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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:
August 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

A large amount of data is collected through the site investigation process. Tyco has included in work plans an estimated schedule for data transmittal to the Wisconsin Department of Natural Resources (WDNR). As requested by the WDNR, Tyco provided a project schedule with reports dates and other related project tasks/milestones for review and comment on March 12, 2020. Tyco proposed summary reports that would convey site investigation data to the WDNR (therefore providing data per s. NR 716.12(3)). This *Samples Results Notification* is being provided to satisfy NR716.12(2) for a surface water sample that was collected from Green Bay.

Phone:
414 276 7742

Email:
Ben.Verburg@arcadis.com

A surface water sample was collected approximately about 160 feet offshore, near where Ditch B enters Green Bay on June 23. Figure 1 presents the sample location. The sample location was selected to coincide with the implementation of the Bay of Green Bay Work Plan (work plan) which is ongoing. The surface water sample was a grab sample collected by Arcadis staff from a boat. The sample was collected for analysis of per- and polyfluoroalkyl substances (PFAS) using Method 537 (modified) and total suspended solids (TSS) using Method SM 2540D.

Our ref:
30015294

Table 1 below summarizes the PFAS detections in the sample. Values for the parent samples are shown first, with values for the duplicate sample shown in brackets. The TSS results were 9.0 milligrams per liter (mg/L) [8.5 mg/L duplicate]

Table 1 Summary of Detections – PFAS

Method: 537 (modified) - Fluorinated Alkyl Substances	Result (ng/L)
Perfluorobutanoic acid (PFBA)	3.8 [3.8]
Perfluoropentanoic acid (PFPeA)	4.8 [5.8]
Perfluorohexanoic acid (PFHxA)	5.2 [5.2]
Perfluoroheptanoic acid (PFHpA)	2.7 [3.0]
Perfluorooctanoic acid (PFOA)	13 [15]
Perfluorononanoic acid (PFNA)	1.1J [1.3J]
Perfluorobutanesulfonic acid (PFBS)	0.51J [0.43J]
Perfluorohexanesulfonic acid (PFHxS)	1.3J [1.5J]
Perfluorooctanesulfonic acid (PFOS)	4.2 [4.3]
Perfluorooctanesulfonamide (FOSA)	0.55J [0.70J]
6:2 FTS	14 [16J]
8:2 FTS	1.9J [2.5J]

Notes:

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

ng/L nanograms per liter

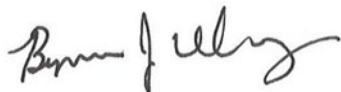
Bracketed results are duplicate sample analytical results.

At this stage, there is not enough information available to explain the cause or significance of any detections. Tyco will provide updates to the WDNR as data collection work continues. Based on the results of the hydrodynamic analysis the water is moving generally southwest and Arcadis is proposing to collect 4 additional surface water samples by the end of September from locations SW-B1, H-GB1, H-GB2, H-GB4.

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

Rick Bethel

David Neste
Wisconsin Department of Natural Resources
August 28, 2020

Scott Wahl

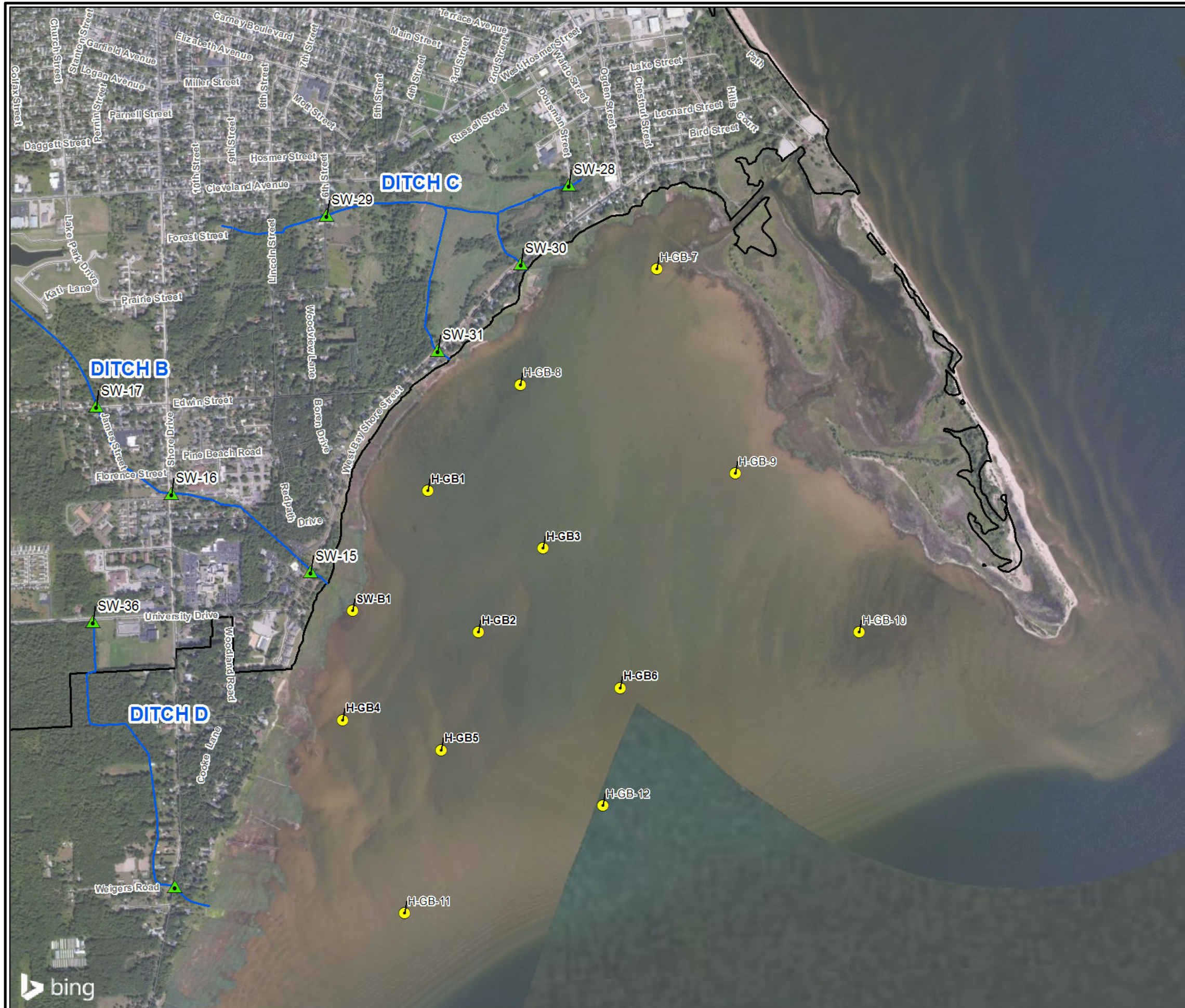
Enclosures:

Figures

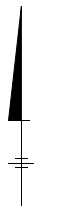
- 1 Proposed Green Bay Surface Water Locations

Attachments

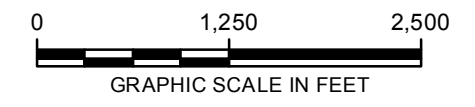
Eurofins Analytical Reports (2)



- LEGEND:**
- SURFACE WATER HYDRODYNAMICS LOCATION
 - ▲ 2018 SURFACE WATER SAMPLE
 - APPROXIMATE SITE PROPERTY BOUNDARY
 - APPROXIMATE MARINETTE CITY BOUNDARY
 - ROAD
 - DITCH/STREAM



NOTES:
 1. AERIAL SOURCE = GOOGLE EARTH PRO VERSION 7.1, 2019 TERRAMETRICS, 2018 GOOGLE IMAGE NOAA IMAGERY DATE: 10/10/2013, LAT 45.068006° LONG -87.602603°.



TYCO FIRE PRODUCTS, LP
 MARINETTE, WISCONSIN

**GREEN BAY HYDRODYNAMIC
 INVESTIGATION LOCATIONS**

ARCADIS | **FIGURE 1**



ANALYTICAL REPORT

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

Laboratory Job ID: 500-184069-1
Client Project/Site: Marinette, WI 30015294.00013

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

Attn: Elizabeth Hover



Authorized for release by:
7/6/2020 10:52:57 AM

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

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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Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Job ID: 500-184069-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative 500-184069-1

Comments

No additional comments.

Receipt

The samples were received on 6/25/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.3° C.

LCMS

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for several analytes in the following sample: SW-B1 (062320) (500-184069-1[MSD]). 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 Perfluoroheptanesulfonic Acid (PFHpS) and DONA in preparation batch 320-390100 and analytical batch 320-390206 were outside control limits. Sample matrix interference are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Organic Prep

Method 3535: The following samples are pale yellow prior to extraction: SW-B1 (062320) (500-184069-1), SW-B1 (062320) (500-184069-1[MS]), SW-B1 (062320) (500-184069-1[MSD]) and DUP-01 (062320) (500-184069-2).

320-390100

Method: 3535 PFC-W

Method 3535: The following samples contain floating particulates in the sample bottle prior to extraction: SW-B1 (062320) (500-184069-1), SW-B1 (062320) (500-184069-1[MS]), SW-B1 (062320) (500-184069-1[MSD]) and DUP-01 (062320) (500-184069-2).

320-390100

Method: 3535 PFC-W

Method 3535: The following samples are yellow after extraction: SW-B1 (062320) (500-184069-1), SW-B1 (062320) (500-184069-1[MS]), SW-B1 (062320) (500-184069-1[MSD]) and DUP-01 (062320) (500-184069-2).

320-390100

Method: 3535 PFC-W

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

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-184069-1	SW-B1 (062320)	Water	06/23/20 13:40	06/25/20 09:40	
500-184069-2	DUP-01 (062320)	Water	06/23/20 00:00	06/25/20 09:40	
500-184069-3	FIELD BLANK-06-23-2020	Water	06/23/20 13:45	06/25/20 09:40	

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: SW-B1 (062320)

Lab Sample ID: 500-184069-1

Date Collected: 06/23/20 13:40

Matrix: Water

Date Received: 06/25/20 09:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.8		1.8	0.31	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoropentanoic acid (PFPeA)	4.8		1.8	0.43	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorohexanoic acid (PFHxA)	5.2		1.8	0.51	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoroheptanoic acid (PFHpA)	2.7		1.8	0.22	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorooctanoic acid (PFOA)	13		1.8	0.75	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorononanoic acid (PFNA)	1.1	J	1.8	0.24	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.27	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.97	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.48	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.1	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.25	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.78	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.40	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorobutanesulfonic acid (PFBS)	0.51	J	1.8	0.18	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.26	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	1.8	0.15	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8	F1 F2	1.8	0.17	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorooctanesulfonic acid (PFOS)	4.2		1.8	0.47	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.14	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.40	ng/L		06/27/20 06:25	06/28/20 14:53	1
Perfluorooctanesulfonamide (FOSA)	0.55	J B	1.8	0.31	ng/L		06/27/20 06:25	06/28/20 14:53	1
NEtFOSA	<1.8		1.8	0.76	ng/L		06/27/20 06:25	06/28/20 14:53	1
NMeFOSA	<1.8		1.8	0.38	ng/L		06/27/20 06:25	06/28/20 14:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		18	2.7	ng/L		06/27/20 06:25	06/28/20 14:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		18	1.7	ng/L		06/27/20 06:25	06/28/20 14:53	1
NMeFOSE	<3.5		3.5	1.2	ng/L		06/27/20 06:25	06/28/20 14:53	1
NEtFOSE	<1.8		1.8	0.75	ng/L		06/27/20 06:25	06/28/20 14:53	1
4:2 FTS	<18		18	4.6	ng/L		06/27/20 06:25	06/28/20 14:53	1
6:2 FTS	14	J	18	1.8	ng/L		06/27/20 06:25	06/28/20 14:53	1
8:2 FTS	1.9	J	18	1.8	ng/L		06/27/20 06:25	06/28/20 14:53	1
10:2 FTS	<1.8		1.8	0.17	ng/L		06/27/20 06:25	06/28/20 14:53	1
DONA	<1.8	F1 F2	1.8	0.16	ng/L		06/27/20 06:25	06/28/20 14:53	1
HFPO-DA (GenX)	<3.5		3.5	1.3	ng/L		06/27/20 06:25	06/28/20 14:53	1
F-53B Major	<1.8		1.8	0.21	ng/L		06/27/20 06:25	06/28/20 14:53	1
F-53B Minor	<1.8		1.8	0.28	ng/L		06/27/20 06:25	06/28/20 14:53	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	73		25 - 150				06/27/20 06:25	06/28/20 14:53	1
13C5 PFPeA	97		25 - 150				06/27/20 06:25	06/28/20 14:53	1
13C2 PFHxA	85		25 - 150				06/27/20 06:25	06/28/20 14:53	1
13C4 PFHpA	97		25 - 150				06/27/20 06:25	06/28/20 14:53	1

Eurofins TestAmerica, Chicago

Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: SW-B1 (062320)

Lab Sample ID: 500-184069-1

Date Collected: 06/23/20 13:40

Matrix: Water

Date Received: 06/25/20 09:40

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	96		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C5 PFNA	109		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C2 PFDA	105		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C2 PFUnA	94		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C2 PFDoA	88		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C2 PFTeDA	75		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C2 PFHxDA	60		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C3 PFBS	91		25 - 150	06/27/20 06:25	06/28/20 14:53	1
18O2 PFHxS	97		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C4 PFOS	96		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C8 FOSA	107		25 - 150	06/27/20 06:25	06/28/20 14:53	1
d3-NMeFOSAA	89		25 - 150	06/27/20 06:25	06/28/20 14:53	1
d5-NEtFOSAA	97		25 - 150	06/27/20 06:25	06/28/20 14:53	1
d-N-MeFOSA-M	72		20 - 150	06/27/20 06:25	06/28/20 14:53	1
d-N-EtFOSA-M	63		20 - 150	06/27/20 06:25	06/28/20 14:53	1
d7-N-MeFOSE-M	41		10 - 120	06/27/20 06:25	06/28/20 14:53	1
d9-N-EtFOSE-M	39		10 - 120	06/27/20 06:25	06/28/20 14:53	1
M2-4:2 FTS	124		25 - 150	06/27/20 06:25	06/28/20 14:53	1
M2-6:2 FTS	146		25 - 150	06/27/20 06:25	06/28/20 14:53	1
M2-8:2 FTS	135		25 - 150	06/27/20 06:25	06/28/20 14:53	1
13C3 HFPO-DA	82		25 - 150	06/27/20 06:25	06/28/20 14:53	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: DUP-01 (062320)

Lab Sample ID: 500-184069-2

Date Collected: 06/23/20 00:00

Matrix: Water

Date Received: 06/25/20 09:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.8		1.8	0.31	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoropentanoic acid (PFPeA)	5.8		1.8	0.43	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorohexanoic acid (PFHxA)	5.2		1.8	0.51	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.22	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorooctanoic acid (PFOA)	15		1.8	0.75	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorononanoic acid (PFNA)	1.3	J	1.8	0.24	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.98	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.49	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.26	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.79	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.41	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorobutanesulfonic acid (PFBS)	0.43	J	1.8	0.18	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorohexanesulfonic acid (PFHxS)	1.5	J B	1.8	0.15	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8		1.8	0.17	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorooctanesulfonic acid (PFOS)	4.3		1.8	0.48	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.14	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.40	ng/L		06/27/20 06:25	06/28/20 15:21	1
Perfluorooctanesulfonamide (FOSA)	0.70	J B	1.8	0.31	ng/L		06/27/20 06:25	06/28/20 15:21	1
NEtFOSA	<1.8		1.8	0.77	ng/L		06/27/20 06:25	06/28/20 15:21	1
NMeFOSA	<1.8		1.8	0.38	ng/L		06/27/20 06:25	06/28/20 15:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		18	2.8	ng/L		06/27/20 06:25	06/28/20 15:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		18	1.7	ng/L		06/27/20 06:25	06/28/20 15:21	1
NMeFOSE	<3.5		3.5	1.2	ng/L		06/27/20 06:25	06/28/20 15:21	1
NEtFOSE	<1.8		1.8	0.75	ng/L		06/27/20 06:25	06/28/20 15:21	1
4:2 FTS	<18		18	4.6	ng/L		06/27/20 06:25	06/28/20 15:21	1
6:2 FTS	16	J	18	1.8	ng/L		06/27/20 06:25	06/28/20 15:21	1
8:2 FTS	2.5	J	18	1.8	ng/L		06/27/20 06:25	06/28/20 15:21	1
10:2 FTS	<1.8		1.8	0.17	ng/L		06/27/20 06:25	06/28/20 15:21	1
DONA	<1.8		1.8	0.16	ng/L		06/27/20 06:25	06/28/20 15:21	1
HFPO-DA (GenX)	<3.5		3.5	1.3	ng/L		06/27/20 06:25	06/28/20 15:21	1
F-53B Major	<1.8		1.8	0.21	ng/L		06/27/20 06:25	06/28/20 15:21	1
F-53B Minor	<1.8		1.8	0.28	ng/L		06/27/20 06:25	06/28/20 15:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	71		25 - 150				06/27/20 06:25	06/28/20 15:21	1
13C5 PFPeA	91		25 - 150				06/27/20 06:25	06/28/20 15:21	1
13C2 PFHxA	87		25 - 150				06/27/20 06:25	06/28/20 15:21	1
13C4 PFHpA	95		25 - 150				06/27/20 06:25	06/28/20 15:21	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: DUP-01 (062320)

Lab Sample ID: 500-184069-2

Date Collected: 06/23/20 00:00

Matrix: Water

Date Received: 06/25/20 09:40

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	93		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C5 PFNA	111		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C2 PFDA	102		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C2 PFUnA	97		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C2 PFDoA	94		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C2 PFTeDA	76		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C2 PFHxDA	61		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C3 PFBS	89		25 - 150	06/27/20 06:25	06/28/20 15:21	1
18O2 PFHxS	96		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C4 PFOS	102		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C8 FOSA	101		25 - 150	06/27/20 06:25	06/28/20 15:21	1
d3-NMeFOSAA	91		25 - 150	06/27/20 06:25	06/28/20 15:21	1
d5-NEtFOSAA	98		25 - 150	06/27/20 06:25	06/28/20 15:21	1
d-N-MeFOSA-M	63		20 - 150	06/27/20 06:25	06/28/20 15:21	1
d-N-EtFOSA-M	53		20 - 150	06/27/20 06:25	06/28/20 15:21	1
d7-N-MeFOSE-M	37		10 - 120	06/27/20 06:25	06/28/20 15:21	1
d9-N-EtFOSE-M	36		10 - 120	06/27/20 06:25	06/28/20 15:21	1
M2-4:2 FTS	129		25 - 150	06/27/20 06:25	06/28/20 15:21	1
M2-6:2 FTS	144		25 - 150	06/27/20 06:25	06/28/20 15:21	1
M2-8:2 FTS	131		25 - 150	06/27/20 06:25	06/28/20 15:21	1
13C3 HFPO-DA	83		25 - 150	06/27/20 06:25	06/28/20 15:21	1

Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: FIELD BLANK-06-23-2020

Lab Sample ID: 500-184069-3

Date Collected: 06/23/20 13:45

Matrix: Water

Date Received: 06/25/20 09:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<1.9		1.9	0.33	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoropentanoic acid (PFPeA)	<1.9		1.9	0.46	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	0.55	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	0.24	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	0.81	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	0.26	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.29	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.0	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.52	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.27	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.84	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.44	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	0.19	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.28	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorohexanesulfonic acid (PFHxS)	0.27	J B	1.9	0.16	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	<1.9		1.9	0.18	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorooctanesulfonic acid (PFOS)	<1.9		1.9	0.51	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.15	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.30	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.43	ng/L		06/27/20 06:25	06/28/20 15:30	1
Perfluorooctanesulfonamide (FOSA)	0.44	J B	1.9	0.33	ng/L		06/27/20 06:25	06/28/20 15:30	1
NEtFOSA	<1.9		1.9	0.82	ng/L		06/27/20 06:25	06/28/20 15:30	1
NMeFOSA	<1.9		1.9	0.41	ng/L		06/27/20 06:25	06/28/20 15:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<19		19	2.9	ng/L		06/27/20 06:25	06/28/20 15:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<19		19	1.8	ng/L		06/27/20 06:25	06/28/20 15:30	1
NMeFOSE	<3.8		3.8	1.3	ng/L		06/27/20 06:25	06/28/20 15:30	1
NEtFOSE	<1.9		1.9	0.81	ng/L		06/27/20 06:25	06/28/20 15:30	1
4:2 FTS	<19		19	4.9	ng/L		06/27/20 06:25	06/28/20 15:30	1
6:2 FTS	<19		19	1.9	ng/L		06/27/20 06:25	06/28/20 15:30	1
8:2 FTS	<19		19	1.9	ng/L		06/27/20 06:25	06/28/20 15:30	1
10:2 FTS	<1.9		1.9	0.18	ng/L		06/27/20 06:25	06/28/20 15:30	1
DONA	<1.9		1.9	0.17	ng/L		06/27/20 06:25	06/28/20 15:30	1
HFPO-DA (GenX)	<3.8		3.8	1.4	ng/L		06/27/20 06:25	06/28/20 15:30	1
F-53B Major	<1.9		1.9	0.23	ng/L		06/27/20 06:25	06/28/20 15:30	1
F-53B Minor	<1.9		1.9	0.30	ng/L		06/27/20 06:25	06/28/20 15:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	107		25 - 150				06/27/20 06:25	06/28/20 15:30	1
13C5 PFPeA	104		25 - 150				06/27/20 06:25	06/28/20 15:30	1
13C2 PFHxA	103		25 - 150				06/27/20 06:25	06/28/20 15:30	1
13C4 PFHpA	107		25 - 150				06/27/20 06:25	06/28/20 15:30	1
13C4 PFOA	101		25 - 150				06/27/20 06:25	06/28/20 15:30	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: FIELD BLANK-06-23-2020

Lab Sample ID: 500-184069-3

Date Collected: 06/23/20 13:45

Matrix: Water

Date Received: 06/25/20 09:40

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	108		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C2 PFDA	102		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C2 PFUnA	100		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C2 PFDoA	94		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C2 PFTeDA	92		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C2 PFHxDA	84		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C3 PFBS	101		25 - 150	06/27/20 06:25	06/28/20 15:30	1
18O2 PFHxS	109		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C4 PFOS	98		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C8 FOSA	103		25 - 150	06/27/20 06:25	06/28/20 15:30	1
d3-NMeFOSAA	88		25 - 150	06/27/20 06:25	06/28/20 15:30	1
d5-NEtFOSAA	98		25 - 150	06/27/20 06:25	06/28/20 15:30	1
d-N-MeFOSA-M	80		20 - 150	06/27/20 06:25	06/28/20 15:30	1
d-N-EtFOSA-M	55		20 - 150	06/27/20 06:25	06/28/20 15:30	1
d7-N-MeFOSE-M	27		10 - 120	06/27/20 06:25	06/28/20 15:30	1
d9-N-EtFOSE-M	19		10 - 120	06/27/20 06:25	06/28/20 15:30	1
M2-4:2 FTS	102		25 - 150	06/27/20 06:25	06/28/20 15:30	1
M2-6:2 FTS	122		25 - 150	06/27/20 06:25	06/28/20 15:30	1
M2-8:2 FTS	127		25 - 150	06/27/20 06:25	06/28/20 15:30	1
13C3 HFPO-DA	101		25 - 150	06/27/20 06:25	06/28/20 15:30	1

Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5	Isotope dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
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

QC Association Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

LCMS

Prep Batch: 390100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-184069-1	SW-B1 (062320)	Total/NA	Water	3535	
500-184069-2	DUP-01 (062320)	Total/NA	Water	3535	
500-184069-3	FIELD BLANK-06-23-2020	Total/NA	Water	3535	
MB 320-390100/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-390100/2-A	Lab Control Sample	Total/NA	Water	3535	
500-184069-1 MS	SW-B1 (062320)	Total/NA	Water	3535	
500-184069-1 MSD	SW-B1 (062320)	Total/NA	Water	3535	

Analysis Batch: 390206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-184069-1	SW-B1 (062320)	Total/NA	Water	537 (modified)	390100
500-184069-2	DUP-01 (062320)	Total/NA	Water	537 (modified)	390100
500-184069-3	FIELD BLANK-06-23-2020	Total/NA	Water	537 (modified)	390100
MB 320-390100/1-A	Method Blank	Total/NA	Water	537 (modified)	390100
LCS 320-390100/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	390100
500-184069-1 MS	SW-B1 (062320)	Total/NA	Water	537 (modified)	390100
500-184069-1 MSD	SW-B1 (062320)	Total/NA	Water	537 (modified)	390100



QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-390100/1-A
Matrix: Water
Analysis Batch: 390206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390100

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.0		2.0	0.35	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.29	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.46	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorohexanesulfonic acid (PFHxS)	0.299	J	2.0	0.17	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.0		2.0	0.19	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.16	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.45	ng/L		06/27/20 06:25	06/28/20 14:34	1
Perfluorooctanesulfonamide (FOSA)	0.715	J	2.0	0.35	ng/L		06/27/20 06:25	06/28/20 14:34	1
NEtFOSA	<2.0		2.0	0.87	ng/L		06/27/20 06:25	06/28/20 14:34	1
NMeFOSA	<2.0		2.0	0.43	ng/L		06/27/20 06:25	06/28/20 14:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<20		20	3.1	ng/L		06/27/20 06:25	06/28/20 14:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<20		20	1.9	ng/L		06/27/20 06:25	06/28/20 14:34	1
NMeFOSE	<4.0		4.0	1.4	ng/L		06/27/20 06:25	06/28/20 14:34	1
NEtFOSE	1.89	J	2.0	0.85	ng/L		06/27/20 06:25	06/28/20 14:34	1
4:2 FTS	<20		20	5.2	ng/L		06/27/20 06:25	06/28/20 14:34	1
6:2 FTS	<20		20	2.0	ng/L		06/27/20 06:25	06/28/20 14:34	1
8:2 FTS	<20		20	2.0	ng/L		06/27/20 06:25	06/28/20 14:34	1
10:2 FTS	<2.0		2.0	0.19	ng/L		06/27/20 06:25	06/28/20 14:34	1
DONA	<2.0		2.0	0.18	ng/L		06/27/20 06:25	06/28/20 14:34	1
HFPO-DA (GenX)	<4.0		4.0	1.5	ng/L		06/27/20 06:25	06/28/20 14:34	1
F-53B Major	<2.0		2.0	0.24	ng/L		06/27/20 06:25	06/28/20 14:34	1
F-53B Minor	<2.0		2.0	0.32	ng/L		06/27/20 06:25	06/28/20 14:34	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	100		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C5 PFPeA	96		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFHxA	99		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C4 PFHpA	102		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C4 PFOA	98		25 - 150	06/27/20 06:25	06/28/20 14:34	1

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: MB 320-390100/1-A
Matrix: Water
Analysis Batch: 390206

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 390100

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFNA	101		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFDA	98		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFUnA	96		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFDoA	91		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFTeDA	94		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C2 PFHxDA	69		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C3 PFBS	101		25 - 150	06/27/20 06:25	06/28/20 14:34	1
18O2 PFHxS	105		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C4 PFOS	95		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C8 FOSA	105		25 - 150	06/27/20 06:25	06/28/20 14:34	1
d3-NMeFOSAA	82		25 - 150	06/27/20 06:25	06/28/20 14:34	1
d5-NEtFOSAA	93		25 - 150	06/27/20 06:25	06/28/20 14:34	1
d-N-MeFOSA-M	84		20 - 150	06/27/20 06:25	06/28/20 14:34	1
d-N-EtFOSA-M	50		20 - 150	06/27/20 06:25	06/28/20 14:34	1
d7-N-MeFOSE-M	21		10 - 120	06/27/20 06:25	06/28/20 14:34	1
d9-N-EtFOSE-M	14		10 - 120	06/27/20 06:25	06/28/20 14:34	1
M2-4:2 FTS	103		25 - 150	06/27/20 06:25	06/28/20 14:34	1
M2-6:2 FTS	127		25 - 150	06/27/20 06:25	06/28/20 14:34	1
M2-8:2 FTS	120		25 - 150	06/27/20 06:25	06/28/20 14:34	1
13C3 HFPO-DA	96		25 - 150	06/27/20 06:25	06/28/20 14:34	1

Lab Sample ID: LCS 320-390100/2-A
Matrix: Water
Analysis Batch: 390206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	44.4		ng/L		111	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	38.9		ng/L		97	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	42.1		ng/L		105	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	43.6		ng/L		109	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	40.0	42.9		ng/L		107	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.0		ng/L		102	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	44.2		ng/L		110	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	43.3		ng/L		108	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	44.0		ng/L		110	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	40.5		ng/L		101	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	41.3		ng/L		103	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	40.0	41.8		ng/L		105	58 - 145
Perfluorobutanesulfonic acid (PFBS)	35.4	35.0		ng/L		99	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	37.5	37.9		ng/L		101	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.8		ng/L		96	59 - 119

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: LCS 320-390100/2-A
Matrix: Water
Analysis Batch: 390206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	42.6		ng/L		112	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	39.8		ng/L		107	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	41.5		ng/L		108	75 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.4		ng/L		102	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	38.7	42.3		ng/L		109	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	44.7		ng/L		112	73 - 133
NMeFOSA	40.0	44.1		ng/L		110	67 - 154
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	47.2		ng/L		118	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	48.8		ng/L		122	76 - 136
NMeFOSE	40.0	42.9		ng/L		107	70 - 130
NEtFOSE	40.0	40.2		ng/L		100	71 - 131
4:2 FTS	37.4	42.0		ng/L		112	79 - 139
6:2 FTS	37.9	38.3		ng/L		101	59 - 175
8:2 FTS	38.3	40.0		ng/L		104	75 - 135
10:2 FTS	38.6	38.4		ng/L		100	64 - 142
DONA	37.7	46.2		ng/L		123	79 - 139
HFPO-DA (GenX)	40.0	40.6		ng/L		102	51 - 173
F-53B Major	37.3	38.9		ng/L		104	75 - 135
F-53B Minor	37.7	35.5		ng/L		94	54 - 114

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	92		25 - 150
13C5 PFPeA	97		25 - 150
13C2 PFHxA	91		25 - 150
13C4 PFHpA	94		25 - 150
13C4 PFOA	91		25 - 150
13C5 PFNA	92		25 - 150
13C2 PFDA	92		25 - 150
13C2 PFUnA	85		25 - 150
13C2 PFDoA	82		25 - 150
13C2 PFTeDA	78		25 - 150
13C2 PFHxDA	70		25 - 150
13C3 PFBS	96		25 - 150
18O2 PFHxS	97		25 - 150
13C4 PFOS	85		25 - 150
13C8 FOSA	93		25 - 150
d3-NMeFOSAA	84		25 - 150
d5-NEtFOSAA	84		25 - 150
d-N-MeFOSA-M	75		20 - 150
d-N-EtFOSA-M	50		20 - 150
d7-N-MeFOSE-M	25		10 - 120
d9-N-EtFOSE-M	16		10 - 120
M2-4:2 FTS	97		25 - 150

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: LCS 320-390100/2-A
Matrix: Water
Analysis Batch: 390206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 390100

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
M2-6:2 FTS	112		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	90		25 - 150

Lab Sample ID: 500-184069-1 MS
Matrix: Water
Analysis Batch: 390206

Client Sample ID: SW-B1 (062320)
Prep Type: Total/NA
Prep Batch: 390100

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	3.8		37.4	41.2		ng/L		100	76 - 136
Perfluoropentanoic acid (PFPeA)	4.8		37.4	41.5		ng/L		98	71 - 131
Perfluorohexanoic acid (PFHxA)	5.2		37.4	44.6		ng/L		105	73 - 133
Perfluoroheptanoic acid (PFHpA)	2.7		37.4	43.6		ng/L		109	72 - 132
Perfluorooctanoic acid (PFOA)	13		37.4	50.5		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	1.1	J	37.4	39.8		ng/L		104	75 - 135
Perfluorodecanoic acid (PFDA)	<1.8		37.4	38.9		ng/L		104	76 - 136
Perfluoroundecanoic acid (PFUnA)	<1.8		37.4	39.2		ng/L		105	68 - 128
Perfluorododecanoic acid (PFDoA)	<1.8		37.4	38.3		ng/L		102	71 - 131
Perfluorotridecanoic acid (PFTriA)	<1.8		37.4	38.9		ng/L		104	71 - 131
Perfluorotetradecanoic acid (PFTeA)	<1.8		37.4	36.2		ng/L		97	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		37.4	37.4		ng/L		100	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		37.4	37.3		ng/L		100	58 - 145
Perfluorobutanesulfonic acid (PFBS)	0.51	J	33.0	31.3		ng/L		93	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	<1.8		35.1	37.2		ng/L		106	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	34.0	32.4		ng/L		91	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8	F1 F2	35.6	38.4		ng/L		108	76 - 136
Perfluorooctanesulfonic acid (PFOS)	4.2		34.7	39.4		ng/L		102	70 - 130
Perfluorononanesulfonic acid (PFNS)	<1.8		35.9	36.0		ng/L		100	75 - 135
Perfluorodecanesulfonic acid (PFDS)	<1.8		36.0	33.5		ng/L		93	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	<1.8		36.2	29.4		ng/L		81	67 - 127
Perfluorooctanesulfonamide (FOSA)	0.55	J B	37.4	41.6		ng/L		110	73 - 133
NMeFOSA	<1.8		37.4	39.6		ng/L		106	67 - 154
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		37.4	46.7		ng/L		125	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		37.4	41.3		ng/L		110	76 - 136
NMeFOSE	<3.5		37.4	38.1		ng/L		102	70 - 130
NEtFOSE	<1.8		37.4	39.7		ng/L		106	71 - 131

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: 500-184069-1 MS

Matrix: Water

Analysis Batch: 390206

Client Sample ID: SW-B1 (062320)

Prep Type: Total/NA

Prep Batch: 390100

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
4:2 FTS	<18		34.9	38.5		ng/L		110		79 - 139
6:2 FTS	14	J	35.4	45.4		ng/L		90		59 - 175
8:2 FTS	1.9	J	35.8	40.0		ng/L		106		75 - 135
10:2 FTS	<1.8		36.0	36.6		ng/L		102		64 - 142
DONA	<1.8	F1 F2	35.2	37.0		ng/L		105		79 - 139
HFPO-DA (GenX)	<3.5		37.4	39.9		ng/L		107		51 - 173
F-53B Major	<1.8		34.8	35.2		ng/L		101		75 - 135
F-53B Minor	<1.8		35.2	32.5		ng/L		92		54 - 114
		MS MS								
Isotope Dilution	%Recovery	Qualifier	Limits							
13C4 PFBA	74		25 - 150							
13C5 PFPeA	94		25 - 150							
13C2 PFHxA	86		25 - 150							
13C4 PFHpA	97		25 - 150							
13C4 PFOA	95		25 - 150							
13C5 PFNA	107		25 - 150							
13C2 PFDA	103		25 - 150							
13C2 PFUnA	98		25 - 150							
13C2 PFDoA	90		25 - 150							
13C2 PFTeDA	76		25 - 150							
13C2 PFHxDA	64		25 - 150							
13C3 PFBS	91		25 - 150							
18O2 PFHxS	99		25 - 150							
13C4 PFOS	98		25 - 150							
13C8 FOSA	98		25 - 150							
d3-NMeFOSAA	89		25 - 150							
d5-NEtFOSAA	94		25 - 150							
d-N-MeFOSA-M	73		20 - 150							
d-N-EtFOSA-M	59		20 - 150							
d7-N-MeFOSE-M	39		10 - 120							
d9-N-EtFOSE-M	36		10 - 120							
M2-4:2 FTS	134		25 - 150							
M2-6:2 FTS	149		25 - 150							
M2-8:2 FTS	131		25 - 150							
13C3 HFPO-DA	84		25 - 150							

Lab Sample ID: 500-184069-1 MSD

Matrix: Water

Analysis Batch: 390206

Client Sample ID: SW-B1 (062320)

Prep Type: Total/NA

Prep Batch: 390100

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Perfluorobutanoic acid (PFBA)	3.8		35.3	39.4		ng/L		101		76 - 136	5	30
Perfluoropentanoic acid (PFPeA)	4.8		35.3	38.3		ng/L		95		71 - 131	8	30
Perfluorohexanoic acid (PFHxA)	5.2		35.3	40.6		ng/L		100		73 - 133	9	30
Perfluoroheptanoic acid (PFHpA)	2.7		35.3	40.6		ng/L		108		72 - 132	7	30
Perfluorooctanoic acid (PFOA)	13		35.3	46.9		ng/L		96		70 - 130	7	30
Perfluorononanoic acid (PFNA)	1.1	J	35.3	36.2		ng/L		100		75 - 135	10	30
Perfluorodecanoic acid (PFDA)	<1.8		35.3	36.5		ng/L		103		76 - 136	6	30

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: 500-184069-1 MSD

Matrix: Water

Analysis Batch: 390206

Client Sample ID: SW-B1 (062320)

Prep Type: Total/NA

Prep Batch: 390100

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluoroundecanoic acid (PFUnA)	<1.8		35.3	37.5		ng/L		106	68 - 128	5	30
Perfluorododecanoic acid (PFDoA)	<1.8		35.3	37.9		ng/L		107	71 - 131	1	30
Perfluorotridecanoic acid (PFTriA)	<1.8		35.3	35.2		ng/L		100	71 - 131	10	30
Perfluorotetradecanoic acid (PFTeA)	<1.8		35.3	34.6		ng/L		98	70 - 130	5	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		35.3	33.6		ng/L		95	76 - 136	11	30
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		35.3	35.1		ng/L		99	58 - 145	6	30
Perfluorobutanesulfonic acid (PFBS)	0.51	J	31.2	29.6		ng/L		93	67 - 127	5	30
Perfluoropentanesulfonic acid (PFPeS)	<1.8		33.1	33.5		ng/L		101	66 - 126	10	30
Perfluorohexanesulfonic acid (PFHxS)	1.3	J B	32.1	32.7		ng/L		98	59 - 119	1	30
Perfluoroheptanesulfonic Acid (PFHpS)	<1.8	F1 F2	33.6	24.4	F1 F2	ng/L		73	76 - 136	44	30
Perfluorooctanesulfonic acid (PFOS)	4.2		32.7	34.1		ng/L		91	70 - 130	15	30
Perfluorononanesulfonic acid (PFNS)	<1.8		33.9	33.7		ng/L		99	75 - 135	7	30
Perfluorodecanesulfonic acid (PFDS)	<1.8		34.0	30.5		ng/L		90	71 - 131	9	30
Perfluorododecanesulfonic acid (PFDoS)	<1.8		34.1	24.6		ng/L		72	67 - 127	18	30
Perfluorooctanesulfonamide (FOSA)	0.55	J B	35.3	38.3		ng/L		107	73 - 133	8	30
NMeFOSA	<1.8		35.3	40.1		ng/L		114	67 - 154	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<18		35.3	42.5		ng/L		120	76 - 136	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<18		35.3	41.0		ng/L		116	76 - 136	1	30
NMeFOSE	<3.5		35.3	32.9		ng/L		93	70 - 130	15	30
NEtFOSE	<1.8		35.3	35.7		ng/L		101	71 - 131	11	30
4:2 FTS	<18		32.9	36.6		ng/L		111	79 - 139	5	30
6:2 FTS	14	J	33.4	44.6		ng/L		93	59 - 175	2	30
8:2 FTS	1.9	J	33.8	34.7		ng/L		97	75 - 135	14	30
10:2 FTS	<1.8		34.0	29.8		ng/L		88	64 - 142	20	30
DONA	<1.8	F1 F2	33.2	24.6	F1 F2	ng/L		74	79 - 139	40	30
HFPO-DA (GenX)	<3.5		35.3	38.1		ng/L		108	51 - 173	5	30
F-53B Major	<1.8		32.9	33.8		ng/L		103	75 - 135	4	30
F-53B Minor	<1.8		33.2	27.0		ng/L		81	54 - 114	19	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFBA	74		25 - 150
13C5 PFPeA	100		25 - 150
13C2 PFHxA	94		25 - 150
13C4 PFHpA	100		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	161	*5	25 - 150

Eurofins TestAmerica, Chicago

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

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

Lab Sample ID: 500-184069-1 MSD

Matrix: Water

Analysis Batch: 390206

Client Sample ID: SW-B1 (062320)

Prep Type: Total/NA

Prep Batch: 390100

<i>Isotope Dilution</i>	<i>MSD</i> <i>%Recovery</i>	<i>MSD</i> <i>Qualifier</i>	<i>Limits</i>
13C2 PFDA	148		25 - 150
13C2 PFUnA	146		25 - 150
13C2 PFDoA	128		25 - 150
13C2 PFTeDA	100		25 - 150
13C2 PFHxDA	82		25 - 150
13C3 PFBS	98		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	141		25 - 150
13C8 FOSA	155	*5	25 - 150
d3-NMeFOSAA	141		25 - 150
d5-NEtFOSAA	141		25 - 150
d-N-MeFOSA-M	87		20 - 150
d-N-EtFOSA-M	72		20 - 150
d7-N-MeFOSE-M	49		10 - 120
d9-N-EtFOSE-M	44		10 - 120
M2-4:2 FTS	134		25 - 150
M2-6:2 FTS	145		25 - 150
M2-8:2 FTS	205	*5	25 - 150
13C3 HFPO-DA	86		25 - 150

Lab Chronicle

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Client Sample ID: SW-B1 (062320)

Lab Sample ID: 500-184069-1

Date Collected: 06/23/20 13:40

Matrix: Water

Date Received: 06/25/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			390100	06/27/20 06:25	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	390206	06/28/20 14:53	P1N	TAL SAC

Client Sample ID: DUP-01 (062320)

Lab Sample ID: 500-184069-2

Date Collected: 06/23/20 00:00

Matrix: Water

Date Received: 06/25/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			390100	06/27/20 06:25	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	390206	06/28/20 15:21	P1N	TAL SAC

Client Sample ID: FIELD BLANK-06-23-2020

Lab Sample ID: 500-184069-3

Date Collected: 06/23/20 13:45

Matrix: Water

Date Received: 06/25/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			390100	06/27/20 06:25	EG	TAL SAC
Total/NA	Analysis	537 (modified)		1	390206	06/28/20 15:30	P1N	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, WI 30015294.00013

Job ID: 500-184069-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-20

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	07-01-21
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-21
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-22
Michigan	State	9947	01-31-22
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-21
New Jersey	NELAP	CA005	06-30-21
New York	NELAP	11666	04-01-21
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-21
Texas	NELAP	T104704399-19-13	06-01-21
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-21
Virginia	NELAP	460278	03-14-21
Washington	State	C581	05-05-20 *
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

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



500-184069 Waybill

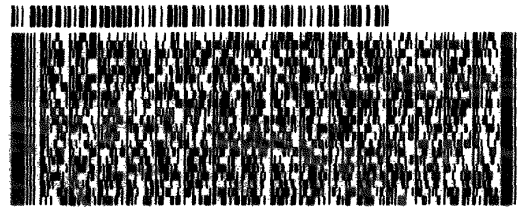
ORIGIN ID:RRLA (262), 202-5955
SHIPPING
TESTAMERICA
4125 N 124TH ST
BROOKFIELD, WI 53005
UNITED STATES US

SHIP DATE: 24JUN20
ACTWGT: 43.55 LB
CAD: 525155/CAFE3211
BILL RECIPIENT

TO **SAMPLE RECEIPT**
TESTAMERICA LABS
2417 BOND STREET

UNIVERSITY PARK IL 60484

(708) 634-6200 REF:
INV: DEPT:
PS:



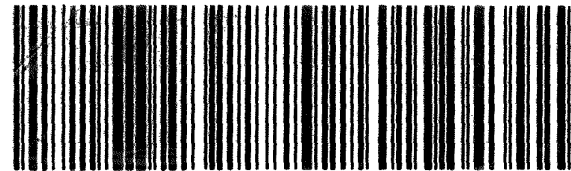
2 of 2
MPS# 7125 4942 8078
0263
Mstr# 7125 4942 8067

0201

79 JOTA

THU - 25 JUN 10:30A
PRIORITY OVERNIGHT

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IL-US **ORD**



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Eurofins TestAmerica, Chicago

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

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-136665.1																																																																													
Client Contact: Shipping/Receiving		Phone:	E-Mail: sandie.fredrick@testamericainc.com	State of Origin: Wisconsin	Page: Page 1 of 1																																																																													
Company: TestAmerica Laboratories, Inc.			Accreditations Required (See note): State Program - Wisconsin		Job #: 500-184069-1																																																																													
Address: 880 Riverside Parkway,		Due Date Requested: 7/8/2020	Analysis Requested																																																																															
City: West Sacramento		TAT Requested (days):																																																																																
State, Zip: CA, 95605		PO #:	<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>PFC IDA/3535_PFC PFAS, Extended List (36 Analytes)</td> <td colspan="2">Total Number of containers</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC IDA/3535_PFC PFAS, Extended List (36 Analytes)	Total Number of containers																																																																									
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Phone: 916-373-5600(Tel) 916-372-1059(Fax)		WO #:	<table border="1"> <tr> <td>Preservation Codes:</td> </tr> <tr> <td>A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)</td> </tr> <tr> <td>Other:</td> </tr> </table>			Preservation Codes:	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify)	Other:																																																																										
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Project Name: Marinette, WI 30015294.00013		Project #: 50016516	<table border="1"> <tr> <td>Sample Identification - Client ID (Lab ID)</td> <td>Sample Date</td> <td>Sample Time</td> <td>Sample Type (C=comp, G=grab)</td> <td>Matrix (W=water, S=solid, Orwaste/oli, BT=Tissue, A=Air)</td> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>PFC IDA/3535_PFC PFAS, Extended List (36 Analytes)</td> <td colspan="2">Total Number of containers</td> <td>Special Instructions/Note:</td> </tr> <tr> <td colspan="11">Preservation Code:</td> </tr> <tr> <td>SW-B1 (062320) (500-184069-1)</td> <td>6/23/20</td> <td>13:40 Central</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>SW-B1 (062320) (500-184069-1MS)</td> <td>6/23/20</td> <td>13:40 Central</td> <td>MS</td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>SW-B1 (062320) (500-184069-1MSD)</td> <td>6/23/20</td> <td>13:40 Central</td> <td>MSD</td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>DUP-01 (062320) (500-184069-2)</td> <td>6/23/20</td> <td>Central</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>FIELD BLANK-06-23-2020 (500-184069-3)</td> <td>6/23/20</td> <td>13:45 Central</td> <td></td> <td>Water</td> <td></td> <td>X</td> <td></td> <td></td> <td>2</td> <td></td> </tr> </table>			Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, Orwaste/oli, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC IDA/3535_PFC PFAS, Extended List (36 Analytes)	Total Number of containers		Special Instructions/Note:	Preservation Code:											SW-B1 (062320) (500-184069-1)	6/23/20	13:40 Central		Water		X			2		SW-B1 (062320) (500-184069-1MS)	6/23/20	13:40 Central	MS	Water		X			2		SW-B1 (062320) (500-184069-1MSD)	6/23/20	13:40 Central	MSD	Water		X			2		DUP-01 (062320) (500-184069-2)	6/23/20	Central		Water		X			2		FIELD BLANK-06-23-2020 (500-184069-3)	6/23/20	13:45 Central		Water		X			2	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time				Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, Orwaste/oli, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC IDA/3535_PFC PFAS, Extended List (36 Analytes)	Total Number of containers		Special Instructions/Note:																																																																					
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Site:		SSOW#:																																																																																

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

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

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>Stephanie Hernandez</i>	Date/Time: <i>6/25/20 1630</i>	Company: <i>FA-CHI</i>	Received by: <i>[Signature]</i>
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.: <i>1015889</i>	Cooler Temperature(s) °C and Other Remarks: <i>0.5°C</i>	



Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-184069-1

Login Number: 184069

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-184069-1

Login Number: 184069

List Number: 2

Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento

List Creation: 06/26/20 05:23 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1015889
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	0.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184069-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-184069-1	SW-B1 (062320)	73	97	85	97	96	109	105	94
500-184069-1 MS	SW-B1 (062320)	74	94	86	97	95	107	103	98
500-184069-1 MSD	SW-B1 (062320)	74	100	94	100	97	161 *5	148	146
500-184069-2	DUP-01 (062320)	71	91	87	95	93	111	102	97
500-184069-3	FIELD BLANK-06-23-2020	107	104	103	107	101	108	102	100
LCS 320-390100/2-A	Lab Control Sample	92	97	91	94	91	92	92	85
MB 320-390100/1-A	Method Blank	100	96	99	102	98	101	98	96

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	d3NMFS (25-150)
500-184069-1	SW-B1 (062320)	88	75	60	91	97	96	107	89
500-184069-1 MS	SW-B1 (062320)	90	76	64	91	99	98	98	89
500-184069-1 MSD	SW-B1 (062320)	128	100	82	98	98	141	155 *5	141
500-184069-2	DUP-01 (062320)	94	76	61	89	96	102	101	91
500-184069-3	FIELD BLANK-06-23-2020	94	92	84	101	109	98	103	88
LCS 320-390100/2-A	Lab Control Sample	82	78	70	96	97	85	93	84
MB 320-390100/1-A	Method Blank	91	94	69	101	105	95	105	82

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (20-150)	dEtFOSA (20-150)	NMFM (10-120)	NEFM (10-120)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-184069-1	SW-B1 (062320)	97	72	63	41	39	124	146	135
500-184069-1 MS	SW-B1 (062320)	94	73	59	39	36	134	149	131
500-184069-1 MSD	SW-B1 (062320)	141	87	72	49	44	134	145	205 *5
500-184069-2	DUP-01 (062320)	98	63	53	37	36	129	144	131
500-184069-3	FIELD BLANK-06-23-2020	98	80	55	27	19	102	122	127
LCS 320-390100/2-A	Lab Control Sample	84	75	50	25	16	97	112	109
MB 320-390100/1-A	Method Blank	93	84	50	21	14	103	127	120

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)
500-184069-1	SW-B1 (062320)	82
500-184069-1 MS	SW-B1 (062320)	84
500-184069-1 MSD	SW-B1 (062320)	86
500-184069-2	DUP-01 (062320)	83
500-184069-3	FIELD BLANK-06-23-2020	101
LCS 320-390100/2-A	Lab Control Sample	90
MB 320-390100/1-A	Method Blank	96

Surrogate Legend

PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDaA = 13C2 PFDaA
 PFTDA = 13C2 PFTeDA

Isotope Dilution Summary

Client: ARCADIS U.S., Inc.

Job ID: 500-184069-1

Project/Site: Marinette, WI 30015294.00013

PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA

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ANALYTICAL REPORT

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

Laboratory Job ID: 500-184068-1
Client Project/Site: Marinette, WI 30015294.00013

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

Attn: Elizabeth Hover



Authorized for release by:
7/6/2020 10:47:47 AM

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

LINKS

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results through
TotalAccess

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www.eurofinsus.com/Env

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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QC Sample Results	10
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Certification Summary	12
Chain of Custody	13
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Case Narrative

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Job ID: 500-184068-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-184068-1

Comments

No additional comments.

Receipt

The samples were received on 6/25/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.3° C.

General Chemistry

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

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Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Method	Method Description	Protocol	Laboratory
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200



Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-184068-1	SW-B1 (062320)	Water	06/23/20 13:40	06/25/20 09:40	
500-184068-2	DUP-01	Water	06/23/20 00:00	06/25/20 09:40	

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Client Sample ID: SW-B1 (062320)

Lab Sample ID: 500-184068-1

Date Collected: 06/23/20 13:40

Matrix: Water

Date Received: 06/25/20 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	9.0		5.0	1.9	mg/L			06/30/20 13:02	1

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Client Sample Results

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Client Sample ID: DUP-01
Date Collected: 06/23/20 00:00
Date Received: 06/25/20 09:40

Lab Sample ID: 500-184068-2
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	8.5		5.0	1.9	mg/L			06/30/20 13:05	1

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Definitions/Glossary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

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

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

General Chemistry

Analysis Batch: 550117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-184068-1	SW-B1 (062320)	Total/NA	Water	SM 2540D	
500-184068-2	DUP-01	Total/NA	Water	SM 2540D	
MB 500-550117/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 500-550117/2	Lab Control Sample	Total/NA	Water	SM 2540D	
500-184068-1 MS	SW-B1 (062320)	Total/NA	Water	SM 2540D	
500-184068-1 MSD	SW-B1 (062320)	Total/NA	Water	SM 2540D	

QC Sample Results

Client: ARCADIS U.S., Inc.
 Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 500-550117/1
Matrix: Water
Analysis Batch: 550117

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<5.0		5.0	1.9	mg/L			06/30/20 12:55	1

Lab Sample ID: LCS 500-550117/2
Matrix: Water
Analysis Batch: 550117

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	200	181		mg/L		91	80 - 120

Lab Sample ID: 500-184068-1 MS
Matrix: Water
Analysis Batch: 550117

Client Sample ID: SW-B1 (062320)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	9.0		100	106		mg/L		97	75 - 125

Lab Sample ID: 500-184068-1 MSD
Matrix: Water
Analysis Batch: 550117

Client Sample ID: SW-B1 (062320)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Suspended Solids	9.0		100	111		mg/L		102	75 - 125	5	20

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Client Sample ID: SW-B1 (062320)

Lab Sample ID: 500-184068-1

Date Collected: 06/23/20 13:40

Matrix: Water

Date Received: 06/25/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	550117	06/30/20 13:02 (Start) 06/30/20 13:03 (End)	SMO	TAL CHI

Client Sample ID: DUP-01

Lab Sample ID: 500-184068-2

Date Collected: 06/23/20 00:00

Matrix: Water

Date Received: 06/25/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	550117	06/30/20 13:05 (Start) 06/30/20 13:06 (End)	SMO	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: Marinette, WI 30015294.00013

Job ID: 500-184068-1

Laboratory: Eurofins TestAmerica, Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-20

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Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 500-184068-1

Login Number: 184068

List Source: Eurofins TestAmerica, Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	