B Major	<1.8		1.8	0.22	ng/L		11/20/20 11:35	11/22/20 07:55	1
F-53B Minor	<1.8		1.8	0.30	ng/L		11/20/20 11:35	11/22/20 07:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*32*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*
13C5 PFPeA	*33*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*
13C2 PFHxA	*63*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*
13C4 PFHpA	*66*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*
13C4 PFOA	*78*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*
13C5 PFNA	*81*		*25 - 150*	*11/20/20 11:35*	*11/22/20 07:55*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-35-17
Lab Sample ID: 320-66975-5
Date Collected: 11/17/20 14:20
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	86		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C2 PFUnA	88		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C2 PFDoA	92		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C2 PFTeDA	89		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C2 PFHxDA	63		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C3 PFBS	50		25 - 150	11/20/20 11:35	11/22/20 07:55	1
18O2 PFHxS	64		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C4 PFOS	77		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C8 FOSA	74		10 - 150	11/20/20 11:35	11/22/20 07:55	1
d3-NMeFOSAA	66		25 - 150	11/20/20 11:35	11/22/20 07:55	1
d5-NEtFOSAA	81		25 - 150	11/20/20 11:35	11/22/20 07:55	1
d-N-MeFOSA-M	32		10 - 150	11/20/20 11:35	11/22/20 07:55	1
d-N-EtFOSA-M	25		10 - 150	11/20/20 11:35	11/22/20 07:55	1
d7-N-MeFOSE-M	21		10 - 150	11/20/20 11:35	11/22/20 07:55	1
d9-N-EtFOSE-M	18		10 - 150	11/20/20 11:35	11/22/20 07:55	1
M2-4:2 FTS	111		25 - 150	11/20/20 11:35	11/22/20 07:55	1
M2-6:2 FTS	115		25 - 150	11/20/20 11:35	11/22/20 07:55	1
M2-8:2 FTS	111		25 - 150	11/20/20 11:35	11/22/20 07:55	1
13C3 HFPO-DA	55		25 - 150	11/20/20 11:35	11/22/20 07:55	1

Client Sample ID: PZ-27-12
Date Collected: 11/17/20 15:40
Date Received: 11/19/20 09:20

Lab Sample ID: 320-66975-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**21**		4.8	2.3	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoropentanoic acid (PFPeA)	**22**		1.9	0.47	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorohexanoic acid (PFHxA)	**34**		1.9	0.56	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoroheptanoic acid (PFHpA)	**14**		1.9	0.24	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorooctanoic acid (PFOA)	**180**		1.9	0.82	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorononanoic acid (PFNA)	**0.94**	**J**	1.9	0.26	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.30	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.1	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.53	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.70	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.85	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.90	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorobutanesulfonic acid (PFBS)	**2.8**		1.9	0.19	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.29	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**	**J**	1.9	0.55	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	**2.8**		1.9	0.18	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorooctanesulfonic acid (PFOS)	**110**	**I**	1.9	0.52	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.35	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.31	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.93	ng/L		11/20/20 11:35	11/22/20 08:04	1
Perfluorooctanesulfonamide (FOSA)	<1.9		1.9	0.94	ng/L		11/20/20 11:35	11/22/20 08:04	1
NEtFOSA	<1.9		1.9	0.83	ng/L		11/20/20 11:35	11/22/20 08:04	1
NMeFOSA	<1.9		1.9	0.41	ng/L		11/20/20 11:35	11/22/20 08:04	1
NMeFOSAA	<4.8		4.8	1.2	ng/L		11/20/20 11:35	11/22/20 08:04	1
NEtFOSAA	<4.8		4.8	1.2	ng/L		11/20/20 11:35	11/22/20 08:04	1
NMeFOSE	<3.8		3.8	1.3	ng/L		11/20/20 11:35	11/22/20 08:04	1
NEtFOSE	<1.9		1.9	0.82	ng/L		11/20/20 11:35	11/22/20 08:04	1
4:2 FTS	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 08:04	1
6:2 FTS	<4.8		4.8	2.4	ng/L		11/20/20 11:35	11/22/20 08:04	1
8:2 FTS	<1.9		1.9	0.44	ng/L		11/20/20 11:35	11/22/20 08:04	1
10:2 FTS	<1.9		1.9	0.64	ng/L		11/20/20 11:35	11/22/20 08:04	1
DONA	<1.9		1.9	0.38	ng/L		11/20/20 11:35	11/22/20 08:04	1
HFPO-DA (GenX)	<3.8		3.8	1.4	ng/L		11/20/20 11:35	11/22/20 08:04	1
F-53B Major	<1.9		1.9	0.23	ng/L		11/20/20 11:35	11/22/20 08:04	1
F-53B Minor	<1.9		1.9	0.31	ng/L		11/20/20 11:35	11/22/20 08:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*73*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*
13C5 PFPeA	*63*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*
13C2 PFHxA	*96*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*
13C4 PFHpA	*102*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*
13C4 PFOA	*111*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*
13C5 PFNA	*112*		*25 - 150*	*11/20/20 11:35*	*11/22/20 08:04*	*1*

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: PZ-27-12
Lab Sample ID: 320-66975-6
Date Collected: 11/17/20 15:40
Matrix: Water
Date Received: 11/19/20 09:20

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	120		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C2 PFUnA	116		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C2 PFDoA	119		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C2 PFTeDA	118		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C2 PFHxDA	110		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C3 PFBS	82		25 - 150	11/20/20 11:35	11/22/20 08:04	1
18O2 PFHxS	100		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C4 PFOS	109		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C8 FOSA	111		10 - 150	11/20/20 11:35	11/22/20 08:04	1
d3-NMeFOSAA	97		25 - 150	11/20/20 11:35	11/22/20 08:04	1
d5-NEtFOSAA	121		25 - 150	11/20/20 11:35	11/22/20 08:04	1
d-N-MeFOSA-M	65		10 - 150	11/20/20 11:35	11/22/20 08:04	1
d-N-EtFOSA-M	52		10 - 150	11/20/20 11:35	11/22/20 08:04	1
d7-N-MeFOSE-M	45		10 - 150	11/20/20 11:35	11/22/20 08:04	1
d9-N-EtFOSE-M	45		10 - 150	11/20/20 11:35	11/22/20 08:04	1
M2-4:2 FTS	175	*5	25 - 150	11/20/20 11:35	11/22/20 08:04	1
M2-6:2 FTS	165	*5	25 - 150	11/20/20 11:35	11/22/20 08:04	1
M2-8:2 FTS	147		25 - 150	11/20/20 11:35	11/22/20 08:04	1
13C3 HFPO-DA	90		25 - 150	11/20/20 11:35	11/22/20 08:04	1

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
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)
320-66975-1	EB-01 (11172020)	94	93	106	104	108	99	102	104
320-66975-2	EB-02 (11172020)	96	95	101	104	114	104	105	111
320-66975-3	Field Blank-11-17-2020	96	99	105	105	112	113	111	111
320-66975-4	DUP-02 (11172020)	77	67	101	103	114	114	123	122
320-66975-5	PZ-35-17	32	33	63	66	78	81	86	88
320-66975-6	PZ-27-12	73	63	96	102	111	112	120	116
LCS 320-433989/2-A	Lab Control Sample	97	97	104	105	113	108	103	106
LCSD 320-433989/3-A	Lab Control Sample Dup	99	99	107	110	113	110	113	100
MB 320-433989/1-A	Method Blank	85	85	91	92	98	97	96	102

		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 (10-150)	d3NMFOS (25-150)
320-66975-1	EB-01 (11172020)	102	120	105	96	96	103	97	100
320-66975-2	EB-02 (11172020)	109	116	119	100	102	102	99	100
320-66975-3	Field Blank-11-17-2020	111	133	121	100	99	107	103	101
320-66975-4	DUP-02 (11172020)	112	135	110	85	100	110	113	111
320-66975-5	PZ-35-17	92	89	63	50	64	77	74	66
320-66975-6	PZ-27-12	119	118	110	82	100	109	111	97
LCS 320-433989/2-A	Lab Control Sample	117	128	111	101	100	105	100	110
LCSD 320-433989/3-A	Lab Control Sample Dup	120	119	119	108	105	108	104	110
MB 320-433989/1-A	Method Blank	91	108	100	87	88	94	89	90

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
320-66975-1	EB-01 (11172020)	112	75	55	32	31	144	123	126
320-66975-2	EB-02 (11172020)	109	77	56	31	30	119	118	125
320-66975-3	Field Blank-11-17-2020	115	71	51	27	29	121	122	130
320-66975-4	DUP-02 (11172020)	120	60	51	43	44	178 *5	176 *5	176 *5
320-66975-5	PZ-35-17	81	32	25	21	18	111	115	111
320-66975-6	PZ-27-12	121	65	52	45	45	175 *5	165 *5	147
LCS 320-433989/2-A	Lab Control Sample	113	95	71	46	45	116	121	116
LCSD 320-433989/3-A	Lab Control Sample Dup	113	78	51	28	25	116	120	131
MB 320-433989/1-A	Method Blank	106	89	90	75	67	99	109	103

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-66975-1	EB-01 (11172020)	94
320-66975-2	EB-02 (11172020)	98
320-66975-3	Field Blank-11-17-2020	100
320-66975-4	DUP-02 (11172020)	90
320-66975-5	PZ-35-17	55
320-66975-6	PZ-27-12	90
LCS 320-433989/2-A	Lab Control Sample	102
LCSD 320-433989/3-A	Lab Control Sample Dup	102
MB 320-433989/1-A	Method Blank	87

Surrogate Legend

PFBA = 13C4 PFBA

PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

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

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-433989/1-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433989

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0	0.19	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		11/20/20 11:35	11/22/20 05:52	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		11/20/20 11:35	11/22/20 05:52	1
NEtFOSA	<2.0		2.0	0.87	ng/L		11/20/20 11:35	11/22/20 05:52	1
NMeFOSA	<2.0		2.0	0.43	ng/L		11/20/20 11:35	11/22/20 05:52	1
NMeFOSAA	<5.0		5.0	1.2	ng/L		11/20/20 11:35	11/22/20 05:52	1
NEtFOSAA	<5.0		5.0	1.3	ng/L		11/20/20 11:35	11/22/20 05:52	1
NMeFOSE	<4.0		4.0	1.4	ng/L		11/20/20 11:35	11/22/20 05:52	1
NEtFOSE	<2.0		2.0	0.85	ng/L		11/20/20 11:35	11/22/20 05:52	1
4:2 FTS	<2.0		2.0	0.24	ng/L		11/20/20 11:35	11/22/20 05:52	1
6:2 FTS	<5.0		5.0	2.5	ng/L		11/20/20 11:35	11/22/20 05:52	1
8:2 FTS	<2.0		2.0	0.46	ng/L		11/20/20 11:35	11/22/20 05:52	1
10:2 FTS	<2.0		2.0	0.67	ng/L		11/20/20 11:35	11/22/20 05:52	1
DONA	<2.0		2.0	0.40	ng/L		11/20/20 11:35	11/22/20 05:52	1
HFPO-DA (GenX)	<4.0		4.0	1.5	ng/L		11/20/20 11:35	11/22/20 05:52	1
F-53B Major	<2.0		2.0	0.24	ng/L		11/20/20 11:35	11/22/20 05:52	1
F-53B Minor	<2.0		2.0	0.32	ng/L		11/20/20 11:35	11/22/20 05:52	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C5 PFPeA	*85*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C2 PFHxA	*91*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C4 PFHpA	*92*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C4 PFOA	*98*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C5 PFNA	*97*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*
13C2 PFDA	*96*		*25 - 150*	*11/20/20 11:35*	*11/22/20 05:52*	*1*

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

Lab Sample ID: MB 320-433989/1-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 433989

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	102		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C2 PFDoA	91		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C2 PFTeDA	108		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C2 PFHxDA	100		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C3 PFBS	87		25 - 150	11/20/20 11:35	11/22/20 05:52	1
18O2 PFHxS	88		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C4 PFOS	94		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C8 FOSA	89		10 - 150	11/20/20 11:35	11/22/20 05:52	1
d3-NMeFOSAA	90		25 - 150	11/20/20 11:35	11/22/20 05:52	1
d5-NEtFOSAA	106		25 - 150	11/20/20 11:35	11/22/20 05:52	1
d-N-MeFOSA-M	89		10 - 150	11/20/20 11:35	11/22/20 05:52	1
d-N-EtFOSA-M	90		10 - 150	11/20/20 11:35	11/22/20 05:52	1
d7-N-MeFOSE-M	75		10 - 150	11/20/20 11:35	11/22/20 05:52	1
d9-N-EtFOSE-M	67		10 - 150	11/20/20 11:35	11/22/20 05:52	1
M2-4:2 FTS	99		25 - 150	11/20/20 11:35	11/22/20 05:52	1
M2-6:2 FTS	109		25 - 150	11/20/20 11:35	11/22/20 05:52	1
M2-8:2 FTS	103		25 - 150	11/20/20 11:35	11/22/20 05:52	1
13C3 HFPO-DA	87		25 - 150	11/20/20 11:35	11/22/20 05:52	1

Lab Sample ID: LCS 320-433989/2-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433989

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	42.3		ng/L		106	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.0		ng/L		102	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	41.3		ng/L		103	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	42.0		ng/L		105	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	36.8		ng/L		92	60 - 135
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	48.4		ng/L		121	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	43.2		ng/L		108	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.7		ng/L		104	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	46.2		ng/L		116	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.0		ng/L		105	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	36.8		ng/L		92	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	46.7		ng/L		117	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	34.8		ng/L		99	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	41.4		ng/L		110	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.7		ng/L		101	60 - 135
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	40.0		ng/L		105	60 - 135

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

Lab Sample ID: LCS 320-433989/2-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433989

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	37.1	38.9		ng/L		105	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	41.7		ng/L		109	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.5		ng/L		108	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	40.4		ng/L		104	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	43.3		ng/L		108	60 - 135
NEtFOSA	40.0	39.8		ng/L		100	60 - 135
NMeFOSA	40.0	37.8		ng/L		95	60 - 135
NMeFOSAA	40.0	43.4		ng/L		108	60 - 135
NEtFOSAA	40.0	42.2		ng/L		106	60 - 135
NMeFOSE	40.0	45.0		ng/L		112	60 - 135
NEtFOSE	40.0	34.6		ng/L		87	60 - 135
4:2 FTS	37.4	42.5		ng/L		114	60 - 135
6:2 FTS	37.9	37.7		ng/L		99	60 - 135
8:2 FTS	38.3	42.7		ng/L		111	60 - 135
10:2 FTS	38.6	51.7		ng/L		134	60 - 135
DONA	37.7	41.2		ng/L		109	60 - 135
HFPO-DA (GenX)	40.0	42.4		ng/L		106	60 - 135
F-53B Major	37.3	40.9		ng/L		110	60 - 135
F-53B Minor	37.7	41.6		ng/L		110	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*97*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C2 PFHxA	*104*		*25 - 150*
13C4 PFHpA	*105*		*25 - 150*
13C4 PFOA	*113*		*25 - 150*
13C5 PFNA	*108*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*106*		*25 - 150*
13C2 PFDoA	*117*		*25 - 150*
13C2 PFTeDA	*128*		*25 - 150*
13C2 PFHxDA	*111*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
13C4 PFOS	*105*		*25 - 150*
13C8 FOSA	*100*		*10 - 150*
d3-NMeFOSAA	*110*		*25 - 150*
d5-NEtFOSAA	*113*		*25 - 150*
d-N-MeFOSA-M	*95*		*10 - 150*
d-N-EtFOSA-M	*71*		*10 - 150*
d7-N-MeFOSE-M	*46*		*10 - 150*
d9-N-EtFOSE-M	*45*		*10 - 150*
M2-4:2 FTS	*116*		*25 - 150*
M2-6:2 FTS	*121*		*25 - 150*
M2-8:2 FTS	*116*		*25 - 150*

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

Lab Sample ID: LCS 320-433989/2-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 433989

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*102*		*25 - 150*

Lab Sample ID: LCSD 320-433989/3-A
Matrix: Water
Analysis Batch: 434407

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 433989

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.2		ng/L		105	60 - 135	0	30
Perfluoropentanoic acid (PFPeA)			40.0	39.2		ng/L		98	60 - 135	4	30
Perfluorohexanoic acid (PFHxA)			40.0	39.3		ng/L		98	60 - 135	5	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.1		ng/L		95	60 - 135	10	30
Perfluorooctanoic acid (PFOA)			40.0	40.0		ng/L		100	60 - 135	8	30
Perfluorononanoic acid (PFNA)			40.0	41.8		ng/L		105	60 - 135	3	30
Perfluorodecanoic acid (PFDA)			40.0	41.9		ng/L		105	60 - 135	15	30
Perfluoroundecanoic acid (PFUnA)			40.0	46.1		ng/L		115	60 - 135	6	30
Perfluorododecanoic acid (PFDoA)			40.0	39.0		ng/L		98	60 - 135	7	30
Perfluorotridecanoic acid (PFTriA)			40.0	44.2		ng/L		111	60 - 135	4	30
Perfluorotetradecanoic acid (PFTeA)			40.0	48.0		ng/L		120	60 - 135	13	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	33.9		ng/L		85	60 - 135	8	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	44.1		ng/L		110	60 - 135	6	30
Perfluorobutanesulfonic acid (PFBS)			35.4	34.1		ng/L		96	60 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	40.1		ng/L		107	60 - 135	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.4		ng/L		100	60 - 135	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	38.0		ng/L		100	60 - 135	5	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.2		ng/L		103	60 - 135	2	30
Perfluorononanesulfonic acid (PFNS)			38.4	40.6		ng/L		106	60 - 135	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.7		ng/L		103	60 - 135	5	30
Perfluorododecanesulfonic acid (PFDoS)			38.7	41.4		ng/L		107	60 - 135	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	43.3		ng/L		108	60 - 135	0	30
NEtFOSA			40.0	39.9		ng/L		100	60 - 135	0	30
NMeFOSA			40.0	39.2		ng/L		98	60 - 135	4	30
NMeFOSAA			40.0	41.7		ng/L		104	60 - 135	4	30
NEtFOSAA			40.0	42.0		ng/L		105	60 - 135	0	30
NMeFOSE			40.0	43.4		ng/L		108	60 - 135	4	30
NEtFOSE			40.0	41.7		ng/L		104	60 - 135	19	30
4:2 FTS			37.4	39.6		ng/L		106	60 - 135	7	30
6:2 FTS			37.9	36.2		ng/L		95	60 - 135	4	30
8:2 FTS			38.3	40.7		ng/L		106	60 - 135	5	30

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

Lab Sample ID: LCSD 320-433989/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 434407
Prep Batch: 433989

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
10:2 FTS			38.6	43.8		ng/L		113	60 - 135	17	30
DONA			37.7	40.6		ng/L		108	60 - 135	2	30
HFPO-DA (GenX)			40.0	43.2		ng/L		108	60 - 135	2	30
F-53B Major			37.3	38.6		ng/L		104	60 - 135	6	30
F-53B Minor			37.7	42.1		ng/L		112	60 - 135	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*99*		*25 - 150*
13C5 PFPeA	*99*		*25 - 150*
13C2 PFHxA	*107*		*25 - 150*
13C4 PFHpA	*110*		*25 - 150*
13C4 PFOA	*113*		*25 - 150*
13C5 PFNA	*110*		*25 - 150*
13C2 PFDA	*113*		*25 - 150*
13C2 PFUnA	*100*		*25 - 150*
13C2 PFDoA	*120*		*25 - 150*
13C2 PFTeDA	*119*		*25 - 150*
13C2 PFHxDA	*119*		*25 - 150*
13C3 PFBS	*108*		*25 - 150*
18O2 PFHxS	*105*		*25 - 150*
13C4 PFOS	*108*		*25 - 150*
13C8 FOSA	*104*		*10 - 150*
d3-NMeFOSAA	*110*		*25 - 150*
d5-NEtFOSAA	*113*		*25 - 150*
d-N-MeFOSA-M	*78*		*10 - 150*
d-N-EtFOSA-M	*51*		*10 - 150*
d7-N-MeFOSE-M	*28*		*10 - 150*
d9-N-EtFOSE-M	*25*		*10 - 150*
M2-4:2 FTS	*116*		*25 - 150*
M2-6:2 FTS	*120*		*25 - 150*
M2-8:2 FTS	*131*		*25 - 150*
13C3 HFPO-DA	*102*		*25 - 150*

LCMS

Prep Batch: 433989

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66975-1	EB-01 (11172020)	Total/NA	Water	3535	
320-66975-2	EB-02 (11172020)	Total/NA	Water	3535	
320-66975-3	Field Blank-11-17-2020	Total/NA	Water	3535	
320-66975-4	DUP-02 (11172020)	Total/NA	Water	3535	
320-66975-5	PZ-35-17	Total/NA	Water	3535	
320-66975-6	PZ-27-12	Total/NA	Water	3535	
MB 320-433989/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-433989/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-433989/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 434407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-66975-1	EB-01 (11172020)	Total/NA	Water	537 (modified)	433989
320-66975-2	EB-02 (11172020)	Total/NA	Water	537 (modified)	433989
320-66975-3	Field Blank-11-17-2020	Total/NA	Water	537 (modified)	433989
320-66975-4	DUP-02 (11172020)	Total/NA	Water	537 (modified)	433989
320-66975-5	PZ-35-17	Total/NA	Water	537 (modified)	433989
320-66975-6	PZ-27-12	Total/NA	Water	537 (modified)	433989
MB 320-433989/1-A	Method Blank	Total/NA	Water	537 (modified)	433989
LCS 320-433989/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	433989
LCSD 320-433989/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	433989

Lab Chronicle

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Client Sample ID: EB-01 (11172020)
Lab Sample ID: 320-66975-1
Date Collected: 11/17/20 14:25
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.9 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 06:49	D1R	TAL SAC

Client Sample ID: EB-02 (11172020)
Lab Sample ID: 320-66975-2
Date Collected: 11/17/20 15:15
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271.7 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 06:58	D1R	TAL SAC

Client Sample ID: Field Blank-11-17-2020
Lab Sample ID: 320-66975-3
Date Collected: 11/17/20 15:10
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259.6 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 07:08	D1R	TAL SAC

Client Sample ID: DUP-02 (11172020)
Lab Sample ID: 320-66975-4
Date Collected: 11/17/20 00:00
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264.4 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 07:17	D1R	TAL SAC

Client Sample ID: PZ-35-17
Lab Sample ID: 320-66975-5
Date Collected: 11/17/20 14:20
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 07:55	D1R	TAL SAC

Client Sample ID: PZ-27-12
Lab Sample ID: 320-66975-6
Date Collected: 11/17/20 15:40
Matrix: Water
Date Received: 11/19/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.6 mL	10.0 mL	433989	11/20/20 11:35	LN	TAL SAC
Total/NA	Analysis	537 (modified)		1			434407	11/22/20 08:04	D1R	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: 320-66975-1
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

Method Summary

Client: ARCADIS U.S., Inc.
Job ID: 320-66975-1
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: 320-66975-1
Project/Site: Marinette Supp Site Inv - 30062360 00004

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-66975-1	EB-01 (11172020)	Water	11/17/20 14:25	11/19/20 09:20	
320-66975-2	EB-02 (11172020)	Water	11/17/20 15:15	11/19/20 09:20	
320-66975-3	Field Blank-11-17-2020	Water	11/17/20 15:10	11/19/20 09:20	
320-66975-4	DUP-02 (11172020)	Water	11/17/20 00:00	11/19/20 09:20	
320-66975-5	PZ-35-17	Water	11/17/20 14:20	11/19/20 09:20	
320-66975-6	PZ-27-12	Water	11/17/20 15:40	11/19/20 09:20	

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

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: Amy S.	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-87258-38818.1
Client Contact: Lisa Rutkowski	Phone:	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 1 of 1
Company: ARCADIS U.S., Inc.		Analysis Requested		Job #:
Address: 126 North Jefferson Street Suite 400	Due Date Requested:			Preservation Codes:
City: Milwaukee	TAT Requested (days): 4 Day Rush!			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 #: 30062360.00004			Other:
Phone:	WO #:			
Email: lisa.rutkowski@arcadis.com	Project #: 50018123			
Project Name: Marinette Supp Site Inv - 30062360.00004	SSOW#:			
Site: Marinette, WI				

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		
EB-01 (11172020)	11/17/20	1425	G	Water	N	N	X		Equipment Blank
EB-02 (11172020)		1515		Water			X		Equipment Blank
Field Blank-11-17-2020		1510		Water			X		Field Blank
DUP-02 (11172020)		—		Water			X		Duplicate
PZ-35-17		1420		Water			X		
PZ-27-12		1540		Water			X		
				Water					
				Water					
				Water					
				Water					
				Water					

320-66975 Chain of Custody

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) 4 Day RUSH TAT

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Amy Siefker	11/18/20 / 1500	Arcadis		11/19/20 920	Eurofins
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: ~~Hot~~ SO111920 96698

Cooler Temperature(s) °C and Other Remarks: 1.6 1.4

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-66975-1

Login Number: 66975
List Number: 1
Creator: Nelson, Kym D

List Source: Eurofins TestAmerica, Sacramento

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	969698
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	
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.	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	