

David Neste
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Subject:

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

ENVIRONMENT

Dear Mr. Neste:

Date:

October 28, 2020

On behalf of Tyco Fire Products LP (Tyco), Arcadis is providing this *Sample Results Notification* for the Tyco Fire Technology Center PFAS site located at 2700 Industrial Parkway South in Marinette, Wisconsin (Site).

Contact:

Ben Verburg

This *Sample Results Notification* is being provided to satisfy NR716.14(2) for soil samples that were collected from the Site in accordance with the Supplemental Site Investigation Work Plan (SSIWP) submitted in August 2020.

Phone:

414 276 7742

Email:

Ben.Verburg@arcadis.com

In September and October, a total of forty-three soil samples were collected from the Site. Analyses of eighteen samples from sixteen locations from the Outdoor Training Area (OTA) and Marine Training Area (MTA) were provided to Arcadis on October 14, 2020 and are summarized below. The remaining analyses were provided to Arcadis on October 23, 2020 and are still being validated. Those results will be provided to WDNR upon completion of the validation process and within the required 10-day timeframe.

Our ref:

30015294

Of the eighteen soil samples collected and reported herein, no samples exceed the industrial direct contact residual contaminant level (DC RCL) of 16,400 micrograms per kilogram ($\mu\text{g}/\text{kg}$) for PFOA or PFOS. **Figure 1** shows the site layout and **Figure 2** shows the sample locations. The soil sample locations were proposed in the SSIWP. The soil samples were collected by Arcadis staff using grab sampling techniques. The soil samples were submitted for analysis of per- and polyfluoroalkyl substances (PFAS) using Method 537 (modified) and total organic carbon (TOC) using the Llyod Kahn method following procedures detailed in the project Quality Assurance Project Plan (QAPP). This notification reports PFAS results only, TOC results will be included with the remaining PFAS analyses in a future submittal.

David Neste
Wisconsin Department of Natural Resources
October 28, 2020

These results will be combined with the remaining sampling results from this event and evaluated comprehensively with previously provided soil sampling results 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:

Jeff Danko

Scott Wahl

Enclosures:

Figures

- 1 Site Layout
- 2 OTA and MTA Sample Locations

Table

- 1 Soil Sample Results

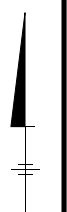
Attachments

Eurofins Analytical Reports (1)

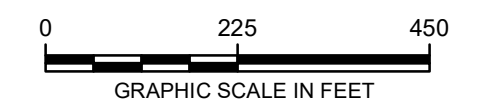
City: Minneapolis/Citrix Div/Group: IMDVC Created By: Last Saved By: msmiller
TYCO Marinette, WI
T:_ENV\Tyco_Marinette_Temp\Tyco_Marinette\MXD\2020-08\Fig2_OUTDOOR TESTING TRAINING AREA.mxd 8/17/2020 1:52:37 PM



LEGEND:
— DITCH/STREAM

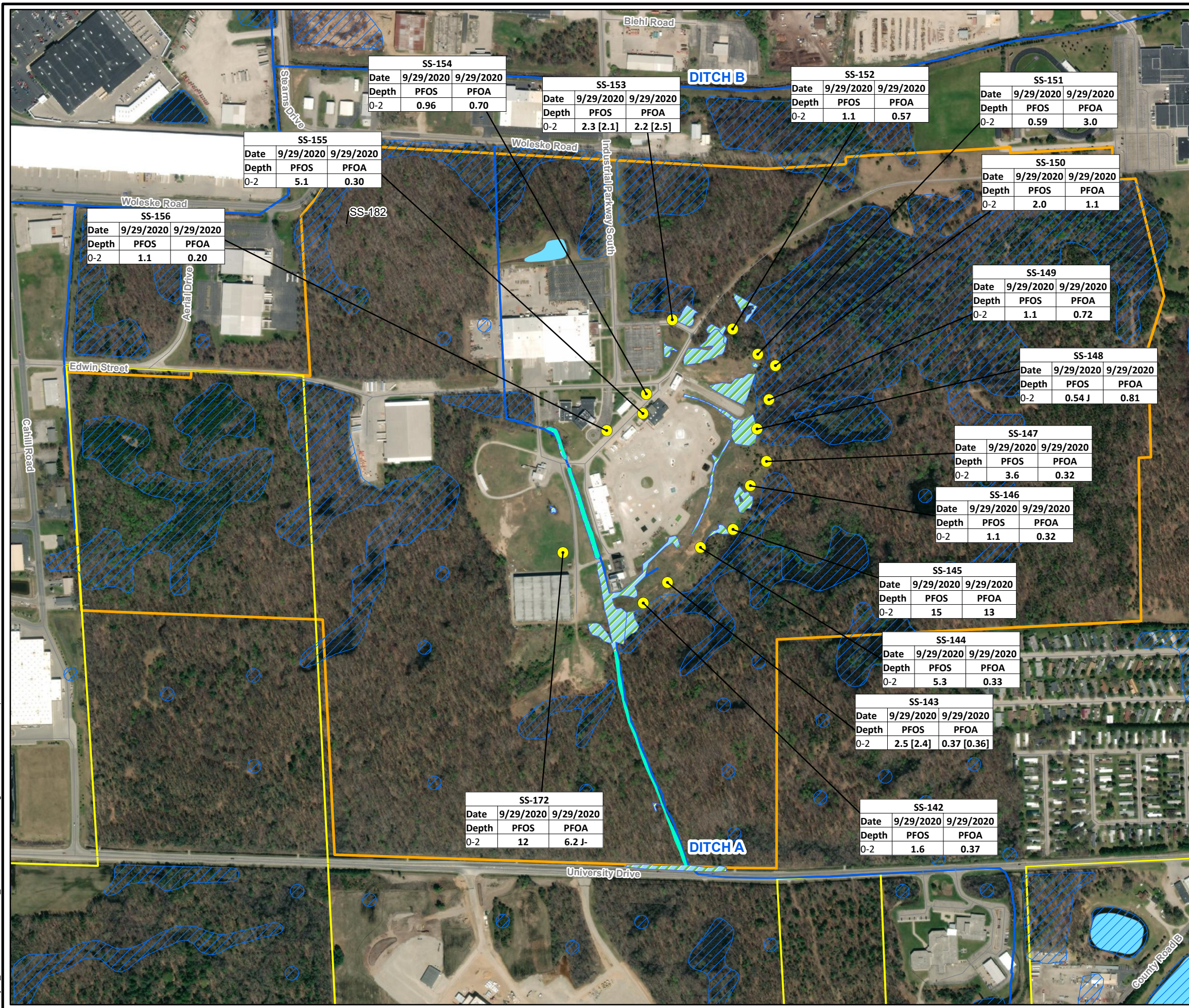


NOTES:
1. IMAGERY SOURCE: 4/27/2016, DIGITALGLOBE, VIVID - USA.



TYCO FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN
SAMPLE RESULTS NOTIFICATION

SITE LAYOUT

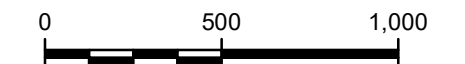


LEGEND:

- 2020 SOIL BORING LOCATIONS
- STREAMS
- DELINEATED WETLANDS
- WISCONSIN WETLANDS INVENTORY
- DITCH/STREAM
- APPROXIMATE SITE PROPERTY BOUNDARY
- APPROXIMATE MARINETTE CITY BOUNDARY
- ROAD
- WATERBODY

NOTES:

1. CITY BOUNDARY DATA SOURCE: WISCONSIN LEGISLATIVE TECHNOLOGY SERVICES BUREAU, WISCONSIN COUNTY CLERKS AND LAND INFORMATION OFFICES, ACCESSED FALL 2017.
2. DITCH/STREAM DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
4. AERIAL IMAGERY: 4/27/2016 DIGITALGLOBE, VIVID-USA
5. WETLANDS SOURCE: WISCONSIN WETLAND INVENTORY, ACCESSED SPRING 2020.



GRAPHIC SCALE IN FEET

TYCO FIRE TECHNOLOGY CENTER
 MARINETTE, WISCONSIN
 SAMPLE RESULTS NOTIFICATION

OTA AND MTA SAMPLE LOCATIONS

Table 1
Soil Sample Results
Sample Results Notification
Tyco Fire Technology Center PFAS
Marinette, Wisconsin

Chemical Name	WDNR Direct Contact Residual Contaminant Levels – Industrial	Location	SS-142	SS-143			SS-144	SS-145	SS-146	SS-147	SS-148	SS-149	SS-150
		Sample ID	SS-142 (092920)	SS-143 (092920)	DUP-03 (092920)	SS-144 (092920)	SS-145 (092920)	SS-146 (092920)	SS-147 (092920)	SS-148 (092920)	SS-149 (092920)	SS-150 (092920)	
		Depth (ft)	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2	
		Sample Date	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	
		Sample Type Units	N	N	FD	N	N	N	N	N	N	N	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	1.2	<0.21 U	<0.20 U	0.067 J	<0.22 U	<0.22 U	
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (HFPO-DA)		µg/kg	<0.27 U	<0.25 U	<0.25 U	<0.26 U	<0.45 U	<0.27 U	<0.25 U	<0.28 U	<0.28 U	<0.27 U	
4,8-Dioxa-3H-perfluorononanoic acid (DONA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
4:2 Fluorotelomer sulfonate		µg/kg	<2.1 U	<2.0 U	<2.0 U	<2.1 U	<3.6 U	<2.1 U	<2.0 U	<2.2 U	<2.2 U	<2.2 U	
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)		µg/kg	<2.1 U	<2.0 U	<2.0 U	<2.1 U	0.98 J-	<2.1 U	<2.0 U	37 D	0.47 J-	0.46 J-	
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)		µg/kg	<2.1 U	<2.0 U	<2.0 U	<2.1 U	4.8 J-	<2.1 U	<2.0 U	1.9 J-	1.5 J-	<2.2 U	
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (F-53 Major)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
N-Ethyl perfluorooctane sulfonamide (N-EtFOSA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
N-Ethyl perfluorooctane sulfonamide ethanol (N-EtFOSE)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.47	<0.21 U	<0.20 U	0.052 J	<0.22 U	<0.22 U	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)		µg/kg	<2.1 U	<2.0 U	<2.0 U	<2.1 U	<3.6 U	<2.1 U	<2.0 U	<2.2 U	<2.2 U	<2.2 U	
N-Methyl perfluorooctane sulfonamide (N-MeFOSA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
N-Methyl perfluorooctane sulfonamidoethanol (N-MeFOSE)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA)		µg/kg	<2.1 U	<2.0 U	<2.0 U	<2.1 U	<3.6 U	<2.1 U	<2.0 U	<2.2 U	<2.2 U	<2.2 U	
Perfluorobutane sulfonic acid (PFBS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorobutanoic acid (PFBA)		µg/kg	<0.21 UB	<0.23 UB	<0.22 UB	<0.21 UB	0.55	0.64	<0.33 UB	1.4	0.27	1.6	
Perfluorodecane sulfonic acid (PFDS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.10 J	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorodecanoic acid (PFDA)		µg/kg	<0.21 U	0.24	0.13 J	0.35	6.4	0.12 J	0.31	1.0	0.097 JN	0.79	
Perfluorododecane sulfonic acid (PFDOS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorododecanoic acid (PFDoA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	1.7	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluoroheptane sulfonic acid (PFHpS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.11 J	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluoroheptanoic acid (PFHpA)		µg/kg	0.19 J	0.22	0.23	0.12 J	3.0	0.57	0.24	0.99	0.37	1.8	
Perfluorohexadecanoic acid (PFHxDA)		µg/kg	0.047 J	0.046 J	<0.20 U	0.048 J	0.18 J	0.051 J	0.044 J	0.053 J	0.055 J	0.049 J	
Perfluorohexane sulfonic acid (PFHxS)		µg/kg	0.039 J	0.030 J	<0.20 U	0.049 J	2.1	<0.21 U	0.033 J	0.069 JN	<0.22 U	0.055 J	
Perfluorohexanoic acid (PFHxA)		µg/kg	0.11 J	0.15 J	0.18 J	0.12 J	2.3	0.36	0.25	2.4	0.34	1.7	
Perfluorononane sulfonic acid (PFNS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.036 J	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorononanoic acid (PFNA)		µg/kg	0.46	0.59	0.67	1.6	6.5	0.38	0.66	0.55	2.4	1.3	
Perfluorooctadecanoic acid		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorooctane sulfonamide (PFOSA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.33 J	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorooctane sulfonic acid (PFOS)	16,400	µg/kg	1.6	2.5	2.4	5.3	15	1.1	3.6	0.54 J	1.1	2.0	
Perfluorooctanoic acid (PFOA)	16,400	µg/kg	0.37	0.37	0.36	0.33	13	0.32	0.32	0.81	0.72	1.1	
Perfluoropentane sulfonic acid (PFPeS)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	<0.36 U	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluoropentanoic acid (PFPeA)		µg/kg	0.14 J	0.29	0.31	0.14 J	2.2	1.2	0.50	5.4	0.75	3.6	
Perfluorotetradecanoic acid (PFTeA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	0.70	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluorotridecanoic acid (PFTrDA)		µg/kg	<0.21 U	<0.20 U	<0.20 U	<0.21 U	1.1	<0.21 U	<0.20 U	<0.22 U	<0.22 U	<0.22 U	
Perfluoroundecanoic acid (PFUdA)		µg/kg	<0.21 U	0.055 J	0.039 J	0.039 J	4.0	<0.21 U	<0.20 U	0.22	0.10 J	0.32	

Notes:

< = below reporting limit (RL)
µg/kg = micrograms per kilogram

Detections are boldfaced

No concentrations are above WDNR direct contact industrial residual contaminant levels

Qualifiers:

D = Concentration is based on a diluted sample analysis.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

J- = The result is an estimated quantity. The associated numerical value is expected to have a negative or low bias.

J+ = The result is an estimated quantity. The associated numerical value is expected to have a positive or high bias.

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

UB = Compound is considered non-detect at the listed value due to associated blank contamination.

Table 1
Soil Sample Results
Sample Results Notification
Tyco Fire Technology Center PFAS
Marinette, Wisconsin

Chemical Name	WDNR Direct Contact Residual Contaminant Levels – Industrial	Location	SS-151	SS-152	SS-153	SS-153	SS-154	SS-155	SS-156	SS-172
		Sample ID	SS-151 (092920)	SS-152 (092920)	SS-153 (092920)	DUP-02 (092920)	SS-154 (092920)	SS-155 (092920)	SS-156 (092920)	SS-172 (092920)
		Depth (ft)	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020	9/29/2020
		Sample Type Units	N	N	N	FD	N	N	N	N
10:2 Fluorotelomer sulfonic acid (10:2 FTS)		µg/kg	1.4	<0.22 U	<0.20 U	<0.21 U	0.16 J	<0.19 U	0.069 J	24 D
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propanoic acid (HFPO-DA)		µg/kg	<0.27 U	<0.27 U	<0.25 U	<0.27 U	<0.26 U	<0.24 U	<0.24 U	<0.26 U
4,8-Dioxa-3H-perfluorononanoic acid (DONA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
4:2 Fluorotelomer sulfonate		µg/kg	<2.2 U	<2.2 U	<2.0 U	<2.1 U	<2.1 U	<1.9 U	<1.9 U	<2.1 U
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)		µg/kg	1.1 J-	0.78 J	0.46 J-	0.37 J	2.7 J-	0.98 J	0.19 J-	3.3 J
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)		µg/kg	<2.2 U	<2.2 U	<2.0 U	<2.1 U	4.9 J-	0.78 J	0.26 J-	16 J
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (F-53 Major)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
N-Ethyl perfluorooctane sulfonamide (N-EtFOSA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.033 J
N-Ethyl perfluorooctane sulfonamide ethanol (N-EtFOSE)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.063 J
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)		µg/kg	<2.2 U	<2.2 U	<2.0 U	<2.1 U	<2.1 U	<1.9 U	<1.9 U	2.1
N-Methyl perfluorooctane sulfonamide (N-MeFOSA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
N-Methyl perfluorooctane sulfonamidoethanol (N-MeFOSE)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
N-Methylperfluorooctane sulfonamidoacetic acid (MeFOSAA)		µg/kg	<2.2 U	<2.2 U	<2.0 U	<2.1 U	<2.1 U	<1.9 U	<1.9 U	<2.1 U
Perfluorobutane sulfonic acid (PFBS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
Perfluorobutanoic acid (PFBA)		µg/kg	0.68	<0.22 UB	3.2	2.4	<0.30 UB	<0.21 UB	<0.26 UB	<0.40 UB
Perfluorodecane sulfonic acid (PFDS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	0.075 J	0.11 J
Perfluorodecanoic acid (PFDA)		µg/kg	2.4	<0.22 U	0.14 J	0.055 J	0.97	0.35	0.22	6.4 J+
Perfluorododecane sulfonic acid (PFDOS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 UJ-
Perfluorododecanoic acid (PFDoA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	0.11 J	<0.19 U	<0.19 U	1.3
Perfluoroheptane sulfonic acid (PFHpS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
Perfluoroheptanoic acid (PFHpA)		µg/kg	1.9	0.15 J	4.7	4.5	0.36	0.19	0.24	0.76
Perfluorohexadecanoic acid (PFHxDA)		µg/kg	0.048 J	0.048 J	0.045 J	<0.21 U	0.054 J	0.046 J	0.044 J	0.16 J
Perfluorohexane sulfonic acid (PFHxS)		µg/kg	0.33	<0.22 U	0.069 J	0.056 J	0.059 J	0.053 J	0.032 J	0.10 J
Perfluorohexanoic acid (PFHxA)		µg/kg	1.0	0.19 J	3.2	2.4	0.44	0.22	0.67	0.88 J+
Perfluorononane sulfonic acid (PFNS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.050 J
Perfluorononanoic acid (PFNA)		µg/kg	3.8	0.41	0.74	0.57	0.74	0.40	0.63	2.1 J+
Perfluorooctadecanoic acid		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.035 J-
Perfluorooctane sulfonamide (PFOSA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	1.2
Perfluorooctane sulfonic acid (PFOS)	16,400	µg/kg	0.59	1.1	2.3	2.1	0.96	5.1	1.1	12
Perfluorooctanoic acid (PFOA)	16,400	µg/kg	3.0	0.57	2.2	2.5	0.70	0.30	0.20	6.2 J-
Perfluoropentane sulfonic acid (PFPeS)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	<0.21 U
Perfluoropentanoic acid (PFPeA)		µg/kg	1.8	0.36	6.8	4.8	0.57	0.28	0.61	0.66
Perfluorotetradecanoic acid (PFTeA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.46
Perfluorotridecanoic acid (PFTrDA)		µg/kg	<0.22 U	<0.22 U	<0.20 U	<0.21 U	<0.21 U	<0.19 U	<0.19 U	0.58
Perfluoroundecanoic acid (PFUdA)		µg/kg	0.42	<0.22 U	<0.20 U	<0.21 U	1.5	0.15 J	0.17 J	3.3 J+

Notes:

< = below reporting limit (RL)
µg/kg = micrograms per kilogram

Detections are boldfaced

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

UB = Compound is considered non-detect at the listed value due to associated blank contamination.

ANALYTICAL REPORT

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

Laboratory Job ID: 320-65226-1

Client Project/Site: Marinette Supp Site Inv - 30015294.00020

For:

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

Attn: Lisa Rutkowski



Authorized for release by:
10/14/2020 2:30:50 PM

Sandie Fredrick, Project Manager II
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LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5	Isotope dilution analyte is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Job ID: 320-65226-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative 320-65226-1

Comments

No additional comments.

Receipt

The samples were received on 10/1/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 1.8° C and 4.0° C.

Receipt Exceptions

The following sample(s) was collected in an improper container: Sample#17 SS-140 was received in a 4oz soil glass jar. PFC analysis sample should be in plastic containers and not glass containers.320-65226-17. Sample 17 cancelled by client.

LCMS

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for d7-N-MeFOSE-M and d9-N-EtFOSE-M: MB 320-418992/1-A. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for d-N-EtFOSA-M: 320-65226-A-1-B MS. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for several IDA of the following samples: 320-65226-1, 320-65226-2, 320-65226-4, 320-65226-5, 320-65226-7, 320-65226-8, 320-65226-9, 320-65226-A-1-B MS and 320-65226-A-1-C MSD. 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 M2-4:2 FTS of the following samples: 320-65226-3 and 320-65226-6. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for several analytes of preparation batch 320-418992 and analytical batch 320-420405 were outside control limits. Sample matrix interference are suspected because the associated laboratory control sample (LCS) precision was within acceptance limits.

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 judgement was used to positively identify the analyte(s). 320-65226-9

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for d7-N-MeFOSE-M and d9-N-EtFOSE-M: MB 320-418993/1-A. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-4:2 FTS and M2-8:2 FTS of the following samples: 320-65226-10, 320-65226-14, 320-65226-15, 320-65226-A-10-B MS and 320-65226-A-10-C MSD. 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 several IDA of the following samples: 320-65226-11, 320-65226-12, 320-65226-13 and 320-65226-19. 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 M2-8:2 FTS of the following sample: 320-65226-18. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Job ID: 320-65226-1 (Continued)

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

Method 537 (modified): The "1" 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 judgement was used to positively identify the analyte.
320-65226-10

Method 537 (modified): The matrix spike (MS) recovery for 8:2 FTS of preparation batch 320-418993 and analytical batch 320-420408 was outside control limits. Sample matrix interference are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit for d7-N-MeFOSE-M and d9-N-EtFOSE-M: MB 320-418992/1-A. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample(s).

Method 537 (modified): Results for samples 320-65226-10, 320-65226-A-10-B MS and 320-65226-A-10-C MSD were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method 537 (modified): Due to the high concentration of 6:2 FTS, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-418993 and analytical batch 320-420974 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 537 (modified): The concentration of 8:2 FTS associated with the following sample exceeded the instrument calibration range: 320-65226-A-1-B MS. This is due to the addition of the matrix spike solution. The analyte have been qualified; however, the peak did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range

Method 537 (modified): Due to the high concentration of 8:2 FTS the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-418992 and analytical batch 320-420405 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 537 (modified): Results for samples 320-65226-1, 320-65226-A-1-B MS and 320-65226-A-1-C MSD were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method 537 (modified): Due to the high concentration of 8:2 FTS, the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-418992 and analytical batch 320-421231 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) precision for 10:2 FTS in preparation batch 320-418992 and analytical batch 320-421231 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

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

General Chemistry

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

Organic Prep

Method SHAKE: The sample, 320-65226-13, was yellow after extraction and final volume. Shake_Bath_14D/PFC_IDA Solid 320-418993

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

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-172

Lab Sample ID: 320-65226-1

Date Collected: 09/29/20 11:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.40	B	0.21	0.030	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoropentanoic acid (PFPeA)	0.66		0.21	0.081	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorohexanoic acid (PFHxA)	0.88	F1	0.21	0.044	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoroheptanoic acid (PFHpA)	0.76		0.21	0.031	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorooctanoic acid (PFOA)	6.2	F1	0.21	0.091	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorononanoic acid (PFNA)	2.1	F1	0.21	0.038	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorodecanoic acid (PFDA)	6.4	F1	0.21	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoroundecanoic acid (PFUnA)	3.3	F1	0.21	0.038	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorododecanoic acid (PFDoA)	1.3		0.21	0.071	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorotridecanoic acid (PFTriA)	0.58		0.21	0.054	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorotetradecanoic acid (PFTeA)	0.46		0.21	0.057	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.16	J	0.21	0.047	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoro-n-octadecanoic acid (PFODA)	0.035	J F2 F1	0.21	0.030	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	0.21	0.033	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorodecanesulfonic acid (PFDS)	0.11	J	0.21	0.041	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorooctanesulfonic acid (PFOS)	12		0.53	0.21	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorooctanesulfonamide (FOSA)	1.2		0.21	0.087	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21	F1	0.21	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorononanesulfonic acid (PFNS)	0.050	J	0.21	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.41	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
4:2 FTS	<2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
6:2 FTS	3.3	F1 F2	2.1	0.16	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
8:2 FTS	16	F2	2.1	0.26	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
NEtFOSA	0.033	J	0.21	0.025	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
NMeFOSA	<0.21		0.21	0.043	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21	F1	0.21	0.063	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
NMeFOSE	<0.21		0.21	0.075	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
NEtFOSE	0.063	J	0.21	0.038	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
F-53B Major	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
HFPO-DA (GenX)	<0.26		0.26	0.12	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
F-53B Minor	<0.21		0.21	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 22:39	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	81		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C4 PFBA	65		25 - 150	10/06/20 05:20	10/09/20 22:39	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-172

Lab Sample ID: 320-65226-1

Date Collected: 09/29/20 11:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.9

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFPeA	73		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFHxA	90		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C4 PFHpA	89		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C4 PFOA	85		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C5 PFNA	98		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFDA	88		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFUnA	94		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFDoA	93		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFTeDA	101		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C3 PFBS	80		25 - 150	10/06/20 05:20	10/09/20 22:39	1
18O2 PFHxS	91		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C4 PFOS	83		25 - 150	10/06/20 05:20	10/09/20 22:39	1
d3-NMeFOSAA	86		25 - 150	10/06/20 05:20	10/09/20 22:39	1
d5-NEtFOSAA	99		25 - 150	10/06/20 05:20	10/09/20 22:39	1
M2-4:2 FTS	273	*5	25 - 150	10/06/20 05:20	10/09/20 22:39	1
M2-6:2 FTS	207	*5	25 - 150	10/06/20 05:20	10/09/20 22:39	1
M2-8:2 FTS	219	*5	25 - 150	10/06/20 05:20	10/09/20 22:39	1
d9-N-EtFOSE-M	61		10 - 120	10/06/20 05:20	10/09/20 22:39	1
d-N-MeFOSA-M	62		25 - 150	10/06/20 05:20	10/09/20 22:39	1
d7-N-MeFOSE-M	62		10 - 120	10/06/20 05:20	10/09/20 22:39	1
d-N-EtFOSA-M	63		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C2 PFHxDA	105		25 - 150	10/06/20 05:20	10/09/20 22:39	1
13C3 HFPO-DA	81		25 - 150	10/06/20 05:20	10/09/20 22:39	1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
10:2 FTS	24	F2	21	5.3	ug/Kg	☆	10/06/20 05:20	10/13/20 10:29	100
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-8:2 FTS	126		25 - 150				10/06/20 05:20	10/13/20 10:29	100

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	11.1		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	88.9		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-156

Lab Sample ID: 320-65226-2

Date Collected: 09/29/20 13:30

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.26	B	0.19	0.027	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoropentanoic acid (PFPeA)	0.61		0.19	0.073	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorohexanoic acid (PFHxA)	0.67		0.19	0.040	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoroheptanoic acid (PFHpA)	0.24		0.19	0.028	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorooctanoic acid (PFOA)	0.20		0.19	0.082	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorononanoic acid (PFNA)	0.63		0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorodecanoic acid (PFDA)	0.22		0.19	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoroundecanoic acid (PFUnA)	0.17	J	0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorododecanoic acid (PFDoA)	<0.19		0.19	0.064	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorotridecanoic acid (PFTriA)	<0.19		0.19	0.049	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorotetradecanoic acid (PFTeA)	<0.19		0.19	0.051	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.044	J	0.19	0.042	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.19		0.19	0.027	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		0.19	0.024	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorohexanesulfonic acid (PFHxS)	0.032	J	0.19	0.029	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		0.19	0.033	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorodecanesulfonic acid (PFDS)	0.075	J	0.19	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.48	0.19	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorooctanesulfonamide (FOSA)	<0.19		0.19	0.078	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluoropentanesulfonic acid (PFPeS)	<0.19		0.19	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorononanesulfonic acid (PFNS)	<0.19		0.19	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.9		1.9	0.37	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.9		1.9	0.35	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
4:2 FTS	<1.9		1.9	0.35	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
6:2 FTS	0.19	J	1.9	0.14	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
8:2 FTS	0.26	J	1.9	0.24	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
10:2 FTS	0.069	J	0.19	0.048	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
NEtFOSA	<0.19		0.19	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
NMeFOSA	<0.19		0.19	0.039	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
Perfluorododecanesulfonic acid (PFDoS)	<0.19		0.19	0.057	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
NMeFOSE	<0.19		0.19	0.068	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
NEtFOSE	<0.19		0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
F-53B Major	<0.19		0.19	0.026	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
HFPO-DA (GenX)	<0.24		0.24	0.10	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
F-53B Minor	<0.19		0.19	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1
DONA	<0.19		0.19	0.017	ug/Kg	☼	10/06/20 05:20	10/09/20 23:07	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C4 PFBA	66		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C5 PFPeA	73		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFHxA	86		25 - 150	10/06/20 05:20	10/09/20 23:07	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-156

Lab Sample ID: 320-65226-2

Date Collected: 09/29/20 13:30

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.9

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFHpA	90		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C4 PFOA	87		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C5 PFNA	93		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFDA	90		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFUnA	88		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFDoA	80		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFTeDA	78		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C3 PFBS	76		25 - 150	10/06/20 05:20	10/09/20 23:07	1
18O2 PFHxS	84		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C4 PFOS	84		25 - 150	10/06/20 05:20	10/09/20 23:07	1
d3-NMeFOSAA	92		25 - 150	10/06/20 05:20	10/09/20 23:07	1
d5-NEtFOSAA	95		25 - 150	10/06/20 05:20	10/09/20 23:07	1
M2-4:2 FTS	249	*5	25 - 150	10/06/20 05:20	10/09/20 23:07	1
M2-6:2 FTS	204	*5	25 - 150	10/06/20 05:20	10/09/20 23:07	1
M2-8:2 FTS	216	*5	25 - 150	10/06/20 05:20	10/09/20 23:07	1
d9-N-EtFOSE-M	55		10 - 120	10/06/20 05:20	10/09/20 23:07	1
d-N-MeFOSA-M	72		25 - 150	10/06/20 05:20	10/09/20 23:07	1
d7-N-MeFOSE-M	57		10 - 120	10/06/20 05:20	10/09/20 23:07	1
d-N-EtFOSA-M	72		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C2 PFHxDA	74		25 - 150	10/06/20 05:20	10/09/20 23:07	1
13C3 HFPO-DA	76		25 - 150	10/06/20 05:20	10/09/20 23:07	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	4.1		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	95.9		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-155

Lab Sample ID: 320-65226-3

Date Collected: 09/29/20 13:45

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 96.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.21	B	0.19	0.027	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoropentanoic acid (PFPeA)	0.28		0.19	0.074	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorohexanoic acid (PFHxA)	0.22		0.19	0.040	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoroheptanoic acid (PFHpA)	0.19		0.19	0.028	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorooctanoic acid (PFOA)	0.30		0.19	0.082	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorononanoic acid (PFNA)	0.40		0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorodecanoic acid (PFDA)	0.35		0.19	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoroundecanoic acid (PFUnA)	0.15	J	0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorododecanoic acid (PFDoA)	<0.19		0.19	0.064	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorotridecanoic acid (PFTriA)	<0.19		0.19	0.049	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorotetradecanoic acid (PFTeA)	<0.19		0.19	0.052	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.046	J	0.19	0.042	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.19		0.19	0.027	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		0.19	0.024	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorohexanesulfonic acid (PFHxS)	0.053	J	0.19	0.030	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.19		0.19	0.033	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorodecanesulfonic acid (PFDS)	<0.19		0.19	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorooctanesulfonic acid (PFOS)	5.1		0.48	0.19	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorooctanesulfonamide (FOSA)	<0.19		0.19	0.078	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluoropentanesulfonic acid (PFPeS)	<0.19		0.19	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorononanesulfonic acid (PFNS)	<0.19		0.19	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.9		1.9	0.37	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.9		1.9	0.35	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
4:2 FTS	<1.9		1.9	0.35	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
6:2 FTS	0.98	J	1.9	0.14	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
8:2 FTS	0.78	J	1.9	0.24	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
10:2 FTS	<0.19		0.19	0.048	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
NEtFOSA	<0.19		0.19	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
NMeFOSA	<0.19		0.19	0.039	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Perfluorododecanesulfonic acid (PFDoS)	<0.19		0.19	0.057	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
NMeFOSE	<0.19		0.19	0.068	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
NEtFOSE	<0.19		0.19	0.034	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
F-53B Major	<0.19		0.19	0.026	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
HFPO-DA (GenX)	<0.24		0.24	0.11	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
F-53B Minor	<0.19		0.19	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
DONA	<0.19		0.19	0.017	ug/Kg	☼	10/06/20 05:20	10/09/20 23:16	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	75		25 - 150				10/06/20 05:20	10/09/20 23:16	1
13C4 PFBA	68		25 - 150				10/06/20 05:20	10/09/20 23:16	1
13C5 PFPeA	72		25 - 150				10/06/20 05:20	10/09/20 23:16	1
13C2 PFHxA	77		25 - 150				10/06/20 05:20	10/09/20 23:16	1
13C4 PFHpA	81		25 - 150				10/06/20 05:20	10/09/20 23:16	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-155

Lab Sample ID: 320-65226-3

Date Collected: 09/29/20 13:45

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 96.3

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	80		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C5 PFNA	88		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C2 PFDA	81		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C2 PFUnA	78		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C2 PFDoA	82		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C2 PFTeDA	90		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C3 PFBS	66		25 - 150	10/06/20 05:20	10/09/20 23:16	1
18O2 PFHxS	73		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C4 PFOS	71		25 - 150	10/06/20 05:20	10/09/20 23:16	1
d3-NMeFOSAA	81		25 - 150	10/06/20 05:20	10/09/20 23:16	1
d5-NEtFOSAA	76		25 - 150	10/06/20 05:20	10/09/20 23:16	1
M2-4:2 FTS	164	*5	25 - 150	10/06/20 05:20	10/09/20 23:16	1
M2-6:2 FTS	117		25 - 150	10/06/20 05:20	10/09/20 23:16	1
M2-8:2 FTS	136		25 - 150	10/06/20 05:20	10/09/20 23:16	1
d9-N-EtFOSE-M	41		10 - 120	10/06/20 05:20	10/09/20 23:16	1
d-N-MeFOSA-M	66		25 - 150	10/06/20 05:20	10/09/20 23:16	1
d7-N-MeFOSE-M	39		10 - 120	10/06/20 05:20	10/09/20 23:16	1
d-N-EtFOSA-M	70		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C2 PFHxDA	85		25 - 150	10/06/20 05:20	10/09/20 23:16	1
13C3 HFPO-DA	74		25 - 150	10/06/20 05:20	10/09/20 23:16	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	3.7		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	96.3		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-154

Lab Sample ID: 320-65226-4

Date Collected: 09/29/20 13:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 91.6

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.30	B	0.21	0.029	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoropentanoic acid (PFPeA)	0.57		0.21	0.079	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorohexanoic acid (PFHxA)	0.44		0.21	0.043	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoroheptanoic acid (PFHpA)	0.36		0.21	0.030	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorooctanoic acid (PFOA)	0.70		0.21	0.089	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorononanoic acid (PFNA)	0.74		0.21	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorodecanoic acid (PFDA)	0.97		0.21	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoroundecanoic acid (PFUnA)	1.5		0.21	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorododecanoic acid (PFDoA)	0.11	J	0.21	0.069	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorotridecanoic acid (PFTriA)	<0.21		0.21	0.053	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorotetradecanoic acid (PFTeA)	<0.21		0.21	0.056	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.054	J	0.21	0.045	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorohexanesulfonic acid (PFHxS)	0.059	J	0.21	0.032	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.036	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorodecanesulfonic acid (PFDS)	<0.21		0.21	0.040	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorooctanesulfonic acid (PFOS)	0.96		0.52	0.21	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorooctanesulfonamide (FOSA)	<0.21		0.21	0.084	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorononanesulfonic acid (PFNS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.40	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.1		2.1	0.38	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
4:2 FTS	<2.1		2.1	0.38	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
6:2 FTS	2.7		2.1	0.15	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
8:2 FTS	4.9		2.1	0.26	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
10:2 FTS	0.16	J	0.21	0.052	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
NEtFOSA	<0.21		0.21	0.025	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
NMeFOSA	<0.21		0.21	0.042	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21		0.21	0.062	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
NMeFOSE	<0.21		0.21	0.073	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
NEtFOSE	<0.21		0.21	0.037	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
F-53B Major	<0.21		0.21	0.028	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
HFPO-DA (GenX)	<0.26		0.26	0.11	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
F-53B Minor	<0.21		0.21	0.023	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:20	10/09/20 23:26	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	68		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C4 PFBA	63		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C5 PFPeA	70		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFHxA	78		25 - 150	10/06/20 05:20	10/09/20 23:26	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-154

Lab Sample ID: 320-65226-4

Date Collected: 09/29/20 13:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 91.6

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFHpA	86		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C4 PFOA	76		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C5 PFNA	78		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFDA	66		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFUnA	65		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFDoA	67		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFTeDA	68		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C3 PFBS	71		25 - 150	10/06/20 05:20	10/09/20 23:26	1
18O2 PFHxS	76		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C4 PFOS	71		25 - 150	10/06/20 05:20	10/09/20 23:26	1
d3-NMeFOSAA	62		25 - 150	10/06/20 05:20	10/09/20 23:26	1
d5-NEtFOSAA	67		25 - 150	10/06/20 05:20	10/09/20 23:26	1
M2-4:2 FTS	231	*5	25 - 150	10/06/20 05:20	10/09/20 23:26	1
M2-6:2 FTS	184	*5	25 - 150	10/06/20 05:20	10/09/20 23:26	1
M2-8:2 FTS	169	*5	25 - 150	10/06/20 05:20	10/09/20 23:26	1
d9-N-EtFOSE-M	29		10 - 120	10/06/20 05:20	10/09/20 23:26	1
d-N-MeFOSA-M	35		25 - 150	10/06/20 05:20	10/09/20 23:26	1
d7-N-MeFOSE-M	31		10 - 120	10/06/20 05:20	10/09/20 23:26	1
d-N-EtFOSA-M	34		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C2 PFHxDA	65		25 - 150	10/06/20 05:20	10/09/20 23:26	1
13C3 HFPO-DA	70		25 - 150	10/06/20 05:20	10/09/20 23:26	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	8.4		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	91.6		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-153

Lab Sample ID: 320-65226-5

Date Collected: 09/29/20 14:15

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 91.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.2	B	0.20	0.028	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoropentanoic acid (PFPeA)	6.8		0.20	0.077	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorohexanoic acid (PFHxA)	3.2		0.20	0.042	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoroheptanoic acid (PFHpA)	4.7		0.20	0.029	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorooctanoic acid (PFOA)	2.2		0.20	0.086	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorononanoic acid (PFNA)	0.74		0.20	0.036	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorodecanoic acid (PFDA)	0.14	J	0.20	0.022	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20	0.036	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.067	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.051	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.054	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.045	J	0.20	0.044	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.028	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorohexanesulfonic acid (PFHxS)	0.069	J	0.20	0.031	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.035	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.039	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorooctanesulfonic acid (PFOS)	2.3		0.50	0.20	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.082	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.39	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
4:2 FTS	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
6:2 FTS	0.46	J	2.0	0.15	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
10:2 FTS	<0.20		0.20	0.050	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
NMeFOSA	<0.20		0.20	0.041	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.060	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
NMeFOSE	<0.20		0.20	0.071	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
NEtFOSE	<0.20		0.20	0.036	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
F-53B Major	<0.20		0.20	0.027	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
DONA	<0.20		0.20	0.018	ug/Kg	☼	10/06/20 05:20	10/09/20 23:54	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	80		25 - 150				10/06/20 05:20	10/09/20 23:54	1
13C4 PFBA	64		25 - 150				10/06/20 05:20	10/09/20 23:54	1
13C5 PFPeA	70		25 - 150				10/06/20 05:20	10/09/20 23:54	1
13C2 PFHxA	81		25 - 150				10/06/20 05:20	10/09/20 23:54	1
13C4 PFHpA	84		25 - 150				10/06/20 05:20	10/09/20 23:54	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-153

Lab Sample ID: 320-65226-5

Date Collected: 09/29/20 14:15

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 91.9

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	83		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C5 PFNA	86		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C2 PFDA	80		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C2 PFUnA	86		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C2 PFDoA	92		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C2 PFTeDA	95		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C3 PFBS	72		25 - 150	10/06/20 05:20	10/09/20 23:54	1
18O2 PFHxS	80		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C4 PFOS	78		25 - 150	10/06/20 05:20	10/09/20 23:54	1
d3-NMeFOSAA	79		25 - 150	10/06/20 05:20	10/09/20 23:54	1
d5-NEtFOSAA	76		25 - 150	10/06/20 05:20	10/09/20 23:54	1
M2-4:2 FTS	206	*5	25 - 150	10/06/20 05:20	10/09/20 23:54	1
M2-6:2 FTS	187	*5	25 - 150	10/06/20 05:20	10/09/20 23:54	1
M2-8:2 FTS	209	*5	25 - 150	10/06/20 05:20	10/09/20 23:54	1
d9-N-EtFOSE-M	44		10 - 120	10/06/20 05:20	10/09/20 23:54	1
d-N-MeFOSA-M	60		25 - 150	10/06/20 05:20	10/09/20 23:54	1
d7-N-MeFOSE-M	45		10 - 120	10/06/20 05:20	10/09/20 23:54	1
d-N-EtFOSA-M	63		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C2 PFHxDA	90		25 - 150	10/06/20 05:20	10/09/20 23:54	1
13C3 HFPO-DA	70		25 - 150	10/06/20 05:20	10/09/20 23:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.1		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	91.9		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-152

Lab Sample ID: 320-65226-6

Date Collected: 09/29/20 14:25

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.6

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.21	J B	0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoropentanoic acid (PFPeA)	0.36		0.22	0.083	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorohexanoic acid (PFHxA)	0.19	J	0.22	0.045	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoroheptanoic acid (PFHpA)	0.15	J	0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorooctanoic acid (PFOA)	0.57		0.22	0.093	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorononanoic acid (PFNA)	0.41		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorodecanoic acid (PFDA)	<0.22		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoroundecanoic acid (PFUnA)	<0.22		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorododecanoic acid (PFDoA)	<0.22		0.22	0.072	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorotridecanoic acid (PFTriA)	<0.22		0.22	0.055	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorotetradecanoic acid (PFTeA)	<0.22		0.22	0.058	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.048	J	0.22	0.047	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorobutanesulfonic acid (PFBS)	<0.22		0.22	0.027	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorohexanesulfonic acid (PFHxS)	<0.22		0.22	0.033	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		0.22	0.038	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorodecanesulfonic acid (PFDS)	<0.22		0.22	0.042	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.54	0.22	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorooctanesulfonamide (FOSA)	<0.22		0.22	0.088	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluoropentanesulfonic acid (PFPeS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorononanesulfonic acid (PFNS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.2	0.42	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.2	0.40	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
4:2 FTS	<2.2		2.2	0.40	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
6:2 FTS	0.78	J	2.2	0.16	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
8:2 FTS	<2.2		2.2	0.27	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
10:2 FTS	<0.22		0.22	0.054	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
NEtFOSA	<0.22		0.22	0.026	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
NMeFOSA	<0.22		0.22	0.044	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Perfluorododecanesulfonic acid (PFDoS)	<0.22		0.22	0.065	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
NMeFOSE	<0.22		0.22	0.077	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
NEtFOSE	<0.22		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
F-53B Major	<0.22		0.22	0.029	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
F-53B Minor	<0.22		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
DONA	<0.22		0.22	0.019	ug/Kg	☼	10/06/20 05:20	10/10/20 00:03	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	70		25 - 150				10/06/20 05:20	10/10/20 00:03	1
13C4 PFBA	74		25 - 150				10/06/20 05:20	10/10/20 00:03	1
13C5 PFPeA	75		25 - 150				10/06/20 05:20	10/10/20 00:03	1
13C2 PFHxA	83		25 - 150				10/06/20 05:20	10/10/20 00:03	1
13C4 PFHpA	84		25 - 150				10/06/20 05:20	10/10/20 00:03	1
13C4 PFOA	76		25 - 150				10/06/20 05:20	10/10/20 00:03	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-152

Lab Sample ID: 320-65226-6

Date Collected: 09/29/20 14:25

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.6

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C5 PFNA	78		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C2 PFDA	69		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C2 PFUnA	63		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C2 PFDoA	60		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C2 PFTeDA	60		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C3 PFBS	77		25 - 150	10/06/20 05:20	10/10/20 00:03	1
18O2 PFHxS	81		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C4 PFOS	70		25 - 150	10/06/20 05:20	10/10/20 00:03	1
d3-NMeFOSAA	68		25 - 150	10/06/20 05:20	10/10/20 00:03	1
d5-NEtFOSAA	64		25 - 150	10/06/20 05:20	10/10/20 00:03	1
M2-4:2 FTS	183	*5	25 - 150	10/06/20 05:20	10/10/20 00:03	1
M2-6:2 FTS	132		25 - 150	10/06/20 05:20	10/10/20 00:03	1
M2-8:2 FTS	142		25 - 150	10/06/20 05:20	10/10/20 00:03	1
d9-N-EtFOSE-M	48		10 - 120	10/06/20 05:20	10/10/20 00:03	1
d-N-MeFOSA-M	58		25 - 150	10/06/20 05:20	10/10/20 00:03	1
d7-N-MeFOSE-M	49		10 - 120	10/06/20 05:20	10/10/20 00:03	1
d-N-EtFOSA-M	57		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C2 PFHxDA	56		25 - 150	10/06/20 05:20	10/10/20 00:03	1
13C3 HFPO-DA	79		25 - 150	10/06/20 05:20	10/10/20 00:03	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	11.4		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	88.6		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-151

Lab Sample ID: 320-65226-7

Date Collected: 09/29/20 14:35

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.2

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.68	B	0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoropentanoic acid (PFPeA)	1.8		0.22	0.083	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorohexanoic acid (PFHxA)	1.0		0.22	0.045	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoroheptanoic acid (PFHpA)	1.9		0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorooctanoic acid (PFOA)	3.0		0.22	0.093	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorononanoic acid (PFNA)	3.8		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorodecanoic acid (PFDA)	2.4		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoroundecanoic acid (PFUnA)	0.42		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorododecanoic acid (PFDoA)	<0.22		0.22	0.072	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorotridecanoic acid (PFTriA)	<0.22		0.22	0.055	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorotetradecanoic acid (PFTeA)	<0.22		0.22	0.058	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.048	J	0.22	0.047	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorobutanesulfonic acid (PFBS)	<0.22		0.22	0.027	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorohexanesulfonic acid (PFHxS)	0.33		0.22	0.033	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		0.22	0.038	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorodecanesulfonic acid (PFDS)	<0.22		0.22	0.042	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorooctanesulfonic acid (PFOS)	0.59		0.54	0.22	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorooctanesulfonamide (FOSA)	<0.22		0.22	0.088	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluoropentanesulfonic acid (PFPeS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorononanesulfonic acid (PFNS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.2	0.42	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.2	0.40	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
4:2 FTS	<2.2		2.2	0.40	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
6:2 FTS	1.1	J	2.2	0.16	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
8:2 FTS	<2.2		2.2	0.27	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
10:2 FTS	1.4		0.22	0.054	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
NEtFOSA	<0.22		0.22	0.026	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
NMeFOSA	<0.22		0.22	0.044	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Perfluorododecanesulfonic acid (PFDoS)	<0.22		0.22	0.065	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
NMeFOSE	<0.22		0.22	0.076	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
NEtFOSE	<0.22		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
F-53B Major	<0.22		0.22	0.029	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
F-53B Minor	<0.22		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
DONA	<0.22		0.22	0.019	ug/Kg	☼	10/06/20 05:20	10/10/20 00:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	76		25 - 150				10/06/20 05:20	10/10/20 00:12	1
13C4 PFBA	73		25 - 150				10/06/20 05:20	10/10/20 00:12	1
13C5 PFPeA	77		25 - 150				10/06/20 05:20	10/10/20 00:12	1
13C2 PFHxA	81		25 - 150				10/06/20 05:20	10/10/20 00:12	1
13C4 PFHpA	85		25 - 150				10/06/20 05:20	10/10/20 00:12	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-151

Lab Sample ID: 320-65226-7

Date Collected: 09/29/20 14:35

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.2

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	84		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C5 PFNA	83		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C2 PFDA	75		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C2 PFUnA	65		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C2 PFDoA	65		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C2 PFTeDA	70		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C3 PFBS	75		25 - 150	10/06/20 05:20	10/10/20 00:12	1
18O2 PFHxS	81		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C4 PFOS	76		25 - 150	10/06/20 05:20	10/10/20 00:12	1
d3-NMeFOSAA	77		25 - 150	10/06/20 05:20	10/10/20 00:12	1
d5-NEtFOSAA	73		25 - 150	10/06/20 05:20	10/10/20 00:12	1
M2-4:2 FTS	208	*5	25 - 150	10/06/20 05:20	10/10/20 00:12	1
M2-6:2 FTS	162	*5	25 - 150	10/06/20 05:20	10/10/20 00:12	1
M2-8:2 FTS	184	*5	25 - 150	10/06/20 05:20	10/10/20 00:12	1
d9-N-EtFOSE-M	54		10 - 120	10/06/20 05:20	10/10/20 00:12	1
d-N-MeFOSA-M	60		25 - 150	10/06/20 05:20	10/10/20 00:12	1
d7-N-MeFOSE-M	56		10 - 120	10/06/20 05:20	10/10/20 00:12	1
d-N-EtFOSA-M	62		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C2 PFHxDA	65		25 - 150	10/06/20 05:20	10/10/20 00:12	1
13C3 HFPO-DA	79		25 - 150	10/06/20 05:20	10/10/20 00:12	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	11.8		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	88.2		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-150

Lab Sample ID: 320-65226-8

Date Collected: 09/29/20 14:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 86.6

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.6	B	0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoropentanoic acid (PFPeA)	3.6		0.22	0.085	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorohexanoic acid (PFHxA)	1.7		0.22	0.046	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoroheptanoic acid (PFHpA)	1.8		0.22	0.032	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorooctanoic acid (PFOA)	1.1		0.22	0.094	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorononanoic acid (PFNA)	1.3		0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorodecanoic acid (PFDA)	0.79		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoroundecanoic acid (PFUnA)	0.32		0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorododecanoic acid (PFDoA)	<0.22		0.22	0.074	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorotridecanoic acid (PFTriA)	<0.22		0.22	0.056	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorotetradecanoic acid (PFTeA)	<0.22		0.22	0.059	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.049	J	0.22	0.048	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorobutanesulfonic acid (PFBS)	<0.22		0.22	0.027	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorohexanesulfonic acid (PFHxS)	0.055	J	0.22	0.034	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		0.22	0.038	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorodecanesulfonic acid (PFDS)	<0.22		0.22	0.043	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorooctanesulfonic acid (PFOS)	2.0		0.55	0.22	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorooctanesulfonamide (FOSA)	<0.22		0.22	0.090	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluoropentanesulfonic acid (PFPeS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorononanesulfonic acid (PFNS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.2	0.43	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.2	0.41	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
4:2 FTS	<2.2		2.2	0.41	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
6:2 FTS	0.46	J	2.2	0.16	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
8:2 FTS	<2.2		2.2	0.27	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
10:2 FTS	<0.22		0.22	0.055	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
NEtFOSA	<0.22		0.22	0.026	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
NMeFOSA	<0.22		0.22	0.045	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
Perfluorododecanesulfonic acid (PFDoS)	<0.22		0.22	0.066	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
NMeFOSE	<0.22		0.22	0.078	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
NEtFOSE	<0.22		0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
F-53B Major	<0.22		0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
F-53B Minor	<0.22		0.22	0.024	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1
DONA	<0.22		0.22	0.020	ug/Kg	☼	10/06/20 05:20	10/10/20 00:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	68		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C4 PFBA	57		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C5 PFPeA	67		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFHxA	79		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C4 PFHpA	86		25 - 150	10/06/20 05:20	10/10/20 00:22	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-150

Lab Sample ID: 320-65226-8

Date Collected: 09/29/20 14:50

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 86.6

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	78		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C5 PFNA	78		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFDA	71		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFUnA	76		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFDoA	76		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFTeDA	78		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C3 PFBS	72		25 - 150	10/06/20 05:20	10/10/20 00:22	1
18O2 PFHxS	79		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C4 PFOS	73		25 - 150	10/06/20 05:20	10/10/20 00:22	1
d3-NMeFOSAA	86		25 - 150	10/06/20 05:20	10/10/20 00:22	1
d5-NEtFOSAA	86		25 - 150	10/06/20 05:20	10/10/20 00:22	1
M2-4:2 FTS	254	*5	25 - 150	10/06/20 05:20	10/10/20 00:22	1
M2-6:2 FTS	231	*5	25 - 150	10/06/20 05:20	10/10/20 00:22	1
M2-8:2 FTS	211	*5	25 - 150	10/06/20 05:20	10/10/20 00:22	1
d9-N-EtFOSE-M	38		10 - 120	10/06/20 05:20	10/10/20 00:22	1
d-N-MeFOSA-M	43		25 - 150	10/06/20 05:20	10/10/20 00:22	1
d7-N-MeFOSE-M	38		10 - 120	10/06/20 05:20	10/10/20 00:22	1
d-N-EtFOSA-M	45		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C2 PFHxDA	87		25 - 150	10/06/20 05:20	10/10/20 00:22	1
13C3 HFPO-DA	68		25 - 150	10/06/20 05:20	10/10/20 00:22	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	13.4		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	86.6		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-149

Lab Sample ID: 320-65226-9

Date Collected: 09/29/20 15:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 87.5

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.27	B	0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoropentanoic acid (PFPeA)	0.75		0.22	0.086	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorohexanoic acid (PFHxA)	0.34		0.22	0.047	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoroheptanoic acid (PFHpA)	0.37		0.22	0.032	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorooctanoic acid (PFOA)	0.72		0.22	0.096	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorononanoic acid (PFNA)	2.4		0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorodecanoic acid (PFDA)	0.097	J I	0.22	0.025	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoroundecanoic acid (PFUnA)	0.10	J	0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorododecanoic acid (PFDoA)	<0.22		0.22	0.075	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorotridecanoic acid (PFTriA)	<0.22		0.22	0.057	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorotetradecanoic acid (PFTeA)	<0.22		0.22	0.060	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.055	J	0.22	0.049	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		0.22	0.031	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorobutanesulfonic acid (PFBS)	<0.22		0.22	0.028	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorohexanesulfonic acid (PFHxS)	<0.22		0.22	0.035	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		0.22	0.039	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorodecanesulfonic acid (PFDS)	<0.22		0.22	0.044	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.56	0.22	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorooctanesulfonamide (FOSA)	<0.22		0.22	0.092	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluoropentanesulfonic acid (PFPeS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorononanesulfonic acid (PFNS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.2	0.44	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.2	0.41	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
4:2 FTS	<2.2		2.2	0.41	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
6:2 FTS	0.47	J	2.2	0.17	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
8:2 FTS	1.5	J	2.2	0.28	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
10:2 FTS	<0.22		0.22	0.056	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
NEtFOSA	<0.22		0.22	0.027	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
NMeFOSA	<0.22		0.22	0.046	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
Perfluorododecanesulfonic acid (PFDoS)	<0.22		0.22	0.067	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
NMeFOSE	<0.22		0.22	0.080	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
NEtFOSE	<0.22		0.22	0.040	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
F-53B Major	<0.22		0.22	0.030	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
HFPO-DA (GenX)	<0.28		0.28	0.12	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
F-53B Minor	<0.22		0.22	0.025	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1
DONA	<0.22		0.22	0.020	ug/Kg	☼	10/06/20 05:20	10/10/20 00:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	81		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C4 PFBA	68		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C5 PFPeA	74		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFHxA	85		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C4 PFHpA	84		25 - 150	10/06/20 05:20	10/10/20 00:31	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-149

Lab Sample ID: 320-65226-9

Date Collected: 09/29/20 15:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 87.5

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	81		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C5 PFNA	85		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFDA	79		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFUnA	80		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFDoA	83		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFTeDA	90		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C3 PFBS	76		25 - 150	10/06/20 05:20	10/10/20 00:31	1
18O2 PFHxS	82		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C4 PFOS	77		25 - 150	10/06/20 05:20	10/10/20 00:31	1
d3-NMeFOSAA	93		25 - 150	10/06/20 05:20	10/10/20 00:31	1
d5-NEtFOSAA	88		25 - 150	10/06/20 05:20	10/10/20 00:31	1
M2-4:2 FTS	231	*5	25 - 150	10/06/20 05:20	10/10/20 00:31	1
M2-6:2 FTS	165	*5	25 - 150	10/06/20 05:20	10/10/20 00:31	1
M2-8:2 FTS	209	*5	25 - 150	10/06/20 05:20	10/10/20 00:31	1
d9-N-EtFOSE-M	35		10 - 120	10/06/20 05:20	10/10/20 00:31	1
d-N-MeFOSA-M	44		25 - 150	10/06/20 05:20	10/10/20 00:31	1
d7-N-MeFOSE-M	36		10 - 120	10/06/20 05:20	10/10/20 00:31	1
d-N-EtFOSA-M	44		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C2 PFHxDA	85		25 - 150	10/06/20 05:20	10/10/20 00:31	1
13C3 HFPO-DA	74		25 - 150	10/06/20 05:20	10/10/20 00:31	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	12.5		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	87.5		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-148

Lab Sample ID: 320-65226-10

Date Collected: 09/29/20 15:20

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 86.6

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.4	B	0.22	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoropentanoic acid (PFPeA)	5.4		0.22	0.086	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorohexanoic acid (PFHxA)	2.4		0.22	0.047	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoroheptanoic acid (PFHpA)	0.99		0.22	0.033	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorooctanoic acid (PFOA)	0.81		0.22	0.097	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorononanoic acid (PFNA)	0.55		0.22	0.040	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorodecanoic acid (PFDA)	1.0		0.22	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoroundecanoic acid (PFUnA)	0.22		0.22	0.040	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorododecanoic acid (PFDoA)	<0.22		0.22	0.075	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorotridecanoic acid (PFTriA)	<0.22		0.22	0.057	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.22		0.22	0.061	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.053	J	0.22	0.049	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		0.22	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorobutanesulfonic acid (PFBS)	<0.22		0.22	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorohexanesulfonic acid (PFHxS)	0.069	J I	0.22	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		0.22	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.22		0.22	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorooctanesulfonic acid (PFOS)	0.54	J	0.56	0.22	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorooctanesulfonamide (FOSA)	<0.22		0.22	0.092	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluoropentanesulfonic acid (PFPeS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorononanesulfonic acid (PFNS)	<0.22		0.22	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.2	0.44	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.2	0.42	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
4:2 FTS	<2.2		2.2	0.42	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
8:2 FTS	1.9	J F1	2.2	0.28	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
10:2 FTS	0.067	J	0.22	0.056	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
NEtFOSA	<0.22		0.22	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
NMeFOSA	<0.22		0.22	0.046	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.22		0.22	0.067	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
NMeFOSE	<0.22		0.22	0.080	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
NEtFOSE	0.052	J	0.22	0.040	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
F-53B Major	<0.22		0.22	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
HFPO-DA (GenX)	<0.28		0.28	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
F-53B Minor	<0.22		0.22	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
DONA	<0.22		0.22	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 01:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	84		25 - 150				10/06/20 05:26	10/10/20 01:46	1
13C4 PFBA	67		25 - 150				10/06/20 05:26	10/10/20 01:46	1
13C5 PFPeA	75		25 - 150				10/06/20 05:26	10/10/20 01:46	1
13C2 PFHxA	82		25 - 150				10/06/20 05:26	10/10/20 01:46	1
13C4 PFHpA	88		25 - 150				10/06/20 05:26	10/10/20 01:46	1
13C4 PFOA	81		25 - 150				10/06/20 05:26	10/10/20 01:46	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-148

Lab Sample ID: 320-65226-10

Date Collected: 09/29/20 15:20

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 86.6

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

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C5 PFNA	87		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C2 PFDA	83		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C2 PFUnA	92		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C2 PFDoA	90		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C2 PFTeDA	95		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C3 PFBS	70		25 - 150	10/06/20 05:26	10/10/20 01:46	1
18O2 PFHxS	78		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C4 PFOS	78		25 - 150	10/06/20 05:26	10/10/20 01:46	1
d3-NMeFOSAA	104		25 - 150	10/06/20 05:26	10/10/20 01:46	1
d5-NEtFOSAA	98		25 - 150	10/06/20 05:26	10/10/20 01:46	1
M2-4:2 FTS	218	*5	25 - 150	10/06/20 05:26	10/10/20 01:46	1
M2-8:2 FTS	162	*5	25 - 150	10/06/20 05:26	10/10/20 01:46	1
d9-N-EtFOSE-M	25		10 - 120	10/06/20 05:26	10/10/20 01:46	1
d-N-MeFOSA-M	36		25 - 150	10/06/20 05:26	10/10/20 01:46	1
d7-N-MeFOSE-M	27		10 - 120	10/06/20 05:26	10/10/20 01:46	1
d-N-EtFOSA-M	31		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C2 PFHxDA	97		25 - 150	10/06/20 05:26	10/10/20 01:46	1
13C3 HFPO-DA	78		25 - 150	10/06/20 05:26	10/10/20 01:46	1

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

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
6:2 FTS	37		22	1.7	ug/Kg	☼	10/06/20 05:26	10/12/20 11:55	10
<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>			
M2-6:2 FTS	106		25 - 150	10/06/20 05:26	10/12/20 11:55	10			

General Chemistry

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Percent Moisture	13.4		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	86.6		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-147

Lab Sample ID: 320-65226-11

Date Collected: 09/29/20 15:30

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 94.7

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.33	B	0.20	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoropentanoic acid (PFPeA)	0.50		0.20	0.078	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorohexanoic acid (PFHxA)	0.25		0.20	0.042	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoroheptanoic acid (PFHpA)	0.24		0.20	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorooctanoic acid (PFOA)	0.32		0.20	0.087	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorononanoic acid (PFNA)	0.66		0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorodecanoic acid (PFDA)	0.31		0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.068	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.051	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.054	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.044	J	0.20	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorohexanesulfonic acid (PFHxS)	0.033	J	0.20	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorooctanesulfonic acid (PFOS)	3.6		0.50	0.20	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.083	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
4:2 FTS	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
6:2 FTS	<2.0		2.0	0.15	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
10:2 FTS	<0.20		0.20	0.050	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
NMeFOSA	<0.20		0.20	0.041	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.061	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
NMeFOSE	<0.20		0.20	0.072	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
NEtFOSE	<0.20		0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
F-53B Major	<0.20		0.20	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1
DONA	<0.20		0.20	0.018	ug/Kg	☼	10/06/20 05:26	10/10/20 02:14	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	84		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C4 PFBA	64		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C5 PFPeA	71		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFHxA	84		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C4 PFHpA	85		25 - 150	10/06/20 05:26	10/10/20 02:14	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-147

Lab Sample ID: 320-65226-11

Date Collected: 09/29/20 15:30

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 94.7

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	81		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C5 PFNA	90		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFDA	85		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFUnA	85		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFDoA	95		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFTeDA	97		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C3 PFBS	73		25 - 150	10/06/20 05:26	10/10/20 02:14	1
18O2 PFHxS	79		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C4 PFOS	78		25 - 150	10/06/20 05:26	10/10/20 02:14	1
d3-NMeFOSAA	95		25 - 150	10/06/20 05:26	10/10/20 02:14	1
d5-NEtFOSAA	94		25 - 150	10/06/20 05:26	10/10/20 02:14	1
M2-4:2 FTS	247	*5	25 - 150	10/06/20 05:26	10/10/20 02:14	1
M2-6:2 FTS	164	*5	25 - 150	10/06/20 05:26	10/10/20 02:14	1
M2-8:2 FTS	189	*5	25 - 150	10/06/20 05:26	10/10/20 02:14	1
d9-N-EtFOSE-M	49		10 - 120	10/06/20 05:26	10/10/20 02:14	1
d-N-MeFOSA-M	53		25 - 150	10/06/20 05:26	10/10/20 02:14	1
d7-N-MeFOSE-M	42		10 - 120	10/06/20 05:26	10/10/20 02:14	1
d-N-EtFOSA-M	55		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C2 PFHxDA	92		25 - 150	10/06/20 05:26	10/10/20 02:14	1
13C3 HFPO-DA	77		25 - 150	10/06/20 05:26	10/10/20 02:14	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	5.3		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	94.7		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-146

Lab Sample ID: 320-65226-12

Date Collected: 09/29/20 15:40

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.4

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.64	B	0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoropentanoic acid (PFPeA)	1.2		0.21	0.082	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorohexanoic acid (PFHxA)	0.36		0.21	0.045	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoroheptanoic acid (PFHpA)	0.57		0.21	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorooctanoic acid (PFOA)	0.32		0.21	0.092	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorononanoic acid (PFNA)	0.38		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorodecanoic acid (PFDA)	0.12	J	0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoroundecanoic acid (PFUnA)	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorododecanoic acid (PFDoA)	<0.21		0.21	0.072	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorotridecanoic acid (PFTriA)	<0.21		0.21	0.054	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorotetradecanoic acid (PFTeA)	<0.21		0.21	0.058	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.051	J	0.21	0.047	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.21		0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorohexanesulfonic acid (PFHxS)	<0.21		0.21	0.033	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.037	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorodecanesulfonic acid (PFDS)	<0.21		0.21	0.042	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorooctanesulfonic acid (PFOS)	1.1		0.53	0.21	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorooctanesulfonamide (FOSA)	<0.21		0.21	0.088	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorononanesulfonic acid (PFNS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.42	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.1		2.1	0.40	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
4:2 FTS	<2.1		2.1	0.40	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
6:2 FTS	<2.1		2.1	0.16	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
8:2 FTS	<2.1		2.1	0.27	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
10:2 FTS	<0.21		0.21	0.053	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
NEtFOSA	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
NMeFOSA	<0.21		0.21	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21		0.21	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
NMeFOSE	<0.21		0.21	0.076	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
NEtFOSE	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
F-53B Major	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
F-53B Minor	<0.21		0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:26	10/10/20 02:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	78		25 - 150				10/06/20 05:26	10/10/20 02:23	1
13C4 PFBA	61		25 - 150				10/06/20 05:26	10/10/20 02:23	1
13C5 PFPeA	63		25 - 150				10/06/20 05:26	10/10/20 02:23	1
13C2 PFHxA	76		25 - 150				10/06/20 05:26	10/10/20 02:23	1
13C4 PFHpA	77		25 - 150				10/06/20 05:26	10/10/20 02:23	1
13C4 PFOA	74		25 - 150				10/06/20 05:26	10/10/20 02:23	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-146

Lab Sample ID: 320-65226-12

Date Collected: 09/29/20 15:40

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.4

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

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C5 PFNA	80		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C2 PFDA	79		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C2 PFUnA	79		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C2 PFDoA	82		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C2 PFTeDA	89		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C3 PFBS	66		25 - 150	10/06/20 05:26	10/10/20 02:23	1
18O2 PFHxS	74		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C4 PFOS	74		25 - 150	10/06/20 05:26	10/10/20 02:23	1
d3-NMeFOSAA	93		25 - 150	10/06/20 05:26	10/10/20 02:23	1
d5-NEtFOSAA	86		25 - 150	10/06/20 05:26	10/10/20 02:23	1
M2-4:2 FTS	195	*5	25 - 150	10/06/20 05:26	10/10/20 02:23	1
M2-6:2 FTS	151	*5	25 - 150	10/06/20 05:26	10/10/20 02:23	1
M2-8:2 FTS	172	*5	25 - 150	10/06/20 05:26	10/10/20 02:23	1
d9-N-EtFOSE-M	30		10 - 120	10/06/20 05:26	10/10/20 02:23	1
d-N-MeFOSA-M	43		25 - 150	10/06/20 05:26	10/10/20 02:23	1
d7-N-MeFOSE-M	32		10 - 120	10/06/20 05:26	10/10/20 02:23	1
d-N-EtFOSA-M	40		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C2 PFHxDA	84		25 - 150	10/06/20 05:26	10/10/20 02:23	1
13C3 HFPO-DA	68		25 - 150	10/06/20 05:26	10/10/20 02:23	1

General Chemistry

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Percent Moisture	11.6		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	88.4		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-145

Lab Sample ID: 320-65226-13

Date Collected: 09/29/20 16:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 53.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.55	B	0.36	0.050	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoropentanoic acid (PFPeA)	2.2		0.36	0.14	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorohexanoic acid (PFHxA)	2.3		0.36	0.075	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoroheptanoic acid (PFHpA)	3.0		0.36	0.052	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorooctanoic acid (PFOA)	13		0.36	0.15	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorononanoic acid (PFNA)	6.5		0.36	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorodecanoic acid (PFDA)	6.4		0.36	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoroundecanoic acid (PFUnA)	4.0		0.36	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorododecanoic acid (PFDoA)	1.7		0.36	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorotridecanoic acid (PFTriA)	1.1		0.36	0.091	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorotetradecanoic acid (PFTeA)	0.70		0.36	0.097	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.18	J	0.36	0.079	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.36		0.36	0.050	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorobutanesulfonic acid (PFBS)	<0.36		0.36	0.045	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorohexanesulfonic acid (PFHxS)	2.1		0.36	0.055	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.11	J	0.36	0.063	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorodecanesulfonic acid (PFDS)	0.10	J	0.36	0.070	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorooctanesulfonic acid (PFOS)	15		0.89	0.36	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorooctanesulfonamide (FOSA)	0.33	J	0.36	0.15	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluoropentanesulfonic acid (PFPeS)	<0.36		0.36	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorononanesulfonic acid (PFNS)	0.036	J	0.36	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<3.6		3.6	0.70	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<3.6		3.6	0.66	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
4:2 FTS	<3.6		3.6	0.66	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
6:2 FTS	0.98	J	3.6	0.27	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
8:2 FTS	4.8		3.6	0.45	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
10:2 FTS	1.2		0.36	0.089	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
NEtFOSA	<0.36		0.36	0.043	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
NMeFOSA	<0.36		0.36	0.073	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
Perfluorododecanesulfonic acid (PFDoS)	<0.36		0.36	0.11	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
NMeFOSE	<0.36		0.36	0.13	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
NEtFOSE	0.47		0.36	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
F-53B Major	<0.36		0.36	0.048	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
HFPO-DA (GenX)	<0.45		0.45	0.20	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
F-53B Minor	<0.36		0.36	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1
DONA	<0.36		0.36	0.032	ug/Kg	☼	10/06/20 05:26	10/10/20 02:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C8 FOSA	62		25 - 150	10/06/20 05:26	10/10/20 02:33	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-145

Lab Sample ID: 320-65226-13

Date Collected: 09/29/20 16:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 53.9

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	50		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C5 PFPeA	57		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFHxA	75		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C4 PFHpA	80		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C4 PFOA	74		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C5 PFNA	82		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFDA	77		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFUnA	81		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFDoA	81		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFTeDA	82		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C3 PFBS	75		25 - 150	10/06/20 05:26	10/10/20 02:33	1
18O2 PFHxS	85		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C4 PFOS	84		25 - 150	10/06/20 05:26	10/10/20 02:33	1
d3-NMeFOSAA	72		25 - 150	10/06/20 05:26	10/10/20 02:33	1
d5-NEtFOSAA	76		25 - 150	10/06/20 05:26	10/10/20 02:33	1
M2-4:2 FTS	253	*5	25 - 150	10/06/20 05:26	10/10/20 02:33	1
M2-6:2 FTS	227	*5	25 - 150	10/06/20 05:26	10/10/20 02:33	1
M2-8:2 FTS	221	*5	25 - 150	10/06/20 05:26	10/10/20 02:33	1
d9-N-EtFOSE-M	39		10 - 120	10/06/20 05:26	10/10/20 02:33	1
d-N-MeFOSA-M	48		25 - 150	10/06/20 05:26	10/10/20 02:33	1
d7-N-MeFOSE-M	35		10 - 120	10/06/20 05:26	10/10/20 02:33	1
d-N-EtFOSA-M	48		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C2 PFHxDA	87		25 - 150	10/06/20 05:26	10/10/20 02:33	1
13C3 HFPO-DA	68		25 - 150	10/06/20 05:26	10/10/20 02:33	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	46.1		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	53.9		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-144

Lab Sample ID: 320-65226-14

Date Collected: 09/29/20 16:15

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 89.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.15	J B	0.21	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoropentanoic acid (PFPeA)	0.14	J	0.21	0.081	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorohexanoic acid (PFHxA)	0.12	J	0.21	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoroheptanoic acid (PFHpA)	0.12	J	0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorooctanoic acid (PFOA)	0.33		0.21	0.090	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorononanoic acid (PFNA)	1.6		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorodecanoic acid (PFDA)	0.35		0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoroundecanoic acid (PFUnA)	0.039	J	0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorododecanoic acid (PFDoA)	<0.21		0.21	0.070	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorotridecanoic acid (PFTriA)	<0.21		0.21	0.053	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorotetradecanoic acid (PFTeA)	<0.21		0.21	0.057	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.048	J	0.21	0.046	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorohexanesulfonic acid (PFHxS)	0.049	J	0.21	0.032	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.037	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorodecanesulfonic acid (PFDS)	<0.21		0.21	0.041	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorooctanesulfonic acid (PFOS)	5.3		0.52	0.21	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorooctanesulfonamide (FOSA)	<0.21		0.21	0.086	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorononanesulfonic acid (PFNS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.41	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
4:2 FTS	<2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
6:2 FTS	<2.1		2.1	0.16	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
8:2 FTS	<2.1		2.1	0.26	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
10:2 FTS	<0.21		0.21	0.052	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
NEtFOSA	<0.21		0.21	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
NMeFOSA	<0.21		0.21	0.043	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21		0.21	0.063	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
NMeFOSE	<0.21		0.21	0.074	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
NEtFOSE	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
F-53B Major	<0.21		0.21	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
HFPO-DA (GenX)	<0.26		0.26	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
F-53B Minor	<0.21		0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:26	10/10/20 03:01	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	79		25 - 150				10/06/20 05:26	10/10/20 03:01	1
13C4 PFBA	70		25 - 150				10/06/20 05:26	10/10/20 03:01	1
13C5 PFPeA	74		25 - 150				10/06/20 05:26	10/10/20 03:01	1
13C2 PFHxA	80		25 - 150				10/06/20 05:26	10/10/20 03:01	1
13C4 PFHpA	84		25 - 150				10/06/20 05:26	10/10/20 03:01	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-144

Lab Sample ID: 320-65226-14

Date Collected: 09/29/20 16:15

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 89.9

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	83		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C5 PFNA	87		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C2 PFDA	86		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C2 PFUnA	87		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C2 PFDoA	91		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C2 PFTeDA	98		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C3 PFBS	75		25 - 150	10/06/20 05:26	10/10/20 03:01	1
18O2 PFHxS	78		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C4 PFOS	74		25 - 150	10/06/20 05:26	10/10/20 03:01	1
d3-NMeFOSAA	93		25 - 150	10/06/20 05:26	10/10/20 03:01	1
d5-NEtFOSAA	88		25 - 150	10/06/20 05:26	10/10/20 03:01	1
M2-4:2 FTS	169	*5	25 - 150	10/06/20 05:26	10/10/20 03:01	1
M2-6:2 FTS	140		25 - 150	10/06/20 05:26	10/10/20 03:01	1
M2-8:2 FTS	170	*5	25 - 150	10/06/20 05:26	10/10/20 03:01	1
d9-N-EtFOSE-M	29		10 - 120	10/06/20 05:26	10/10/20 03:01	1
d-N-MeFOSA-M	47		25 - 150	10/06/20 05:26	10/10/20 03:01	1
d7-N-MeFOSE-M	30		10 - 120	10/06/20 05:26	10/10/20 03:01	1
d-N-EtFOSA-M	42		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C2 PFHxDA	95		25 - 150	10/06/20 05:26	10/10/20 03:01	1
13C3 HFPO-DA	75		25 - 150	10/06/20 05:26	10/10/20 03:01	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	10.1		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	89.9		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-143

Lab Sample ID: 320-65226-15

Date Collected: 09/29/20 16:25

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.23	B	0.20	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoropentanoic acid (PFPeA)	0.29		0.20	0.075	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorohexanoic acid (PFHxA)	0.15	J	0.20	0.041	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoroheptanoic acid (PFHpA)	0.22		0.20	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorooctanoic acid (PFOA)	0.37		0.20	0.084	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorononanoic acid (PFNA)	0.59		0.20	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorodecanoic acid (PFDA)	0.24		0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoroundecanoic acid (PFUnA)	0.055	J	0.20	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.066	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.050	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.053	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.046	J	0.20	0.043	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorohexanesulfonic acid (PFHxS)	0.030	J	0.20	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.034	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorooctanesulfonic acid (PFOS)	2.5		0.49	0.20	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.080	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.38	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.36	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
4:2 FTS	<2.0		2.0	0.36	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
6:2 FTS	<2.0		2.0	0.15	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
10:2 FTS	<0.20		0.20	0.049	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
NMeFOSA	<0.20		0.20	0.040	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.059	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
NMeFOSE	<0.20		0.20	0.070	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
NEtFOSE	<0.20		0.20	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
F-53B Major	<0.20		0.20	0.026	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1
DONA	<0.20		0.20	0.018	ug/Kg	☼	10/06/20 05:26	10/10/20 03:10	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	81		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C4 PFBA	70		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C5 PFPeA	75		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFHxA	78		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C4 PFHpA	82		25 - 150	10/06/20 05:26	10/10/20 03:10	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-143

Lab Sample ID: 320-65226-15

Date Collected: 09/29/20 16:25

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.1

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	79		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C5 PFNA	87		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFDA	82		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFUnA	85		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFDoA	85		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFTeDA	97		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C3 PFBS	73		25 - 150	10/06/20 05:26	10/10/20 03:10	1
18O2 PFHxS	80		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C4 PFOS	78		25 - 150	10/06/20 05:26	10/10/20 03:10	1
d3-NMeFOSAA	89		25 - 150	10/06/20 05:26	10/10/20 03:10	1
d5-NEtFOSAA	86		25 - 150	10/06/20 05:26	10/10/20 03:10	1
M2-4:2 FTS	177	*5	25 - 150	10/06/20 05:26	10/10/20 03:10	1
M2-6:2 FTS	143		25 - 150	10/06/20 05:26	10/10/20 03:10	1
M2-8:2 FTS	168	*5	25 - 150	10/06/20 05:26	10/10/20 03:10	1
d9-N-EtFOSE-M	26		10 - 120	10/06/20 05:26	10/10/20 03:10	1
d-N-MeFOSA-M	41		25 - 150	10/06/20 05:26	10/10/20 03:10	1
d7-N-MeFOSE-M	29		10 - 120	10/06/20 05:26	10/10/20 03:10	1
d-N-EtFOSA-M	39		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C2 PFHxDA	88		25 - 150	10/06/20 05:26	10/10/20 03:10	1
13C3 HFPO-DA	75		25 - 150	10/06/20 05:26	10/10/20 03:10	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	4.9		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	95.1		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-142

Lab Sample ID: 320-65226-16

Date Collected: 09/29/20 16:35

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 92.2

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.14	J B	0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoropentanoic acid (PFPeA)	0.14	J	0.21	0.083	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorohexanoic acid (PFHxA)	0.11	J	0.21	0.045	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoroheptanoic acid (PFHpA)	0.19	J	0.21	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorooctanoic acid (PFOA)	0.37		0.21	0.092	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorononanoic acid (PFNA)	0.46		0.21	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorodecanoic acid (PFDA)	<0.21		0.21	0.024	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoroundecanoic acid (PFUnA)	<0.21		0.21	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorododecanoic acid (PFDoA)	<0.21		0.21	0.072	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorotridecanoic acid (PFTriA)	<0.21		0.21	0.055	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorotetradecanoic acid (PFTeA)	<0.21		0.21	0.058	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.047	J	0.21	0.047	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.21		0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorohexanesulfonic acid (PFHxS)	0.039	J	0.21	0.033	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorodecanesulfonic acid (PFDS)	<0.21		0.21	0.042	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorooctanesulfonic acid (PFOS)	1.6		0.54	0.21	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorooctanesulfonamide (FOSA)	<0.21		0.21	0.088	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorononanesulfonic acid (PFNS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.42	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.1		2.1	0.40	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
4:2 FTS	<2.1		2.1	0.40	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
6:2 FTS	<2.1		2.1	0.16	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
8:2 FTS	<2.1		2.1	0.27	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
10:2 FTS	<0.21		0.21	0.054	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
NEtFOSA	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
NMeFOSA	<0.21		0.21	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21		0.21	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
NMeFOSE	<0.21		0.21	0.076	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
NEtFOSE	<0.21		0.21	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
F-53B Major	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
F-53B Minor	<0.21		0.21	0.024	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:26	10/10/20 03:20	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	84		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C4 PFBA	74		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C5 PFPeA	77		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFHxA	82		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C4 PFHpA	85		25 - 150	10/06/20 05:26	10/10/20 03:20	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-142

Lab Sample ID: 320-65226-16

Date Collected: 09/29/20 16:35

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 92.2

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	84		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C5 PFNA	92		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFDA	84		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFUnA	86		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFDoA	89		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFTeDA	105		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C3 PFBS	78		25 - 150	10/06/20 05:26	10/10/20 03:20	1
18O2 PFHxS	83		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C4 PFOS	85		25 - 150	10/06/20 05:26	10/10/20 03:20	1
d3-NMeFOSAA	83		25 - 150	10/06/20 05:26	10/10/20 03:20	1
d5-NEtFOSAA	84		25 - 150	10/06/20 05:26	10/10/20 03:20	1
M2-4:2 FTS	122		25 - 150	10/06/20 05:26	10/10/20 03:20	1
M2-6:2 FTS	130		25 - 150	10/06/20 05:26	10/10/20 03:20	1
M2-8:2 FTS	149		25 - 150	10/06/20 05:26	10/10/20 03:20	1
d9-N-EtFOSE-M	15		10 - 120	10/06/20 05:26	10/10/20 03:20	1
d-N-MeFOSA-M	52		25 - 150	10/06/20 05:26	10/10/20 03:20	1
d7-N-MeFOSE-M	18		10 - 120	10/06/20 05:26	10/10/20 03:20	1
d-N-EtFOSA-M	49		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C2 PFHxDA	99		25 - 150	10/06/20 05:26	10/10/20 03:20	1
13C3 HFPO-DA	79		25 - 150	10/06/20 05:26	10/10/20 03:20	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	7.8		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	92.2		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: DUP-02

Lab Sample ID: 320-65226-18

Date Collected: 09/29/20 00:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 92.7

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.4	B	0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoropentanoic acid (PFPeA)	4.8		0.21	0.082	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorohexanoic acid (PFHxA)	2.4		0.21	0.045	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoroheptanoic acid (PFHpA)	4.5		0.21	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorooctanoic acid (PFOA)	2.5		0.21	0.091	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorononanoic acid (PFNA)	0.57		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorodecanoic acid (PFDA)	0.055	J	0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoroundecanoic acid (PFUnA)	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorododecanoic acid (PFDoA)	<0.21		0.21	0.071	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorotridecanoic acid (PFTriA)	<0.21		0.21	0.054	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorotetradecanoic acid (PFTeA)	<0.21		0.21	0.057	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.21		0.21	0.047	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.21		0.21	0.030	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorobutanesulfonic acid (PFBS)	<0.21		0.21	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorohexanesulfonic acid (PFHxS)	0.056	J	0.21	0.033	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		0.21	0.037	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorodecanesulfonic acid (PFDS)	<0.21		0.21	0.041	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorooctanesulfonic acid (PFOS)	2.1		0.53	0.21	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorooctanesulfonamide (FOSA)	<0.21		0.21	0.087	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorononanesulfonic acid (PFNS)	<0.21		0.21	0.021	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.1	0.41	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
4:2 FTS	<2.1		2.1	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
6:2 FTS	0.37	J	2.1	0.16	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
8:2 FTS	<2.1		2.1	0.27	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
10:2 FTS	<0.21		0.21	0.053	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
NEtFOSA	<0.21		0.21	0.026	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
NMeFOSA	<0.21		0.21	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
Perfluorododecanesulfonic acid (PFDoS)	<0.21		0.21	0.064	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
NMeFOSE	<0.21		0.21	0.075	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
NEtFOSE	<0.21		0.21	0.038	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
F-53B Major	<0.21		0.21	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
HFPO-DA (GenX)	<0.27		0.27	0.12	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
F-53B Minor	<0.21		0.21	0.023	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1
DONA	<0.21		0.21	0.019	ug/Kg	☼	10/06/20 05:26	10/10/20 03:29	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	70		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C4 PFBA	58		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C5 PFPeA	63		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFHxA	69		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C4 PFHpA	73		25 - 150	10/06/20 05:26	10/10/20 03:29	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: DUP-02

Lab Sample ID: 320-65226-18

Date Collected: 09/29/20 00:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 92.7

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOA	69		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C5 PFNA	76		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFDA	66		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFUnA	63		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFDoA	61		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFTeDA	67		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C3 PFBS	65		25 - 150	10/06/20 05:26	10/10/20 03:29	1
18O2 PFHxS	67		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C4 PFOS	66		25 - 150	10/06/20 05:26	10/10/20 03:29	1
d3-NMeFOSAA	55		25 - 150	10/06/20 05:26	10/10/20 03:29	1
d5-NEtFOSAA	52		25 - 150	10/06/20 05:26	10/10/20 03:29	1
M2-4:2 FTS	146		25 - 150	10/06/20 05:26	10/10/20 03:29	1
M2-6:2 FTS	136		25 - 150	10/06/20 05:26	10/10/20 03:29	1
M2-8:2 FTS	151	*5	25 - 150	10/06/20 05:26	10/10/20 03:29	1
d9-N-EtFOSE-M	30		10 - 120	10/06/20 05:26	10/10/20 03:29	1
d-N-MeFOSA-M	40		25 - 150	10/06/20 05:26	10/10/20 03:29	1
d7-N-MeFOSE-M	28		10 - 120	10/06/20 05:26	10/10/20 03:29	1
d-N-EtFOSA-M	41		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C2 PFHxDA	62		25 - 150	10/06/20 05:26	10/10/20 03:29	1
13C3 HFPO-DA	63		25 - 150	10/06/20 05:26	10/10/20 03:29	1

General Chemistry

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Percent Moisture	7.3		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	92.7		0.1	0.1	%			10/02/20 12:39	1

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: DUP-03

Lab Sample ID: 320-65226-19

Date Collected: 09/29/20 00:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.3

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.22	B	0.20	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoropentanoic acid (PFPeA)	0.31		0.20	0.077	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorohexanoic acid (PFHxA)	0.18	J	0.20	0.042	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoroheptanoic acid (PFHpA)	0.23		0.20	0.029	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorooctanoic acid (PFOA)	0.36		0.20	0.086	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorononanoic acid (PFNA)	0.67		0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorodecanoic acid (PFDA)	0.13	J	0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoroundecanoic acid (PFUnA)	0.039	J	0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.067	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.051	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.054	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.20		0.20	0.044	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.028	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20	0.031	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.035	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.039	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorooctanesulfonic acid (PFOS)	2.4		0.50	0.20	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.082	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.39	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
4:2 FTS	<2.0		2.0	0.37	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
6:2 FTS	<2.0		2.0	0.15	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
10:2 FTS	<0.20		0.20	0.050	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
NMeFOSA	<0.20		0.20	0.041	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.060	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
NMeFOSE	<0.20		0.20	0.071	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
NEtFOSE	<0.20		0.20	0.036	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
F-53B Major	<0.20		0.20	0.027	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1
DONA	<0.20		0.20	0.018	ug/Kg	☼	10/06/20 05:26	10/10/20 03:38	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	94		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C4 PFBA	71		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C5 PFPeA	76		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFHxA	88		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C4 PFHpA	89		25 - 150	10/06/20 05:26	10/10/20 03:38	1

Eurofins TestAmerica, Sacramento

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: DUP-03

Lab Sample ID: 320-65226-19

Date Collected: 09/29/20 00:00

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 95.3

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

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C4 PFOA	88		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C5 PFNA	96		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFDA	86		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFUnA	92		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFDoA	93		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFTeDA	100		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C3 PFBS	78		25 - 150	10/06/20 05:26	10/10/20 03:38	1
18O2 PFHxS	86		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C4 PFOS	86		25 - 150	10/06/20 05:26	10/10/20 03:38	1
d3-NMeFOSAA	100		25 - 150	10/06/20 05:26	10/10/20 03:38	1
d5-NEtFOSAA	95		25 - 150	10/06/20 05:26	10/10/20 03:38	1
M2-4:2 FTS	233	*5	25 - 150	10/06/20 05:26	10/10/20 03:38	1
M2-6:2 FTS	192	*5	25 - 150	10/06/20 05:26	10/10/20 03:38	1
M2-8:2 FTS	196	*5	25 - 150	10/06/20 05:26	10/10/20 03:38	1
d9-N-EtFOSE-M	37		10 - 120	10/06/20 05:26	10/10/20 03:38	1
d-N-MeFOSA-M	61		25 - 150	10/06/20 05:26	10/10/20 03:38	1
d7-N-MeFOSE-M	35		10 - 120	10/06/20 05:26	10/10/20 03:38	1
d-N-EtFOSA-M	56		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C2 PFHxDA	97		25 - 150	10/06/20 05:26	10/10/20 03:38	1
13C3 HFPO-DA	76		25 - 150	10/06/20 05:26	10/10/20 03:38	1

General Chemistry

<u>Analyte</u>	<u>Result</u>	<u>Qualifier</u>	<u>RL</u>	<u>MDL</u>	<u>Unit</u>	<u>D</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
Percent Moisture	4.7		0.1	0.1	%			10/02/20 12:39	1
Percent Solids	95.3		0.1	0.1	%			10/02/20 12:39	1

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-65226-1	SS-172	81	65	73	90	89	85	98	88
320-65226-1 - DL	SS-172								
320-65226-1 MS	SS-172	65	61	69	82	85	80	82	68
320-65226-1 MS - DL	SS-172								
320-65226-1 MSD	SS-172	72	65	71	85	92	85	92	77
320-65226-1 MSD - DL	SS-172								
320-65226-2	SS-156	83	66	73	86	90	87	93	90
320-65226-3	SS-155	75	68	72	77	81	80	88	81
320-65226-4	SS-154	68	63	70	78	86	76	78	66
320-65226-5	SS-153	80	64	70	81	84	83	86	80
320-65226-6	SS-152	70	74	75	83	84	76	78	69
320-65226-7	SS-151	76	73	77	81	85	84	83	75
320-65226-8	SS-150	68	57	67	79	86	78	78	71
320-65226-9	SS-149	81	68	74	85	84	81	85	79
320-65226-10	SS-148	84	67	75	82	88	81	87	83
320-65226-10 - DL	SS-148								
320-65226-10 MS	SS-148	87	63	72	82	85	82	88	87
320-65226-10 MS - DL	SS-148								
320-65226-10 MSD	SS-148	84	63	71	86	84	82	87	82
320-65226-10 MSD - DL	SS-148								
320-65226-11	SS-147	84	64	71	84	85	81	90	85
320-65226-12	SS-146	78	61	63	76	77	74	80	79
320-65226-13	SS-145	62	50	57	75	80	74	82	77
320-65226-14	SS-144	79	70	74	80	84	83	87	86
320-65226-15	SS-143	81	70	75	78	82	79	87	82
320-65226-16	SS-142	84	74	77	82	85	84	92	84
320-65226-18	DUP-02	70	58	63	69	73	69	76	66
320-65226-19	DUP-03	94	71	76	88	89	88	96	86
LCS 320-418992/2-A	Lab Control Sample	58	70	72	73	77	73	77	75
LCS 320-418993/2-A	Lab Control Sample	78	78	80	82	88	83	92	82
MB 320-418992/1-A	Method Blank	72	79	84	84	87	83	90	85
MB 320-418993/1-A	Method Blank	78	74	75	77	84	84	86	80

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
320-65226-1	SS-172	94	93	101	80	91	83	86	99
320-65226-1 - DL	SS-172								
320-65226-1 MS	SS-172	65	66	63	75	83	74	58	59
320-65226-1 MS - DL	SS-172								
320-65226-1 MSD	SS-172	72	62	59	77	88	82	65	64
320-65226-1 MSD - DL	SS-172								
320-65226-2	SS-156	88	80	78	76	84	84	92	95
320-65226-3	SS-155	78	82	90	66	73	71	81	76
320-65226-4	SS-154	65	67	68	71	76	71	62	67
320-65226-5	SS-153	86	92	95	72	80	78	79	76
320-65226-6	SS-152	63	60	60	77	81	70	68	64
320-65226-7	SS-151	65	65	70	75	81	76	77	73
320-65226-8	SS-150	76	76	78	72	79	73	86	86
320-65226-9	SS-149	80	83	90	76	82	77	93	88

Eurofins TestAmerica, Sacramento

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.

Job ID: 320-65226-1

Project/Site: Marinette Supp Site Inv - 30015294.00020

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOs (25-150)	d5NEFOs (25-150)
320-65226-10	SS-148	92	90	95	70	78	78	104	98
320-65226-10 - DL	SS-148								
320-65226-10 MS	SS-148	89	99	104	73	78	79	103	101
320-65226-10 MS - DL	SS-148								
320-65226-10 MSD	SS-148	85	93	104	72	76	78	100	101
320-65226-10 MSD - DL	SS-148								
320-65226-11	SS-147	85	95	97	73	79	78	95	94
320-65226-12	SS-146	79	82	89	66	74	74	93	86
320-65226-13	SS-145	81	81	82	75	85	84	72	76
320-65226-14	SS-144	87	91	98	75	78	74	93	88
320-65226-15	SS-143	85	85	97	73	80	78	89	86
320-65226-16	SS-142	86	89	105	78	83	85	83	84
320-65226-18	DUP-02	63	61	67	65	67	66	55	52
320-65226-19	DUP-03	92	93	100	78	86	86	100	95
LCS 320-418992/2-A	Lab Control Sample	70	72	80	73	74	73	77	74
LCS 320-418993/2-A	Lab Control Sample	80	90	93	80	86	84	87	83
MB 320-418992/1-A	Method Blank	87	91	98	82	89	85	88	82
MB 320-418993/1-A	Method Blank	79	81	89	77	82	81	83	75

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242Fts (25-150)	M262Fts (25-150)	M282Fts (25-150)	NEFM (10-120)	dMeFOsA (25-150)	NMFM (10-120)	dEtFOsA (25-150)	PFHxDA (25-150)
320-65226-1	SS-172	273 *5	207 *5	219 *5	61	62	62	63	105
320-65226-1 - DL	SS-172			126					
320-65226-1 MS	SS-172	271 *5	184 *5		20	27	22	22 *5	56
320-65226-1 MS - DL	SS-172			105					
320-65226-1 MSD	SS-172	272 *5	220 *5		21	40	26	33	58
320-65226-1 MSD - DL	SS-172			116					
320-65226-2	SS-156	249 *5	204 *5	216 *5	55	72	57	72	74
320-65226-3	SS-155	164 *5	117	136	41	66	39	70	85
320-65226-4	SS-154	231 *5	184 *5	169 *5	29	35	31	34	65
320-65226-5	SS-153	206 *5	187 *5	209 *5	44	60	45	63	90
320-65226-6	SS-152	183 *5	132	142	48	58	49	57	56
320-65226-7	SS-151	208 *5	162 *5	184 *5	54	60	56	62	65
320-65226-8	SS-150	254 *5	231 *5	211 *5	38	43	38	45	87
320-65226-9	SS-149	231 *5	165 *5	209 *5	35	44	36	44	85
320-65226-10	SS-148	218 *5		162 *5	25	36	27	31	97
320-65226-10 - DL	SS-148		106						
320-65226-10 MS	SS-148	224 *5		198 *5	36	51	38	49	98
320-65226-10 MS - DL	SS-148		113						
320-65226-10 MSD	SS-148	239 *5		201 *5	33	45	37	42	86
320-65226-10 MSD - DL	SS-148		123						
320-65226-11	SS-147	247 *5	164 *5	189 *5	49	53	42	55	92
320-65226-12	SS-146	195 *5	151 *5	172 *5	30	43	32	40	84
320-65226-13	SS-145	253 *5	227 *5	221 *5	39	48	35	48	87
320-65226-14	SS-144	169 *5	140	170 *5	29	47	30	42	95
320-65226-15	SS-143	177 *5	143	168 *5	26	41	29	39	88
320-65226-16	SS-142	122	130	149	15	52	18	49	99
320-65226-18	DUP-02	146	136	151 *5	30	40	28	41	62
320-65226-19	DUP-03	233 *5	192 *5	196 *5	37	61	35	56	97
LCS 320-418992/2-A	Lab Control Sample	91	99	85	12	54	12	52	78

Eurofins TestAmerica, Sacramento

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.

Job ID: 320-65226-1

Project/Site: Marinette Supp Site Inv - 30015294.00020

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

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	NEFM (10-120)	dMeFOSA (25-150)	NMFM (10-120)	dEtFOSA (25-150)	PFHxDA (25-150)
LCS 320-418993/2-A	Lab Control Sample	113	106	104	18	67	22	60	99
MB 320-418992/1-A	Method Blank	102	106	105	8 *5	67	8 *5	65	96
MB 320-418993/1-A	Method Blank	105	105	98	7 *5	63	8 *5	58	88

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)
320-65226-1	SS-172	81
320-65226-1 - DL	SS-172	
320-65226-1 MS	SS-172	70
320-65226-1 MS - DL	SS-172	
320-65226-1 MSD	SS-172	78
320-65226-1 MSD - DL	SS-172	
320-65226-2	SS-156	76
320-65226-3	SS-155	74
320-65226-4	SS-154	70
320-65226-5	SS-153	70
320-65226-6	SS-152	79
320-65226-7	SS-151	79
320-65226-8	SS-150	68
320-65226-9	SS-149	74
320-65226-10	SS-148	78
320-65226-10 - DL	SS-148	
320-65226-10 MS	SS-148	74
320-65226-10 MS - DL	SS-148	
320-65226-10 MSD	SS-148	73
320-65226-10 MSD - DL	SS-148	
320-65226-11	SS-147	77
320-65226-12	SS-146	68
320-65226-13	SS-145	68
320-65226-14	SS-144	75
320-65226-15	SS-143	75
320-65226-16	SS-142	79
320-65226-18	DUP-02	63
320-65226-19	DUP-03	76
LCS 320-418992/2-A	Lab Control Sample	73
LCS 320-418993/2-A	Lab Control Sample	82
MB 320-418992/1-A	Method Blank	79
MB 320-418993/1-A	Method Blank	81

Surrogate Legend

- PFOSA = 13C8 FOSA
- 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

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.

Job ID: 320-65226-1

Project/Site: Marinette Supp Site Inv - 30015294.00020

PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
NEFM = d9-N-EtFOSE-M
dMeFOSA = d-N-MeFOSA-M
NMFm = d7-N-MeFOSE-M
dEtFOSA = d-N-EtFOSA-M
PFHxDA = 13C2 PFHxDA
HFPODA = 13C3 HFPO-DA

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-418992/1-A
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418992

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	0.0812	J	0.20	0.028	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20	0.077	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20	0.042	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20	0.029	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20	0.086	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorononanoic acid (PFNA)	<0.20		0.20	0.036	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20	0.022	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20	0.036	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.067	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.051	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.054	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.20		0.20	0.044	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.028	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20	0.031	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.035	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.039	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		0.50	0.20	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.082	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.39	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.37	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
4:2 FTS	<2.0		2.0	0.37	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
6:2 FTS	<2.0		2.0	0.15	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
10:2 FTS	<0.20		0.20	0.050	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
NMeFOSA	<0.20		0.20	0.041	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.060	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
NMeFOSE	<0.20		0.20	0.071	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
NEtFOSE	<0.20		0.20	0.036	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
F-53B Major	<0.20		0.20	0.027	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
DONA	<0.20		0.20	0.018	ug/Kg		10/06/20 05:20	10/09/20 22:20	1
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	72		25 - 150				10/06/20 05:20	10/09/20 22:20	1
13C4 PFBA	79		25 - 150				10/06/20 05:20	10/09/20 22:20	1
13C5 PFPeA	84		25 - 150				10/06/20 05:20	10/09/20 22:20	1
13C2 PFHxA	84		25 - 150				10/06/20 05:20	10/09/20 22:20	1
13C4 PFHpA	87		25 - 150				10/06/20 05:20	10/09/20 22:20	1

Eurofins TestAmerica, Sacramento

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: MB 320-418992/1-A
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418992

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFOA	83		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C5 PFNA	90		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C2 PFDA	85		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C2 PFUnA	87		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C2 PFDoA	91		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C2 PFTeDA	98		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C3 PFBS	82		25 - 150	10/06/20 05:20	10/09/20 22:20	1
18O2 PFHxS	89		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C4 PFOS	85		25 - 150	10/06/20 05:20	10/09/20 22:20	1
d3-NMeFOSAA	88		25 - 150	10/06/20 05:20	10/09/20 22:20	1
d5-NEtFOSAA	82		25 - 150	10/06/20 05:20	10/09/20 22:20	1
M2-4:2 FTS	102		25 - 150	10/06/20 05:20	10/09/20 22:20	1
M2-6:2 FTS	106		25 - 150	10/06/20 05:20	10/09/20 22:20	1
M2-8:2 FTS	105		25 - 150	10/06/20 05:20	10/09/20 22:20	1
d9-N-EtFOSE-M	8	*5	10 - 120	10/06/20 05:20	10/09/20 22:20	1
d-N-MeFOSA-M	67		25 - 150	10/06/20 05:20	10/09/20 22:20	1
d7-N-MeFOSE-M	8	*5	10 - 120	10/06/20 05:20	10/09/20 22:20	1
d-N-EtFOSA-M	65		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C2 PFHxDA	96		25 - 150	10/06/20 05:20	10/09/20 22:20	1
13C3 HFPO-DA	79		25 - 150	10/06/20 05:20	10/09/20 22:20	1

Lab Sample ID: LCS 320-418992/2-A
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoropentanoic acid (PFPeA)	2.00	2.25		ug/Kg		113	69 - 129
Perfluorohexanoic acid (PFHxA)	2.00	2.50		ug/Kg		125	71 - 131
Perfluoroheptanoic acid (PFHpA)	2.00	2.30		ug/Kg		115	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.37		ug/Kg		118	72 - 132
Perfluorononanoic acid (PFNA)	2.00	2.13		ug/Kg		107	73 - 133
Perfluorodecanoic acid (PFDA)	2.00	2.27		ug/Kg		113	72 - 132
Perfluoroundecanoic acid (PFUnA)	2.00	2.36		ug/Kg		118	66 - 126
Perfluorododecanoic acid (PFDoA)	2.00	2.29		ug/Kg		114	71 - 131
Perfluorotridecanoic acid (PFTriA)	2.00	2.24		ug/Kg		112	71 - 131
Perfluorotetradecanoic acid (PFTeA)	2.00	2.07		ug/Kg		103	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	1.97		ug/Kg		98	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	2.00	2.12		ug/Kg		106	53 - 130
Perfluorobutanesulfonic acid (PFBS)	1.77	2.15		ug/Kg		121	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.95		ug/Kg		107	62 - 122
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	2.25		ug/Kg		118	76 - 136

Eurofins TestAmerica, Sacramento

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: LCS 320-418992/2-A
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanesulfonic acid (PFDS)	1.93	2.18		ug/Kg		113	71 - 131
Perfluorooctanesulfonic acid (PFOS)	1.86	2.11		ug/Kg		114	68 - 141
Perfluorooctanesulfonamide (FOSA)	2.00	2.35		ug/Kg		117	77 - 137
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.06		ug/Kg		110	66 - 126
Perfluorononanesulfonic acid (PFNS)	1.92	2.23		ug/Kg		116	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.25		ug/Kg		112	72 - 132
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.07		ug/Kg		104	72 - 132
4:2 FTS	1.87	2.10		ug/Kg		112	68 - 143
6:2 FTS	1.90	1.85	J	ug/Kg		98	73 - 139
8:2 FTS	1.92	2.19		ug/Kg		114	75 - 135
10:2 FTS	1.93	1.92		ug/Kg		100	69 - 145
NEtFOSA	2.00	2.31		ug/Kg		115	47 - 161
NMeFOSA	2.00	2.19		ug/Kg		110	63 - 148
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.93		ug/Kg		100	70 - 130
NMeFOSE	2.00	2.05		ug/Kg		103	43 - 153
NEtFOSE	2.00	1.77		ug/Kg		88	44 - 155
F-53B Major	1.86	2.15		ug/Kg		116	74 - 134
HFPO-DA (GenX)	2.00	2.22		ug/Kg		111	53 - 158
F-53B Minor	1.88	2.05		ug/Kg		109	66 - 136
DONA	1.88	2.24		ug/Kg		119	79 - 139

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	58		25 - 150
13C4 PFBA	70		25 - 150
13C5 PFPeA	72		25 - 150
13C2 PFHxA	73		25 - 150
13C4 PFHpA	77		25 - 150
13C4 PFOA	73		25 - 150
13C5 PFNA	77		25 - 150
13C2 PFDA	75		25 - 150
13C2 PFUnA	70		25 - 150
13C2 PFDoA	72		25 - 150
13C2 PFTeDA	80		25 - 150
13C3 PFBS	73		25 - 150
18O2 PFHxS	74		25 - 150
13C4 PFOS	73		25 - 150
d3-NMeFOSAA	77		25 - 150
d5-NEtFOSAA	74		25 - 150
M2-4:2 FTS	91		25 - 150
M2-6:2 FTS	99		25 - 150
M2-8:2 FTS	85		25 - 150
d9-N-EtFOSE-M	12		10 - 120
d-N-MeFOSA-M	54		25 - 150

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: LCS 320-418992/2-A
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418992

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
d7-N-MeFOSE-M	12		10 - 120
d-N-EtFOSA-M	52		25 - 150
13C2 PFHxDA	78		25 - 150
13C3 HFPO-DA	73		25 - 150

Lab Sample ID: 320-65226-1 MS
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	Limits
				Result	Qualifier				
Perfluorobutanoic acid (PFBA)	0.40	B	2.07	2.73		ug/Kg	☼	113	76 - 136
Perfluoropentanoic acid (PFPeA)	0.66		2.07	2.88		ug/Kg	☼	107	69 - 129
Perfluorohexanoic acid (PFHxA)	0.88	F1	2.07	3.61	F1	ug/Kg	☼	132	71 - 131
Perfluoroheptanoic acid (PFHpA)	0.76		2.07	3.08		ug/Kg	☼	112	71 - 131
Perfluorooctanoic acid (PFOA)	6.2	F1	2.07	8.66		ug/Kg	☼	120	72 - 132
Perfluorononanoic acid (PFNA)	2.1	F1	2.07	5.06	F1	ug/Kg	☼	143	73 - 133
Perfluorodecanoic acid (PFDA)	6.4	F1	2.07	9.41	F1	ug/Kg	☼	144	72 - 132
Perfluoroundecanoic acid (PFUnA)	3.3	F1	2.07	6.53	F1	ug/Kg	☼	154	66 - 126
Perfluorododecanoic acid (PFDoA)	1.3		2.07	3.93		ug/Kg	☼	127	71 - 131
Perfluorotridecanoic acid (PFTriA)	0.58		2.07	3.17		ug/Kg	☼	126	71 - 131
Perfluorotetradecanoic acid (PFTeA)	0.46		2.07	2.69		ug/Kg	☼	108	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.16	J	2.07	2.11		ug/Kg	☼	94	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	0.035	J F2 F1	2.07	1.80		ug/Kg	☼	85	53 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.21		1.83	2.27		ug/Kg	☼	124	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	1.88	2.15		ug/Kg	☼	109	62 - 122
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		1.97	2.50		ug/Kg	☼	127	76 - 136
Perfluorodecanesulfonic acid (PFDS)	0.11	J	1.99	2.13		ug/Kg	☼	101	71 - 131
Perfluorooctanesulfonic acid (PFOS)	12		1.92	16.0	4	ug/Kg	☼	229	68 - 141
Perfluorooctanesulfonamide (FOSA)	1.2		2.07	3.74		ug/Kg	☼	125	77 - 137
Perfluoropentanesulfonic acid (PFPeS)	<0.21	F1	1.94	2.54	F1	ug/Kg	☼	131	66 - 126
Perfluorononanesulfonic acid (PFNS)	0.050	J	1.98	1.98		ug/Kg	☼	97	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.07	2.43		ug/Kg	☼	118	72 - 132
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.1		2.07	4.38		ug/Kg	☼	112	72 - 132
4:2 FTS	<2.1		1.93	1.95	J	ug/Kg	☼	101	68 - 143
6:2 FTS	3.3	F1 F2	1.96	7.01	F1	ug/Kg	☼	191	73 - 139
8:2 FTS	16	F2	1.98	25.5	E 4	ug/Kg	☼	473	75 - 135
NEtFOSA	0.033	J	2.07	2.43		ug/Kg	☼	116	47 - 161

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-1 MS
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
NMeFOSA	<0.21		2.07	2.35		ug/Kg	⊛	114	63 - 148
Perfluorododecanesulfonic acid (PFDoS)	<0.21	F1	2.00	1.62		ug/Kg	⊛	76	70 - 130
NMeFOSE	<0.21		2.07	2.35		ug/Kg	⊛	114	43 - 153
NEtFOSE	0.063	J	2.07	2.38		ug/Kg	⊛	112	44 - 155
F-53B Major	<0.21		1.93	2.39		ug/Kg	⊛	124	74 - 134
HFPO-DA (GenX)	<0.26		2.07	2.36		ug/Kg	⊛	114	53 - 158
F-53B Minor	<0.21		1.95	1.80		ug/Kg	⊛	93	66 - 136
DONA	<0.21		1.95	2.40		ug/Kg	⊛	123	79 - 139

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C8 FOSA	65		25 - 150
13C4 PFBA	61		25 - 150
13C5 PFPeA	69		25 - 150
13C2 PFHxA	82		25 - 150
13C4 PFHpA	85		25 - 150
13C4 PFOA	80		25 - 150
13C5 PFNA	82		25 - 150
13C2 PFDA	68		25 - 150
13C2 PFUnA	65		25 - 150
13C2 PFDoA	66		25 - 150
13C2 PFTeDA	63		25 - 150
13C3 PFBS	75		25 - 150
18O2 PFHxS	83		25 - 150
13C4 PFOS	74		25 - 150
d3-NMeFOSAA	58		25 - 150
d5-NEtFOSAA	59		25 - 150
M2-4:2 FTS	271	*5	25 - 150
M2-6:2 FTS	184	*5	25 - 150
d9-N-EtFOSE-M	20		10 - 120
d-N-MeFOSA-M	27		25 - 150
d7-N-MeFOSE-M	22		10 - 120
d-N-EtFOSA-M	22	*5	25 - 150
13C2 PFHxDA	56		25 - 150
13C3 HFPO-DA	70		25 - 150

Lab Sample ID: 320-65226-1 MSD
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	
				Result	Qualifier					RPD	Limit
Perfluorobutanoic acid (PFBA)	0.40	B	2.14	2.64		ug/Kg	⊛	105	76 - 136	3	30
Perfluoropentanoic acid (PFPeA)	0.66		2.14	2.84		ug/Kg	⊛	102	69 - 129	1	30
Perfluorohexanoic acid (PFHxA)	0.88	F1	2.14	3.30		ug/Kg	⊛	113	71 - 131	9	30
Perfluoroheptanoic acid (PFHpA)	0.76		2.14	3.06		ug/Kg	⊛	107	71 - 131	1	30
Perfluorooctanoic acid (PFOA)	6.2	F1	2.14	7.42	F1	ug/Kg	⊛	58	72 - 132	15	30
Perfluorononanoic acid (PFNA)	2.1	F1	2.14	5.54	F1	ug/Kg	⊛	160	73 - 133	9	30
Perfluorodecanoic acid (PFDA)	6.4	F1	2.14	8.05		ug/Kg	⊛	75	72 - 132	16	30

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-1 MSD
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)	3.3	F1	2.14	5.48		ug/Kg	☼	100	66 - 126	17	30
Perfluorododecanoic acid (PFDoA)	1.3		2.14	3.54		ug/Kg	☼	104	71 - 131	10	30
Perfluorotridecanoic acid (PFTriA)	0.58		2.14	2.92		ug/Kg	☼	109	71 - 131	8	30
Perfluorotetradecanoic acid (PFTeA)	0.46		2.14	2.54		ug/Kg	☼	97	67 - 127	6	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.16	J	2.14	2.11		ug/Kg	☼	91	75 - 135	0	30
Perfluoro-n-octadecanoic acid (PFODA)	0.035	J F2 F1	2.14	1.10	F2 F1	ug/Kg	☼	50	53 - 130	48	30
Perfluorobutanesulfonic acid (PFBS)	<0.21		1.89	2.32		ug/Kg	☼	122	69 - 129	2	30
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	1.95	2.16		ug/Kg	☼	106	62 - 122	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	<0.21		2.04	2.55		ug/Kg	☼	125	76 - 136	2	30
Perfluorodecanesulfonic acid (PFDS)	0.11	J	2.06	2.01		ug/Kg	☼	92	71 - 131	6	30
Perfluorooctanesulfonic acid (PFOS)	12		1.99	15.6	4	ug/Kg	☼	199	68 - 141	3	30
Perfluorooctanesulfonamide (FOSA)	1.2		2.14	3.58		ug/Kg	☼	113	77 - 137	4	30
Perfluoropentanesulfonic acid (PFPeS)	<0.21	F1	2.01	2.77	F1	ug/Kg	☼	138	66 - 126	8	30
Perfluorononanesulfonic acid (PFNS)	0.050	J	2.06	2.08		ug/Kg	☼	99	72 - 132	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.1		2.14	2.35		ug/Kg	☼	110	72 - 132	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.1		2.14	3.87		ug/Kg	☼	84	72 - 132	13	30
4:2 FTS	<2.1		2.00	2.01	J	ug/Kg	☼	100	68 - 143	3	30
6:2 FTS	3.3	F1 F2	2.03	4.83	F2	ug/Kg	☼	78	73 - 139	37	30
8:2 FTS	16	F2	2.05	11.2	4 F2	ug/Kg	☼	-239	75 - 135	78	30
NEtFOSA	0.033	J	2.14	2.39		ug/Kg	☼	110	47 - 161	2	30
NMeFOSA	<0.21		2.14	2.44		ug/Kg	☼	114	63 - 148	4	30
Perfluorododecanesulfonic acid (PFDoS)	<0.21	F1	2.07	1.38	F1	ug/Kg	☼	62	70 - 130	16	30
NMeFOSE	<0.21		2.14	2.17		ug/Kg	☼	101	43 - 153	8	30
NEtFOSE	0.063	J	2.14	2.37		ug/Kg	☼	108	44 - 155	0	30
F-53B Major	<0.21		2.00	2.52		ug/Kg	☼	126	74 - 134	5	30
HFPO-DA (GenX)	<0.26		2.14	2.32		ug/Kg	☼	109	53 - 158	1	30
F-53B Minor	<0.21		2.02	1.74		ug/Kg	☼	86	66 - 136	4	30
DONA	<0.21		2.02	2.34		ug/Kg	☼	116	79 - 139	3	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C8 FOSA	72		25 - 150								
13C4 PFBA	65		25 - 150								
13C5 PFPeA	71		25 - 150								
13C2 PFHxA	85		25 - 150								
13C4 PFHpA	92		25 - 150								
13C4 PFOA	85		25 - 150								

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-1 MSD
Matrix: Solid
Analysis Batch: 420405

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C5 PFNA	92		25 - 150
13C2 PFDA	77		25 - 150
13C2 PFUnA	72		25 - 150
13C2 PFDoA	62		25 - 150
13C2 PFTeDA	59		25 - 150
13C3 PFBS	77		25 - 150
18O2 PFHxS	88		25 - 150
13C4 PFOS	82		25 - 150
d3-NMeFOSAA	65		25 - 150
d5-NEtFOSAA	64		25 - 150
M2-4:2 FTS	272	*5	25 - 150
M2-6:2 FTS	220	*5	25 - 150
d9-N-EtFOSE-M	21		10 - 120
d-N-MeFOSA-M	40		25 - 150
d7-N-MeFOSE-M	26		10 - 120
d-N-EtFOSA-M	33		25 - 150
13C2 PFHxDA	58		25 - 150
13C3 HFPO-DA	78		25 - 150

Lab Sample ID: MB 320-418993/1-A
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418993

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	0.0781	J	0.20	0.028	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20	0.077	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20	0.042	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20	0.029	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20	0.086	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorononanoic acid (PFNA)	<0.20		0.20	0.036	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20	0.022	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20	0.036	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20	0.067	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20	0.051	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20	0.054	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.20		0.20	0.044	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.20		0.20	0.028	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20	0.025	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20	0.031	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20	0.035	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20	0.039	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		0.50	0.20	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20	0.082	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20	0.020	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20	0.020	ug/Kg		10/06/20 05:26	10/10/20 01:27	1

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: MB 320-418993/1-A
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 418993

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	0.39	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	0.37	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
4:2 FTS	<2.0		2.0	0.37	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
6:2 FTS	<2.0		2.0	0.15	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
8:2 FTS	<2.0		2.0	0.25	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
10:2 FTS	<0.20		0.20	0.050	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
NEtFOSA	<0.20		0.20	0.024	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
NMeFOSA	<0.20		0.20	0.041	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
Perfluorododecanesulfonic acid (PFDoS)	<0.20		0.20	0.060	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
NMeFOSE	<0.20		0.20	0.071	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
NEtFOSE	<0.20		0.20	0.036	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
F-53B Major	<0.20		0.20	0.027	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
HFPO-DA (GenX)	<0.25		0.25	0.11	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
F-53B Minor	<0.20		0.20	0.022	ug/Kg		10/06/20 05:26	10/10/20 01:27	1
DONA	<0.20		0.20	0.018	ug/Kg		10/06/20 05:26	10/10/20 01:27	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	78		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C4 PFBA	74		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C5 PFPeA	75		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFHxA	77		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C4 PFHpA	84		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C4 PFOA	84		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C5 PFNA	86		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFDA	80		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFUnA	79		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFDoA	81		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFTeDA	89		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C3 PFBS	77		25 - 150	10/06/20 05:26	10/10/20 01:27	1
18O2 PFHxS	82		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C4 PFOS	81		25 - 150	10/06/20 05:26	10/10/20 01:27	1
d3-NMeFOSAA	83		25 - 150	10/06/20 05:26	10/10/20 01:27	1
d5-NEtFOSAA	75		25 - 150	10/06/20 05:26	10/10/20 01:27	1
M2-4:2 FTS	105		25 - 150	10/06/20 05:26	10/10/20 01:27	1
M2-6:2 FTS	105		25 - 150	10/06/20 05:26	10/10/20 01:27	1
M2-8:2 FTS	98		25 - 150	10/06/20 05:26	10/10/20 01:27	1
d9-N-EtFOSE-M	7	*5	10 - 120	10/06/20 05:26	10/10/20 01:27	1
d-N-MeFOSA-M	63		25 - 150	10/06/20 05:26	10/10/20 01:27	1
d7-N-MeFOSE-M	8	*5	10 - 120	10/06/20 05:26	10/10/20 01:27	1
d-N-EtFOSA-M	58		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C2 PFHxDA	88		25 - 150	10/06/20 05:26	10/10/20 01:27	1
13C3 HFPO-DA	81		25 - 150	10/06/20 05:26	10/10/20 01:27	1

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: LCS 320-418993/2-A
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 418993
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	2.00	2.33		ug/Kg		117	76 - 136
Perfluoropentanoic acid (PFPeA)	2.00	2.12		ug/Kg		106	69 - 129
Perfluorohexanoic acid (PFHxA)	2.00	2.38		ug/Kg		119	71 - 131
Perfluoroheptanoic acid (PFHpA)	2.00	2.13		ug/Kg		106	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.31		ug/Kg		116	72 - 132
Perfluorononanoic acid (PFNA)	2.00	2.02		ug/Kg		101	73 - 133
Perfluorodecanoic acid (PFDA)	2.00	2.30		ug/Kg		115	72 - 132
Perfluoroundecanoic acid (PFUnA)	2.00	2.21		ug/Kg		111	66 - 126
Perfluorododecanoic acid (PFDoA)	2.00	2.23		ug/Kg		112	71 - 131
Perfluorotridecanoic acid (PFTriA)	2.00	2.24		ug/Kg		112	71 - 131
Perfluorotetradecanoic acid (PFTeA)	2.00	2.09		ug/Kg		104	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	2.00	1.76		ug/Kg		88	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	2.00	1.85		ug/Kg		93	53 - 130
Perfluorobutanesulfonic acid (PFBS)	1.77	2.17		ug/Kg		123	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.84		ug/Kg		101	62 - 122
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	2.12		ug/Kg		112	76 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	2.08		ug/Kg		108	71 - 131
Perfluorooctanesulfonic acid (PFOS)	1.86	1.96		ug/Kg		106	68 - 141
Perfluorooctanesulfonamide (FOSA)	2.00	2.15		ug/Kg		107	77 - 137
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.07		ug/Kg		110	66 - 126
Perfluorononanesulfonic acid (PFNS)	1.92	2.16		ug/Kg		113	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.02		ug/Kg		101	72 - 132
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.17		ug/Kg		109	72 - 132
4:2 FTS	1.87	1.86	J	ug/Kg		100	68 - 143
6:2 FTS	1.90	1.85	J	ug/Kg		98	73 - 139
8:2 FTS	1.92	1.91	J	ug/Kg		100	75 - 135
10:2 FTS	1.93	1.93		ug/Kg		100	69 - 145
NEtFOSA	2.00	2.17		ug/Kg		109	47 - 161
NMeFOSA	2.00	2.27		ug/Kg		113	63 - 148
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.96		ug/Kg		101	70 - 130
NMeFOSE	2.00	2.06		ug/Kg		103	43 - 153
NEtFOSE	2.00	2.11		ug/Kg		106	44 - 155
F-53B Major	1.86	2.06		ug/Kg		110	74 - 134
HFPO-DA (GenX)	2.00	2.21		ug/Kg		111	53 - 158
F-53B Minor	1.88	2.04		ug/Kg		108	66 - 136
DONA	1.88	2.06		ug/Kg		109	79 - 139

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	78		25 - 150
13C4 PFBA	78		25 - 150
13C5 PFPeA	80		25 - 150
13C2 PFHxA	82		25 - 150
13C4 PFHpA	88		25 - 150
13C4 PFOA	83		25 - 150
13C5 PFNA	92		25 - 150
13C2 PFDA	82		25 - 150
13C2 PFUnA	80		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	93		25 - 150
13C3 PFBS	80		25 - 150
18O2 PFHxS	86		25 - 150
13C4 PFOS	84		25 - 150
d3-NMeFOSAA	87		25 - 150
d5-NEtFOSAA	83		25 - 150
M2-4:2 FTS	113		25 - 150
M2-6:2 FTS	106		25 - 150
M2-8:2 FTS	104		25 - 150
d9-N-EtFOSE-M	18		10 - 120
d-N-MeFOSA-M	67		25 - 150
d7-N-MeFOSE-M	22		10 - 120
d-N-EtFOSA-M	60		25 - 150
13C2 PFHxDA	99		25 - 150
13C3 HFPO-DA	82		25 - 150

Lab Sample ID: 320-65226-10 MS
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier	Added	Result	Qualifier				
Perfluorobutanoic acid (PFBA)	1.4	B	2.29	4.13		ug/Kg	☼	119	76 - 136
Perfluoropentanoic acid (PFPeA)	5.4		2.29	8.24		ug/Kg	☼	126	69 - 129
Perfluorohexanoic acid (PFHxA)	2.4		2.29	5.26		ug/Kg	☼	125	71 - 131
Perfluoroheptanoic acid (PFHpA)	0.99		2.29	3.45		ug/Kg	☼	108	71 - 131
Perfluorooctanoic acid (PFOA)	0.81		2.29	3.33		ug/Kg	☼	110	72 - 132
Perfluorononanoic acid (PFNA)	0.55		2.29	2.97		ug/Kg	☼	106	73 - 133
Perfluorodecanoic acid (PFDA)	1.0		2.29	3.60		ug/Kg	☼	112	72 - 132
Perfluoroundecanoic acid (PFUnA)	0.22		2.29	3.00		ug/Kg	☼	122	66 - 126
Perfluorododecanoic acid (PFDoA)	<0.22		2.29	2.62		ug/Kg	☼	114	71 - 131
Perfluorotridecanoic acid (PFTriA)	<0.22		2.29	2.38		ug/Kg	☼	104	71 - 131
Perfluorotetradecanoic acid (PFTeA)	<0.22		2.29	2.34		ug/Kg	☼	102	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.053	J	2.29	2.23		ug/Kg	☼	95	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		2.29	2.10		ug/Kg	☼	92	53 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.22		2.02	2.40		ug/Kg	☼	118	69 - 129
Perfluorohexanesulfonic acid (PFHxS)	0.069	J I	2.08	2.15		ug/Kg	☼	100	62 - 122

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-10 MS
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		2.18	2.47		ug/Kg	⊛	113	76 - 136
Perfluorodecanesulfonic acid (PFDS)	<0.22		2.21	2.64		ug/Kg	⊛	119	71 - 131
Perfluorooctanesulfonic acid (PFOS)	0.54	J	2.13	2.94		ug/Kg	⊛	113	68 - 141
Perfluorooctanesulfonamide (FOSA)	<0.22		2.29	2.43		ug/Kg	⊛	106	77 - 137
Perfluoropentanesulfonic acid (PFPeS)	<0.22		2.15	2.52		ug/Kg	⊛	117	66 - 126
Perfluorononanesulfonic acid (PFNS)	<0.22		2.20	2.50		ug/Kg	⊛	114	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.29	2.59		ug/Kg	⊛	113	72 - 132
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.29	2.55		ug/Kg	⊛	112	72 - 132
4:2 FTS	<2.2		2.14	2.22	J	ug/Kg	⊛	104	68 - 143
8:2 FTS	1.9	J F1	2.19	3.42	F1	ug/Kg	⊛	69	75 - 135
10:2 FTS	0.067	J	2.21	2.20		ug/Kg	⊛	97	69 - 145
NEtFOSA	<0.22		2.29	2.61		ug/Kg	⊛	114	47 - 161
NMeFOSA	<0.22		2.29	2.50		ug/Kg	⊛	109	63 - 148
Perfluorododecanesulfonic acid (PFDoS)	<0.22		2.22	2.40		ug/Kg	⊛	108	70 - 130
NMeFOSE	<0.22		2.29	2.44		ug/Kg	⊛	107	43 - 153
NEtFOSE	0.052	J	2.29	2.28		ug/Kg	⊛	97	44 - 155
F-53B Major	<0.22		2.13	2.63		ug/Kg	⊛	123	74 - 134
HFPO-DA (GenX)	<0.28		2.29	2.55		ug/Kg	⊛	111	53 - 158
F-53B Minor	<0.22		2.16	2.57		ug/Kg	⊛	119	66 - 136
DONA	<0.22		2.16	2.42		ug/Kg	⊛	112	79 - 139

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C8 FOSA	87		25 - 150
13C4 PFBA	63		25 - 150
13C5 PFPeA	72		25 - 150
13C2 PFHxA	82		25 - 150
13C4 PFHpA	85		25 - 150
13C4 PFOA	82		25 - 150
13C5 PFNA	88		25 - 150
13C2 PFDA	87		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	99		25 - 150
13C2 PFTeDA	104		25 - 150
13C3 PFBS	73		25 - 150
18O2 PFHxS	78		25 - 150
13C4 PFOS	79		25 - 150
d3-NMeFOSAA	103		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-4:2 FTS	224	*5	25 - 150
M2-8:2 FTS	198	*5	25 - 150
d9-N-EtFOSE-M	36		10 - 120
d-N-MeFOSA-M	51		25 - 150

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-10 MS
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>d7-N-MeFOSE-M</i>	38		10 - 120
<i>d-N-EtFOSA-M</i>	49		25 - 150
<i>13C2 PFHxDA</i>	98		25 - 150
<i>13C3 HFPO-DA</i>	74		25 - 150

Lab Sample ID: 320-65226-10 MSD
Matrix: Solid
Analysis Batch: 420408

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	1.4	B	2.15	3.78		ug/Kg	⊛	111	76 - 136	9	30
Perfluoropentanoic acid (PFPeA)	5.4		2.15	7.43		ug/Kg	⊛	97	69 - 129	10	30
Perfluorohexanoic acid (PFHxA)	2.4		2.15	4.70		ug/Kg	⊛	106	71 - 131	11	30
Perfluoroheptanoic acid (PFHpA)	0.99		2.15	3.56		ug/Kg	⊛	119	71 - 131	3	30
Perfluorooctanoic acid (PFOA)	0.81		2.15	3.26		ug/Kg	⊛	114	72 - 132	2	30
Perfluorononanoic acid (PFNA)	0.55		2.15	2.89		ug/Kg	⊛	109	73 - 133	3	30
Perfluorodecanoic acid (PFDA)	1.0		2.15	3.69		ug/Kg	⊛	124	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)	0.22		2.15	2.90		ug/Kg	⊛	125	66 - 126	3	30
Perfluorododecanoic acid (PFDoA)	<0.22		2.15	2.49		ug/Kg	⊛	116	71 - 131	5	30
Perfluorotridecanoic acid (PFTriA)	<0.22		2.15	2.48		ug/Kg	⊛	115	71 - 131	4	30
Perfluorotetradecanoic acid (PFTeA)	<0.22		2.15	2.06		ug/Kg	⊛	96	67 - 127	13	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	0.053	J	2.15	2.24		ug/Kg	⊛	102	75 - 135	0	30
Perfluoro-n-octadecanoic acid (PFODA)	<0.22		2.15	2.06		ug/Kg	⊛	96	53 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<0.22		1.90	2.35		ug/Kg	⊛	124	69 - 129	2	30
Perfluorohexanesulfonic acid (PFHxS)	0.069	J I	1.96	2.14		ug/Kg	⊛	106	62 - 122	0	30
Perfluoroheptanesulfonic Acid (PFHpS)	<0.22		2.05	2.37		ug/Kg	⊛	116	76 - 136	4	30
Perfluorodecanesulfonic acid (PFDS)	<0.22		2.07	2.54		ug/Kg	⊛	122	71 - 131	4	30
Perfluorooctanesulfonic acid (PFOS)	0.54	J	1.99	2.81		ug/Kg	⊛	114	68 - 141	4	30
Perfluorooctanesulfonamide (FOSA)	<0.22		2.15	2.44		ug/Kg	⊛	113	77 - 137	0	30
Perfluoropentanesulfonic acid (PFPeS)	<0.22		2.02	2.48		ug/Kg	⊛	123	66 - 126	2	30
Perfluorononanesulfonic acid (PFNS)	<0.22		2.06	2.38		ug/Kg	⊛	115	72 - 132	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.2		2.15	2.46		ug/Kg	⊛	114	72 - 132	5	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.2		2.15	2.26		ug/Kg	⊛	105	72 - 132	12	30
4:2 FTS	<2.2		2.01	2.03	J	ug/Kg	⊛	101	68 - 143	9	30
8:2 FTS	1.9	J F1	2.06	3.68		ug/Kg	⊛	86	75 - 135	7	30
10:2 FTS	0.067	J	2.07	1.79		ug/Kg	⊛	83	69 - 145	21	30
NEtFOSA	<0.22		2.15	2.37		ug/Kg	⊛	110	47 - 161	10	30

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-10 MSD

Matrix: Solid

Analysis Batch: 420408

Client Sample ID: SS-148

Prep Type: Total/NA

Prep Batch: 418993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NMeFOSA	<0.22		2.15	2.53		ug/Kg	⊛	118	63 - 148	1	30
Perfluorododecanesulfonic acid (PFDoS)	<0.22		2.08	2.27		ug/Kg	⊛	109	70 - 130	6	30
NMeFOSE	<0.22		2.15	2.28		ug/Kg	⊛	106	43 - 153	7	30
NEtFOSE	0.052	J	2.15	2.21		ug/Kg	⊛	100	44 - 155	3	30
F-53B Major	<0.22		2.00	2.42		ug/Kg	⊛	121	74 - 134	8	30
HFPO-DA (GenX)	<0.28		2.15	2.46		ug/Kg	⊛	115	53 - 158	4	30
F-53B Minor	<0.22		2.02	2.32		ug/Kg	⊛	115	66 - 136	10	30
DONA	<0.22		2.02	2.33		ug/Kg	⊛	115	79 - 139	4	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	MSD Limits
13C8 FOSA	84		25 - 150
13C4 PFBA	63		25 - 150
13C5 PFPeA	71		25 - 150
13C2 PFHxA	86		25 - 150
13C4 PFHpA	84		25 - 150
13C4 PFOA	82		25 - 150
13C5 PFNA	87		25 - 150
13C2 PFDA	82		25 - 150
13C2 PFUnA	85		25 - 150
13C2 PFDoA	93		25 - 150
13C2 PFTeDA	104		25 - 150
13C3 PFBS	72		25 - 150
18O2 PFHxS	76		25 - 150
13C4 PFOS	78		25 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	101		25 - 150
M2-4:2 FTS	239	*5	25 - 150
M2-8:2 FTS	201	*5	25 - 150
d9-N-EtFOSE-M	33		10 - 120
d-N-MeFOSA-M	45		25 - 150
d7-N-MeFOSE-M	37		10 - 120
d-N-EtFOSA-M	42		25 - 150
13C2 PFHxDA	86		25 - 150
13C3 HFPO-DA	73		25 - 150

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

Lab Sample ID: 320-65226-1 MS

Matrix: Solid

Analysis Batch: 421231

Client Sample ID: SS-172

Prep Type: Total/NA

Prep Batch: 418992

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
10:2 FTS - DL	24	F2	1.99	25.2	4	ug/Kg	⊛	41	69 - 145
Isotope Dilution	MS %Recovery	MS Qualifier	MS Limits						
M2-8:2 FTS - DL	105		25 - 150						

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QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

Lab Sample ID: 320-65226-1 MSD
Matrix: Solid
Analysis Batch: 421231

Client Sample ID: SS-172
Prep Type: Total/NA
Prep Batch: 418992

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
10:2 FTS - DL	24	F2	2.06	9.16	J 4 F2	ug/Kg	⊛	-738		69 - 145	93	30
	<i>MSD</i>	<i>MSD</i>										
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>									
M2-8:2 FTS - DL	116		25 - 150									

Lab Sample ID: 320-65226-10 MS
Matrix: Solid
Analysis Batch: 420974

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
6:2 FTS - DL	37		2.17	34.7	4	ug/Kg	⊛	-98		73 - 139		
	<i>MS</i>	<i>MS</i>										
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>									
M2-6:2 FTS - DL	113		25 - 150									

Lab Sample ID: 320-65226-10 MSD
Matrix: Solid
Analysis Batch: 420974

Client Sample ID: SS-148
Prep Type: Total/NA
Prep Batch: 418993

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
6:2 FTS - DL	37		2.04	32.4	4	ug/Kg	⊛	-215		73 - 139	7	30
	<i>MSD</i>	<i>MSD</i>										
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>									
M2-6:2 FTS - DL	123		25 - 150									

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-65226-1 DU
Matrix: Solid
Analysis Batch: 418113

Client Sample ID: SS-172
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Percent Moisture	11.1		11.2		%		0.7	20
Percent Solids	88.9		88.8		%		0.09	20

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

LCMS

Prep Batch: 418992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-1 - DL	SS-172	Total/NA	Solid	SHAKE	
320-65226-1	SS-172	Total/NA	Solid	SHAKE	
320-65226-2	SS-156	Total/NA	Solid	SHAKE	
320-65226-3	SS-155	Total/NA	Solid	SHAKE	
320-65226-4	SS-154	Total/NA	Solid	SHAKE	
320-65226-5	SS-153	Total/NA	Solid	SHAKE	
320-65226-6	SS-152	Total/NA	Solid	SHAKE	
320-65226-7	SS-151	Total/NA	Solid	SHAKE	
320-65226-8	SS-150	Total/NA	Solid	SHAKE	
320-65226-9	SS-149	Total/NA	Solid	SHAKE	
MB 320-418992/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-418992/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-65226-1 MS - DL	SS-172	Total/NA	Solid	SHAKE	
320-65226-1 MS	SS-172	Total/NA	Solid	SHAKE	
320-65226-1 MSD - DL	SS-172	Total/NA	Solid	SHAKE	
320-65226-1 MSD	SS-172	Total/NA	Solid	SHAKE	

Prep Batch: 418993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-10 - DL	SS-148	Total/NA	Solid	SHAKE	
320-65226-10	SS-148	Total/NA	Solid	SHAKE	
320-65226-11	SS-147	Total/NA	Solid	SHAKE	
320-65226-12	SS-146	Total/NA	Solid	SHAKE	
320-65226-13	SS-145	Total/NA	Solid	SHAKE	
320-65226-14	SS-144	Total/NA	Solid	SHAKE	
320-65226-15	SS-143	Total/NA	Solid	SHAKE	
320-65226-16	SS-142	Total/NA	Solid	SHAKE	
320-65226-18	DUP-02	Total/NA	Solid	SHAKE	
320-65226-19	DUP-03	Total/NA	Solid	SHAKE	
MB 320-418993/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-418993/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-65226-10 MS - DL	SS-148	Total/NA	Solid	SHAKE	
320-65226-10 MS	SS-148	Total/NA	Solid	SHAKE	
320-65226-10 MSD - DL	SS-148	Total/NA	Solid	SHAKE	
320-65226-10 MSD	SS-148	Total/NA	Solid	SHAKE	

Analysis Batch: 420405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-1	SS-172	Total/NA	Solid	537 (modified)	418992
320-65226-2	SS-156	Total/NA	Solid	537 (modified)	418992
320-65226-3	SS-155	Total/NA	Solid	537 (modified)	418992
320-65226-4	SS-154	Total/NA	Solid	537 (modified)	418992
320-65226-5	SS-153	Total/NA	Solid	537 (modified)	418992
320-65226-6	SS-152	Total/NA	Solid	537 (modified)	418992
320-65226-7	SS-151	Total/NA	Solid	537 (modified)	418992
320-65226-8	SS-150	Total/NA	Solid	537 (modified)	418992
320-65226-9	SS-149	Total/NA	Solid	537 (modified)	418992
MB 320-418992/1-A	Method Blank	Total/NA	Solid	537 (modified)	418992
LCS 320-418992/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	418992
320-65226-1 MS	SS-172	Total/NA	Solid	537 (modified)	418992
320-65226-1 MSD	SS-172	Total/NA	Solid	537 (modified)	418992

Eurofins TestAmerica, Sacramento

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

LCMS

Analysis Batch: 420408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-10	SS-148	Total/NA	Solid	537 (modified)	418993
320-65226-11	SS-147	Total/NA	Solid	537 (modified)	418993
320-65226-12	SS-146	Total/NA	Solid	537 (modified)	418993
320-65226-13	SS-145	Total/NA	Solid	537 (modified)	418993
320-65226-14	SS-144	Total/NA	Solid	537 (modified)	418993
320-65226-15	SS-143	Total/NA	Solid	537 (modified)	418993
320-65226-16	SS-142	Total/NA	Solid	537 (modified)	418993
320-65226-18	DUP-02	Total/NA	Solid	537 (modified)	418993
320-65226-19	DUP-03	Total/NA	Solid	537 (modified)	418993
MB 320-418993/1-A	Method Blank	Total/NA	Solid	537 (modified)	418993
LCS 320-418993/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	418993
320-65226-10 MS	SS-148	Total/NA	Solid	537 (modified)	418993
320-65226-10 MSD	SS-148	Total/NA	Solid	537 (modified)	418993

Analysis Batch: 420974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-10 - DL	SS-148	Total/NA	Solid	537 (modified)	418993
320-65226-10 MS - DL	SS-148	Total/NA	Solid	537 (modified)	418993
320-65226-10 MSD - DL	SS-148	Total/NA	Solid	537 (modified)	418993

Analysis Batch: 421231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-1 - DL	SS-172	Total/NA	Solid	537 (modified)	418992
320-65226-1 MS - DL	SS-172	Total/NA	Solid	537 (modified)	418992
320-65226-1 MSD - DL	SS-172	Total/NA	Solid	537 (modified)	418992

General Chemistry

Analysis Batch: 418113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-65226-1	SS-172	Total/NA	Solid	D 2216	
320-65226-2	SS-156	Total/NA	Solid	D 2216	
320-65226-3	SS-155	Total/NA	Solid	D 2216	
320-65226-4	SS-154	Total/NA	Solid	D 2216	
320-65226-5	SS-153	Total/NA	Solid	D 2216	
320-65226-6	SS-152	Total/NA	Solid	D 2216	
320-65226-7	SS-151	Total/NA	Solid	D 2216	
320-65226-8	SS-150	Total/NA	Solid	D 2216	
320-65226-9	SS-149	Total/NA	Solid	D 2216	
320-65226-10	SS-148	Total/NA	Solid	D 2216	
320-65226-11	SS-147	Total/NA	Solid	D 2216	
320-65226-12	SS-146	Total/NA	Solid	D 2216	
320-65226-13	SS-145	Total/NA	Solid	D 2216	
320-65226-14	SS-144	Total/NA	Solid	D 2216	
320-65226-15	SS-143	Total/NA	Solid	D 2216	
320-65226-16	SS-142	Total/NA	Solid	D 2216	
320-65226-18	DUP-02	Total/NA	Solid	D 2216	
320-65226-19	DUP-03	Total/NA	Solid	D 2216	
320-65226-1 DU	SS-172	Total/NA	Solid	D 2216	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-172

Date Collected: 09/29/20 11:50

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-172

Date Collected: 09/29/20 11:50

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-1

Matrix: Solid

Percent Solids: 88.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		5.32 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			421231	10/13/20 10:29	D1R	TAL SAC
Total/NA	Prep	SHAKE			5.32 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/09/20 22:39	K1S	TAL SAC

Client Sample ID: SS-156

Date Collected: 09/29/20 13:30

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-156

Date Collected: 09/29/20 13:30

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-2

Matrix: Solid

Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.48 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/09/20 23:07	K1S	TAL SAC

Client Sample ID: SS-155

Date Collected: 09/29/20 13:45

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-155

Date Collected: 09/29/20 13:45

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-3

Matrix: Solid

Percent Solids: 96.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.43 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/09/20 23:16	K1S	TAL SAC

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-154

Date Collected: 09/29/20 13:50

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-4

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-154

Date Collected: 09/29/20 13:50

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-4

Matrix: Solid

Percent Solids: 91.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.30 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/09/20 23:26	K1S	TAL SAC

Client Sample ID: SS-153

Date Collected: 09/29/20 14:15

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-5

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-153

Date Collected: 09/29/20 14:15

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-5

Matrix: Solid

Percent Solids: 91.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.43 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/09/20 23:54	K1S	TAL SAC

Client Sample ID: SS-152

Date Collected: 09/29/20 14:25

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-152

Date Collected: 09/29/20 14:25

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-6

Matrix: Solid

Percent Solids: 88.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.23 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/10/20 00:03	K1S	TAL SAC

Client Sample ID: SS-151

Date Collected: 09/29/20 14:35

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Eurofins TestAmerica, Sacramento

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-151
Date Collected: 09/29/20 14:35
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-7
Matrix: Solid
Percent Solids: 88.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.27 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/10/20 00:12	K1S	TAL SAC

Client Sample ID: SS-150
Date Collected: 09/29/20 14:50
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-150
Date Collected: 09/29/20 14:50
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-8
Matrix: Solid
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/10/20 00:22	K1S	TAL SAC

Client Sample ID: SS-149
Date Collected: 09/29/20 15:00
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-149
Date Collected: 09/29/20 15:00
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-9
Matrix: Solid
Percent Solids: 87.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.10 g	10.00 mL	418992	10/06/20 05:20	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420405	10/10/20 00:31	K1S	TAL SAC

Client Sample ID: SS-148
Date Collected: 09/29/20 15:20
Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-148

Lab Sample ID: 320-65226-10

Date Collected: 09/29/20 15:20

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.14 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 01:46	K1S	TAL SAC
Total/NA	Prep	SHAKE	DL		5.14 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			420974	10/12/20 11:55	S1M	TAL SAC

Client Sample ID: SS-147

Lab Sample ID: 320-65226-11

Date Collected: 09/29/20 15:30

Matrix: Solid

Date Received: 10/01/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-147

Lab Sample ID: 320-65226-11

Date Collected: 09/29/20 15:30

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.23 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 02:14	K1S	TAL SAC

Client Sample ID: SS-146

Lab Sample ID: 320-65226-12

Date Collected: 09/29/20 15:40

Matrix: Solid

Date Received: 10/01/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-146

Lab Sample ID: 320-65226-12

Date Collected: 09/29/20 15:40

Matrix: Solid

Date Received: 10/01/20 09:40

Percent Solids: 88.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.30 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 02:23	K1S	TAL SAC

Client Sample ID: SS-145

Lab Sample ID: 320-65226-13

Date Collected: 09/29/20 16:00

Matrix: Solid

Date Received: 10/01/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-145

Date Collected: 09/29/20 16:00

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-13

Matrix: Solid

Percent Solids: 53.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.19 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 02:33	K1S	TAL SAC

Client Sample ID: SS-144

Date Collected: 09/29/20 16:15

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-14

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-144

Date Collected: 09/29/20 16:15

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-14

Matrix: Solid

Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.31 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 03:01	K1S	TAL SAC

Client Sample ID: SS-143

Date Collected: 09/29/20 16:25

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-15

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: SS-143

Date Collected: 09/29/20 16:25

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-15

Matrix: Solid

Percent Solids: 95.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.36 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 03:10	K1S	TAL SAC

Client Sample ID: SS-142

Date Collected: 09/29/20 16:35

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-16

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Client Sample ID: SS-142

Date Collected: 09/29/20 16:35

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-16

Matrix: Solid

Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.05 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 03:20	K1S	TAL SAC

Client Sample ID: DUP-02

Date Collected: 09/29/20 00:00

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-18

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: DUP-02

Date Collected: 09/29/20 00:00

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-18

Matrix: Solid

Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 03:29	K1S	TAL SAC

Client Sample ID: DUP-03

Date Collected: 09/29/20 00:00

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-19

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			418113	10/02/20 12:39	TCS	TAL SAC

Client Sample ID: DUP-03

Date Collected: 09/29/20 00:00

Date Received: 10/01/20 09:40

Lab Sample ID: 320-65226-19

Matrix: Solid

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.23 g	10.00 mL	418993	10/06/20 05:26	HK	TAL SAC
Total/NA	Analysis	537 (modified)		1			420408	10/10/20 03:38	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.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

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.
Project/Site: Marinette Supp Site Inv - 30015294.00020

Job ID: 320-65226-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-65226-1	SS-172	Solid	09/29/20 11:50	10/01/20 09:40	
320-65226-2	SS-156	Solid	09/29/20 13:30	10/01/20 09:40	
320-65226-3	SS-155	Solid	09/29/20 13:45	10/01/20 09:40	
320-65226-4	SS-154	Solid	09/29/20 13:50	10/01/20 09:40	
320-65226-5	SS-153	Solid	09/29/20 14:15	10/01/20 09:40	
320-65226-6	SS-152	Solid	09/29/20 14:25	10/01/20 09:40	
320-65226-7	SS-151	Solid	09/29/20 14:35	10/01/20 09:40	
320-65226-8	SS-150	Solid	09/29/20 14:50	10/01/20 09:40	
320-65226-9	SS-149	Solid	09/29/20 15:00	10/01/20 09:40	
320-65226-10	SS-148	Solid	09/29/20 15:20	10/01/20 09:40	
320-65226-11	SS-147	Solid	09/29/20 15:30	10/01/20 09:40	
320-65226-12	SS-146	Solid	09/29/20 15:40	10/01/20 09:40	
320-65226-13	SS-145	Solid	09/29/20 16:00	10/01/20 09:40	
320-65226-14	SS-144	Solid	09/29/20 16:15	10/01/20 09:40	
320-65226-15	SS-143	Solid	09/29/20 16:25	10/01/20 09:40	
320-65226-16	SS-142	Solid	09/29/20 16:35	10/01/20 09:40	
320-65226-18	DUP-02	Solid	09/29/20 00:00	10/01/20 09:40	
320-65226-19	DUP-03	Solid	09/29/20 00:00	10/01/20 09:40	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway

Chain of Custody Record **492303**



Environment Testing
TestAmerica

Address: West Sacramento, CA 95605-1500

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact		Project Manager: <u>Erin Henry</u>		Site Contact: <u>Amy Siefker</u>		Date: <u>9/30/20</u>		COC No:	
Company Name: <u>Arcadis</u>		Tel/Email:		Lab Contact: <u>S. Fredrick</u>		Carrier: <u>FedEx</u>		1 of 2 COCs	
Address: <u>126 N. Jefferson St, Suite 400</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) <u>587 Mod. PFAS</u> <u>36 compounds</u>				Sampler: <u>Amy Siefker</u>	
City/State/Zip: <u>Milwaukee, WI 53202</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
Phone:		TAT if different from Below _____						Walk-in Client:	
Fax:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <u>Standard</u>						Lab Sampling:	
Project Name: <u>Marquette Sup. Site Inv.</u>								Job / SDG No.:	
Site: <u>Marquette, WI</u>									
PO # <u>30005294.00020</u>									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	Sample Specific Notes:
✓ SS-172		9/29/20	1150	G	S	1	N	X	
✓ SS-156			1330			1		X	
✓ SS-155			1345			1		X	
✓ SS-154			1350			1		X	
✓ SS-153			1415			1		X	
✓ SS-152			1425			1		X	
✓ SS-151			1435			1		X	
✓ SS-150			1450			1		X	
✓ SS-149			1500			1		X	
✓ SS-148			1520			1		X	
✓ SS-147			1530			1		X	
✓ SS-146		↓	1540	↓	↓	1	↓	X	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.							<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		
<input checked="" type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown									
Special Instructions/QC Requirements & Comments: <u>Standard TAT</u>									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: <u>135717 / 135719</u>		Cooler Temp. (°C): Obs'd: <u>3.5</u> Corr'd: <u>4.0</u>		Therm ID No.: <u>146</u>			
Relinquished by: <u>Amy Siefker</u>		Company: <u>Arcadis</u>		Date/Time: <u>9/30/20 / 1630</u>		Received by: <u>[Signature]</u>		Company: <u>EMDsc</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Date/Time: <u>9/30/20 / 1120</u>	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Date/Time:	



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10/14/2020



Address: _____

Regulatory Program: DW NPDES RCRA Other:

TAL-8210

Client Contact		Project Manager:		Site Contact:		Date: 9/30/20		COC No:	
Company Name:		Tel/Email:		Lab Contact:		Carrier: FedEx		2 of 2 COCs	
Address:		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS / MSD (Y/N) 537 Mod. PEAS 36 compounds				Sampler: Amy Siefker For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:	
City/State/Zip:		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS							
Phone:		TAT if different from Below							
Fax:		<input type="checkbox"/> 2 weeks							
Project Name:		<input type="checkbox"/> 1 week							
Site:		<input type="checkbox"/> 2 days		Standard					
PO#		<input type="checkbox"/> 1 day							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			Sample Specific Notes:
SS-145		9/29/20	1600	G	S	1	N	X	
SS-144			1615		S	1		X	
SS-143			1630	1625	S	1		X	
SS-142			1635		S	1		X	
SS-140			1725		S	1		X	
DUP-02			—		S	1		X	Duplicate
DUP-03			—		S	1		X	Duplicate
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other							N		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments: Standard TAT									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.: 135717 135719		Cooler Temp. (°C): Obs'd: 35		Corr'd: 40		Therm ID No.: gkl	
Relinquished by: Amy Siefker		Company: Arcadis		Date/Time: 9/30/20/1630		Received by: [Signature]		Company: EPA	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	

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10/14/2020

* Sample in Glass jar, DU 10/14/20



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 320-65226-1

Login Number: 65226

List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Oropeza, Salvador

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	135717/135719
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.	False	Improper containers received.
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	

