

Alyssa Sellwood
Complex Sites Project Manager – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
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Date: February 16, 2024
Our Ref: 30171092
Subject: 2023 Foam Monitoring Interim Action Report
Tyco Fire Technology Center
BRRTS #: 02-38-580694

Dear Ms. Sellwood,

Arcadis U.S., Inc. (Arcadis) has prepared this 2023 Foam Monitoring Interim Action Report on behalf of Tyco Fire Products LP (Tyco) summarizing foam monitoring and removal activities completed in 2023 on waterways (Ditches A, B, C, D, and E) in the City of Marinette, Wisconsin, and the Town of Peshtigo, Wisconsin. All work related to foam collection activities performed in 2023 was completed per the *2021 Foam Monitoring Interim Action Report and Foam Monitoring Work Plan Modifications* (work plan) submitted to the Wisconsin Department of Natural Resources (WDNR) on February 15, 2022.

Site Location and Contact Information

The Tyco Fire Technology Center is located at 2700 Industrial Parkway South in Marinette, Wisconsin (Site), as shown on **Figure 1**. The Site location is also described as:

- **Public Land Survey System Description:** NE ¼ of the NE ¼ of Section 13, Township 30N, Range 23E.
- **County:** Marinette.
- **Coordinates:** Coordinates describing the approximate locations of the Site boundaries are shown in **Figure 1**.

Contact information for the responsible party (Tyco) is listed below:

- **Name:** Denice Nelson - Senior Director, Remediation and Strategy
- **Address:** 5757 N. Green Bay Avenue, Milwaukee, Wisconsin 53209
- **Telephone Number:** 651-280-7259

Field Implementation

Floating booms were deployed on Ditches A, B, C (East Branch), D, and E on April 3, 2023, and on Ditch C (Southwest Branch) April 10, 2023, after the dissipation of ice at the locations shown in **Figure 2**. Notifications were made to WDNR, U.S. Army Corps. Of Engineers, the Town of Peshtigo, and the City of Marinette prior to implementing the interim action. Per the work plan, inspections of Ditches A, C, D, and E were conducted once per week and inspections of Ditch B were conducted twice per week. For any ditches where foam was observed, daily inspections continued at that location until foam was not observed for 3 consecutive days. Ditch inspections

and foam removal activities concluded on December 15, 2023, and all floating booms were removed from Ditches A-E due to the onset of freezing conditions.

Foam Observations and Removal

No foam accumulation was observed on Ditches A, C, or E during weekly inspections throughout the 2023 monitoring period. Foam was observed and collected 132 times on Ditch B and 5 times on Ditch D. A summary of the daily inspection logs for Ditches A, B, C (East Branch), C (Southwest Branch), D, and E are provided as **Tables 1, 2, 3, 4, 5, and 6**, respectively. Observed foam was collected via manual skimming with a pool skimmer, transferred into sealed, leak-proof 55-gallon drums, and stored at the Tyco Fire Technology Center (FTC) pending disposal, as described in the Waste Characterization and Disposal section below. Per the work plan, the WDNR project manager was notified via email within 2 days of a foam accumulation event.

A cumulative total of approximately 388.5 gallons of uncollapsed foam were removed from Ditch B and approximately 11.75 gallons of uncollapsed foam were removed from Ditch D throughout the 2023 reporting period. The structure of the collected foam naturally collapsed over time reducing to approximately 36 gallons of liquid which were accumulated into three different containers, as discussed below.

Foam observations dates, locations, and foam volume removal estimates are shown on **Figure 2**. Photos and descriptions of the observed foam and descriptions of weather conditions are included as **Attachment 1**.

Waste Characterization and Disposal

Per the work plan, all foam was removed from the site within 90 days of collection. Foam was first collected on April 10, 2023, and was containerized in a leak proof 55-gallon drum for storage at the FTC pending transport offsite on July 7, 2023, by Endpoint Solutions Corporation (Endpoint). Foam collected from all monitored ditches was consolidated into a single drum. One analytical sample was collected from the drum on May 22, 2023 and submitted to Eurofins TestAmerica of West Sacramento, California (Eurofins Sacramento) for analysis of per- and polyfluoroalkyl substances (PFAS) by U.S. Environmental Protection Agency (U.S. EPA) Method 537 Modified under standard chain-of-custody procedures. The drum contained approximately 13 gallons of collapsed foam collected between April 10, 2023 and May 22, 2023 at the time of sampling. The drum was sealed following sampling and no additional material was added.

Foam collection starting May 23, 2023 and ending August 9, 2023 was containerized in a new leak proof 55-gallon drum and stored at the FTC pending transport offsite on August 15, 2023 by Endpoint. Foam collected from all monitored ditches was consolidated into a single drum. One analytical sample was collected from the drum on August 9, 2023 and submitted to Eurofins Sacramento for analysis of PFAS by U.S. EPA Method 537 Modified under standard chain-of-custody procedures. The drum contained approximately 20 gallons of collapsed foam at the time of sampling. The drum was sealed following sampling and no additional material was added.

Foam collection starting August 10, 2023 and ending October 6, 2023 (the last date foam was observed) was containerized in a new leak proof 55-gallon drum and stored at the FTC pending transport offsite on November 7, 2023 by Endpoint. Foam collected from all monitored ditches was consolidated into a single drum. One analytical sample was collected from the drum on October 9, 2023 and submitted to Eurofins Sacramento for analysis of PFAS by U.S. EPA Method 537 Modified under standard chain-of-custody procedures. The drum contained approximately 3 gallons of collapsed foam at the time of sampling. The drum was sealed following sampling and no additional material was added.

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WDNR
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- If foam observations are reported to Tyco by others prior to a routine inspection, Tyco will collect the foam as soon as possible and daily inspections will continue at the location where the foam was sighted until foam is not observed for 3 consecutive days.
- Foam from all ditches will be combined, stored in leak-proof containers, and removed from the site within 90 days of collection.
- One sample will be collected from each container and analyzed for PFAS (36 compounds) for waste characterization and disposal purposes.
- Tyco will provide an email to the WDNR Project Manager within 2 business days of a foam accumulation event that includes a photo of the foam and a summary of the date, location, weather conditions, and volume of foam recovered.
- Tyco will submit an Annual Foam Monitoring Interim Action Report, in accordance with Wisconsin Administrative Code Chapter NR 708 by February 15, 2025 for the previous calendar year.

Closing

Tyco has completed the foam monitoring and removal tasks for 2023. Floating booms were removed from Ditches A, B, C, D, and E on December 15, 2023 due to the onset of freezing conditions. In 2024, new booms will be deployed and inspection and foam removal activities will resume as outlined above when allowed by ambient weather conditions.

Please do not hesitate to contact me if there are any questions.

Sincerely,
Arcadis U.S., Inc.



Jim Ziska, PE
Principal Engineer

Email: James.Ziska@arcadis.com
Direct Line: 612-339-9434

CC.

Denice Nelson (Tyco)
Scott Potter (Arcadis)

Enclosures:

NR 712.09 Certification
Tables
1 Ditch A Inspection Summary

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- 2 Ditch B Inspection Summary
- 3 Ditch C (East Branch) Inspection Summary
- 4 Ditch C (Southwest Branch) Inspection Summary
- 5 Ditch D Inspection Summary
- 6 Ditch E Inspection Summary
- 7 Laboratory Analytical Results

Figures

- 1 Site Location Map
- 2 Boom Deployment and Foam Removal Locations

Attachments

- 1 Foam Observation Photo Log
- 2 Transportation and Disposal Documentation
- 3 Laboratory Analytical Reports

NR 712.09 Certification

I, James Ziska, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wisconsin Administrative Code; that this document has been prepared in accordance with the rules of Professional Conduct in ch. A-E 8, Wisconsin Administrative Code; and that all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wisconsin Administrative Code.



Principal Engineer, E-47358-6
Signature, title, and P.E. number



P.E. stamp

Tables

Table 1
Ditch A Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch A									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	New	No flow observed	No foam observed	No foam observed	No foam collected	Booms deployed
4/10/2023	0	4.5	South	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
4/18/2023	0	11.7	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/22/2023	0	2	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/30/2023	0	3.3	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/16/2023	0	0.9	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/19/2023	0	0	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/29/2023	0	4	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/7/2023	0	3	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/13/2023	0.09	2	West-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/18/2023	0.06	3	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/25/2023	0	4	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/8/2023	1	0	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/12/2023	0.04	4	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/21/2023	0	0	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/23/2023	0.27	0	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
Total:								0	

Notes:

Booms were deployed at Ditch A on 4/3/23.

Booms were removed at Ditch A on 12/15/23 due to the onset of freezing conditions.

Foam volumes are approximate based on the visual observation at the time of collection

Bold = Foam Observed

Table 2
Ditch B Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch B									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	New	Downstream	No foam observed	No foam observed	No foam collected	Booms deployed
4/6/2023	0.01	11	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/7/2023	0	0	None	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/10/2023	0	4.5	South	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	10	--
4/11/2023	0	5.3	Southwest	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	15.5	--
4/12/2023	0	5.7	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	4	--
4/13/2023	0	4.7	South	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	5	--
4/14/2023	0	2.5	South-Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	9	--
4/15/2023	0	1	Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	5	--
4/16/2023	0.6	6	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
4/17/2023	0.08	11.5	Northwest	Good	Downstream	West Bay Shore St. crossing	White, frothy	3	--
4/18/2023	0	11.7	West	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	7	--
4/19/2023	0.13	2.5	Northwest	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	7	--
4/20/2023	0.26	9.5	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	3.5	--
4/21/2023	0	6	South-Southwest	Good	Downstream	West Bay Shore St. crossing	White/tan, some froth	10	--
4/22/2023	0	6	West	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	5	--
4/23/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	5	--
4/24/2023	0	2.5	Northwest	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	13	--
4/25/2023	0	5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	White, frothy	10	--
4/26/2023	0	2	West-Southwest	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	10	--
4/27/2023	0.02	4.3	South	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	10	--
4/28/2023	0	4.5	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	9	--
4/29/2023	0.04	1.5	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	5	--
4/30/2023	0.18	5.3	West-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
5/1/2023	0.4	9	West-Northwest	Good	Downstream	West Bay Shore St. crossing	White, frothy	0.5	--
5/2/2023	0	11	Northwest	Good	Downstream	West Bay Shore St. crossing	White, frothy	4	--
5/3/2023	0	6	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Tan, frothy	9	--
5/4/2023	0.01	2	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	10	--
5/5/2023	0.13	4	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	1	--
5/6/2023	0.19	3	South-Southeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	1	--
5/7/2023	0.96	2	North-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	High stream flow rate, booms submerged
5/8/2023	0	1.7	Northeast	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	11	--
5/9/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	14	--
5/10/2023	0	2	South	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	13	--
5/11/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	12	--
5/12/2023	0	2	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	4	--
5/13/2023	0	8	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
5/14/2023	0	8	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	4	--
5/15/2023	0	4	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	6	--
5/16/2023	0	6	West-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
5/17/2023	0	4	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	7	--
5/18/2023	0.07	4.5	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
5/19/2023	0.16	4	West-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
5/20/2023	0	8.5	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--

Table 2
Ditch B Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch B									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
5/21/2023	0	1	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	4	--
5/22/2023	0	2	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	6	--
5/23/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	White/brown, some froth	5	--
5/24/2023	0	8.3	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
5/25/2023	0	5	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	5	--
5/26/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	7	--
5/27/2023	0	7	Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
5/28/2023	0	3	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
5/29/2023	0	5.3	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
5/30/2023	0	3.3	South-Southwest	Good	Downstream	West Bay Shore St. crossing	White/brown, some froth	3	--
5/31/2023	0	4.7	Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	4	--
6/1/2023	0	1.5	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
6/2/2023	0	1	Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
6/3/2023	0	4	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
6/4/2023	0	4	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
6/5/2023	0	2	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	5	--
6/6/2023	0	8	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2.5	--
6/7/2023	0	4.5	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
6/8/2023	0	1.5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
6/9/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
6/10/2023	0	5	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
6/11/2023	0	5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/12/2023	0	2	West-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/13/2023	0.65	4	West-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2.5	--
6/14/2023	0	1.3	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
6/15/2023	0	8	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
6/16/2023	0	0.9	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
6/17/2023	0	5	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
6/18/2023	0	1	Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
6/19/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/20/2023	0	5	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/21/2023	0	2	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
6/22/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
6/23/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
6/24/2023	0	2.3	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
6/25/2023	0.38	3.5	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/26/2023	0.7	7.5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2.5	--
6/27/2023	0	6	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
6/28/2023	0	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
6/29/2023	0	4	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
6/30/2023	0	4	West-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/1/2023	0	1	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/2/2023	0	3	Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/3/2023	0	2.3	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/4/2023	0	1	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--

Table 2
Ditch B Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch B									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
7/5/2023	0.63	2	West	Good	Downstream	West Bay Shore St. crossing	Brown/white, some froth	0.5	--
7/6/2023	0.64	6	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	3	--
7/7/2023	0	3	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
7/8/2023	0.16	2	North	Good	Downstream	West Bay Shore St. crossing	Tan, some froth	0.5	--
7/9/2023	0.16	2	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/10/2023	0.58	1.5	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/11/2023	0.8	3	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/12/2023	0.08	2	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/13/2023	0.09	2	West-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/14/2023	0.04	6	West	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/15/2023	0.07	3	West-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/16/2023	0.11	4	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/17/2023	0.11	4	West-Southwest	Good	Downstream	West Bay Shore St. crossing	White, some froth	0.5	--
7/18/2023	0.06	3	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/19/2023	0.06	3	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/20/2023	0.09	2	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/21/2023	0.08	3	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/22/2023	0.03	2	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/23/2023	0.04	1.5	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/24/2023	0	4	North-Northwest	Good	Downstream	West Bay Shore St. crossing	White/tan, frothy	0.5	--
7/25/2023	0	4	East-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/26/2023	0.05	5	South	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/27/2023	2	0	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/28/2023	0.37	0	None	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/29/2023	0.15	7	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/30/2023	0.03	3	West	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
7/31/2023	0	3	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/1/2023	0	1	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/2/2023	0.89	4.5	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/3/2023	0.89	4	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	2	--
8/5/2023	0	4	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/6/2023	0	2.7	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/7/2023	0	3	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/8/2023	1	0	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/9/2023	0	1	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/10/2023	0	7.3	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/11/2023	4	0	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/15/2023	0.16	5.7	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/16/2023	0	4	Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/17/2023	0.31	3	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/18/2023	0.02	1	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/22/2023	0.03	3	East-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/23/2023	0	1	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--

Table 2
Ditch B Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch B									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
8/24/2023	0	1	North	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	West Bay Shore St. crossing	Brown, some froth	1	--
8/29/2023	0.12	3	West-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
8/30/2023	0.01	3	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/31/2023	0	0	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/1/2023	0	0	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
9/6/2023	0.29	3	Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/7/2023	0.09	5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/8/2023	0	3.5	North	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
9/9/2023	0	2	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/10/2023	0.29	2	Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/11/2023	0.04	2	North-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/12/2023	0.04	4	Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
9/13/2023	0.01	1	West-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/14/2023	0	0	Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1	--
9/15/2023	0	3	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/16/2023	0	2	West	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/17/2023	0	5	North-Northwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/18/2023	0	1	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/19/2023	0	0	South-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
9/20/2023	0	0	East-Southeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/21/2023	0	0	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/22/2023	0	0	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/23/2023	0	2	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/24/2023	0	3.8	Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	1.5	--
9/26/2023	0	3	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/27/2023	0.19	0	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/28/2023	0.03	2	East	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/29/2023	0	0	East-Northeast	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
9/30/2023	0.04	4	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/1/2023	0.12	5	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
10/3/2023	0	0	Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/4/2023	0	7	Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/5/2023	0	4.1	Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/6/2023	0	4.4	South-Southwest	Good	Downstream	West Bay Shore St. crossing	Brown, some froth	0.5	--
10/7/2023	0	5.9	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/8/2023	0	5.9	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/10/2023	0	2	North-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/11/2023	0	1	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/17/2023	0	2	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/20/2023	0.06	9	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--

Table 2
Ditch B Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch B									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
10/23/2023	0.27	0	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/25/2023	1.27	1	Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/27/2023	0.32	2	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/1/2023	0	0	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/3/2023	0	6	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/8/2023	0	6	East	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/10/2023	0	0	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/16/2023	0	5	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/17/2023	0	0	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/21/2023	0	2	East-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/22/2023	0	3	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/29/2023	0	4	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/1/2023	0	0	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/6/2023	0	2	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/8/2023	0	4	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/13/2023	0	3	Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
Total:								388.5	

Notes:
Booms were deployed at Ditch B on 4/3/23.
Booms were removed at Ditch B on 12/15/23 due to the onset of freezing conditions.
Foam volumes are approximate based on the visual observation at the time of collection
Bold = Foam Observed

Table 3
Ditch C (East Branch) Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch C (East Branch)									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	New	Downstream	No foam observed	No foam observed	No foam collected	Booms deployed
4/10/2023	0	4.5	South	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
4/18/2023	0	11.7	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/22/2023	0	2	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/30/2023	0	3.3	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/16/2023	0	0.9	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/19/2023	0	0	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/29/2023	0	4	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/7/2023	0	3	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/13/2023	0.09	2	West-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/18/2023	0.06	3	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/25/2023	0	4	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/8/2023	1	0	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/12/2023	0.04	4	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/21/2023	0	0	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/23/2023	0.27	0	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
Total:								0	

Notes:
Booms were deployed at Ditch C on 4/3/23.
Booms were removed at Ditch C on 12/15/23 due to the onset of freezing conditions.
Foam volumes are approximate based on the visual observation at the time of collection
Bold = Foam Observed

Table 4
Ditch C (Southwest Branch) Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch C (Southwest Branch)									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	No boom deployed	No flow observed	No foam observed	No foam observed	No foam collected	Ditch frozen/snowed in
4/10/2023	0	4.5	South	New	No flow observed	No foam observed	No foam observed	No foam collected	Booms deployed
4/18/2023	0	11.7	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/22/2023	0	2	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/30/2023	0	3.3	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/16/2023	0	0.9	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/19/2023	0	0	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/29/2023	0	4	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/7/2023	0	3	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/13/2023	0.09	2	West-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/18/2023	0.06	3	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/25/2023	0	4	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/8/2023	1	0	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/12/2023	0.04	4	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/21/2023	0	0	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/23/2023	0.27	0	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	No flow, frozen	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
Total:								0	

Notes:

Booms were deployed at Ditch C on 4/10/23.
 Booms were removed at Ditch C on 12/15/23 due to the onset of freezing conditions.
 Foam volumes are approximate based on the visual observation at the time of collection
 Bold = Foam Observed

Table 5
Ditch D Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch D									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	New	Downstream	No foam observed	No foam observed	No foam collected	Booms deployed
4/10/2023	0	4.5	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/18/2023	0	11.7	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/19/2023	0.13	2.5	Northwest	Good	Downstream	Shore Dr. crossing	White, frothy	0.75	Includes 0.25 gal collected along University Dr.
4/20/2023	0.26	9.5	East-Northeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/21/2023	0	6	South-Southwest	Good	Downstream	Shore Dr. crossing	Tan, frothy	5	--
4/22/2023	0	6	West	Good	Downstream	Shore Dr. crossing	Tan, frothy	2	--
4/23/2023	0	0	None	Good	Downstream	Shore Dr. crossing	Tan, frothy	2	--
4/24/2023	0	2.5	Northwest	Good	Downstream	Shore Dr. crossing	White/tan, frothy	2	--
4/25/2023	0	5	North-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/26/2023	0	2	West-Southwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/27/2023	0.02	4.3	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
5/22/2023	0	2	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
5/30/2023	0	3.3	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/16/2023	0	0.9	East-Southeast	Good	Downstream	No foam observed	No foam observed	No foam collected	--
6/19/2023	0	0	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/29/2023	0	4	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/7/2023	0	3	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/13/2023	0.09	2	West-Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
7/18/2023	0.06	3	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/25/2023	0	4	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/8/2023	1	0	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	Downstream	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/12/2023	0.04	4	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/21/2023	0	0	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/23/2023	0.27	0	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	No flow, frozen	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
Total:								11.75	

Notes:
Booms were deployed at Ditch D on 4/3/23.
Booms were removed at Ditch D on 12/15/23 due to the onset of freezing conditions.

Foam volumes are approximate based on the visual observation at the time of collection
Bold = Foam Observed

Table 6
Ditch E Inspection Summary
Tyco Fire Products LP
Marinette, Wisconsin



Ditch E									
Date	Weather Conditions			Inspection Summary					
	Precipitation (inches)	Wind Speed (miles per hour)	Wind Direction	Boom Condition	Ditch Flow Observations	Foam Observation Location	Foam Description	Uncollapsed Foam Volume Collected (gal)	Comments
4/3/2023	0	4	Southwest	New	Downstream	No foam observed	No foam observed	No foam collected	Booms deployed
4/10/2023	0	4.5	South	Good	Downstream	No foam observed	No foam observed	No foam collected	--
4/18/2023	0	11.7	West	Good	Downstream	No foam observed	No foam observed	No foam collected	--
5/22/2023	0	2	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
5/30/2023	0	3.3	South-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/16/2023	0	0.9	East-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/19/2023	0	0	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
6/29/2023	0	4	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/7/2023	0	3	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/13/2023	0.09	2	West-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/18/2023	0.06	3	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
7/25/2023	0	4	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/4/2023	0.01	3	North-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/8/2023	1	0	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/14/2023	0.16	5	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/21/2023	0	2	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
8/28/2023	0	1	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/5/2023	0	0	Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/12/2023	0.04	4	Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
9/25/2023	0	0	East-Northeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/2/2023	0	0	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/9/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/16/2023	0	6	North	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/23/2023	0.27	0	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
10/30/2023	0	0	North-Northwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/6/2023	0	10	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/14/2023	0	7	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/20/2023	0	4	South-Southeast	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
11/30/2023	0	2	South-Southwest	Good	No flow, frozen	No foam observed	No foam observed	No foam collected	--
12/4/2023	0	2	None	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/12/2023	0	10	West	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
12/15/2023	0	4	West-Southwest	Good	No flow observed	No foam observed	No foam observed	No foam collected	--
Total:								0	

Notes:

Booms were deployed at Ditch E on 4/3/23.

Booms were removed at Ditch E on 12/15/23 due to the onset of freezing conditions.

Foam volumes are approximate based on the visual observation at the time of collection

Bold = Foam Observed

Table 7
Laboratory Analytical Results
Tyco Fire Products LP
Marinette, Wisconsin



Sample ID		COLLAPSED SW FOAM (5-22-23)	COLLAPSED SW FOAM (8-9-23)	COLLAPSED SW FOAM (10-9-23)
Sample Date		5/22/2023	8/9/2023	10/9/2023
Per- and Polyfluoroalkyl Substances	Units			
PFBA	ng/L	180	290	540
PFPeA	ng/L	390	440	2,200
PFHxA	ng/L	3,500	1,500	3,700
PFHpA	ng/L	1,400	240	970
PFOA	ng/L	370,000 D	2,600	8,100 D
PFNA	ng/L	180,000 D	1,400	6,800 D
PFDA	ng/L	17,000 D	500	1,400
PFUnA	ng/L	5,000 D	160	460
PFDoA	ng/L	240	18 J	53
PFTriA	ng/L	37	< 20 U	< 20 U
PFTeA	ng/L	26	< 20 U	9.8 J
PFHxDA	ng/L	< 20 U	< 20 U	< 20 U
PFODA	ng/L	< 20 U	< 20 UJ	< 20 UJ
PFBS	ng/L	9.0 J	11 J	31
PFPeS	ng/L	8.4 J	< 20 U	< 20 U
PFHxS	ng/L	2,000	63	200
PFHpS	ng/L	2,500	14 J	110
PFOS	ng/L	360,000 D	6,700 D	27,000 D
PFNS	ng/L	110	< 20 U	19 J
PFDS	ng/L	200	8.4 J	26
PFDoS	ng/L	< 20 U	< 20 U	< 20 U
4:2 FTS	ng/L	90	20	38
6:2 FTS	ng/L	82,000 DJ-	4,700 D	8,400 D
8:2 FTS	ng/L	79,000 DJ-	8,800 D	26,000 D
10:2 FTS	ng/L	610	34	91
FOSA	ng/L	29,000 D	560	2,200
NMeFOSA	ng/L	24	< 20 U	< 20 U
NEtFOSA	ng/L	44	< 20 U	< 20 U
NMeFOSAA	ng/L	500 J	13 J	45 J
NEtFOSAA	ng/L	16,000 D	260	900
NMeFOSE	ng/L	< 40 U	< 40 U	< 40 U
NEtFOSE	ng/L	25	< 20 U	18 J
HFPO-DA	ng/L	< 40 U	< 40 U	< 40 U
DONA	ng/L	< 20 U	< 20 U	< 20 U
9CI-PF3ONS	ng/L	< 20 U	< 20 U	< 20 U
11CI-PF3OUdS	ng/L	< 20 U	< 20 U	< 20 U

Table 7
Laboratory Analytical Results
Tyco Fire Products LP
Marinette, Wisconsin



Notes:

<= Compound not detected at method detection limit

-- = Not sampled

ng/L = Nanograms per liter

µg/L = Micrograms per liter

Data Qualifiers:

D = Dilution required for sample analysis

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

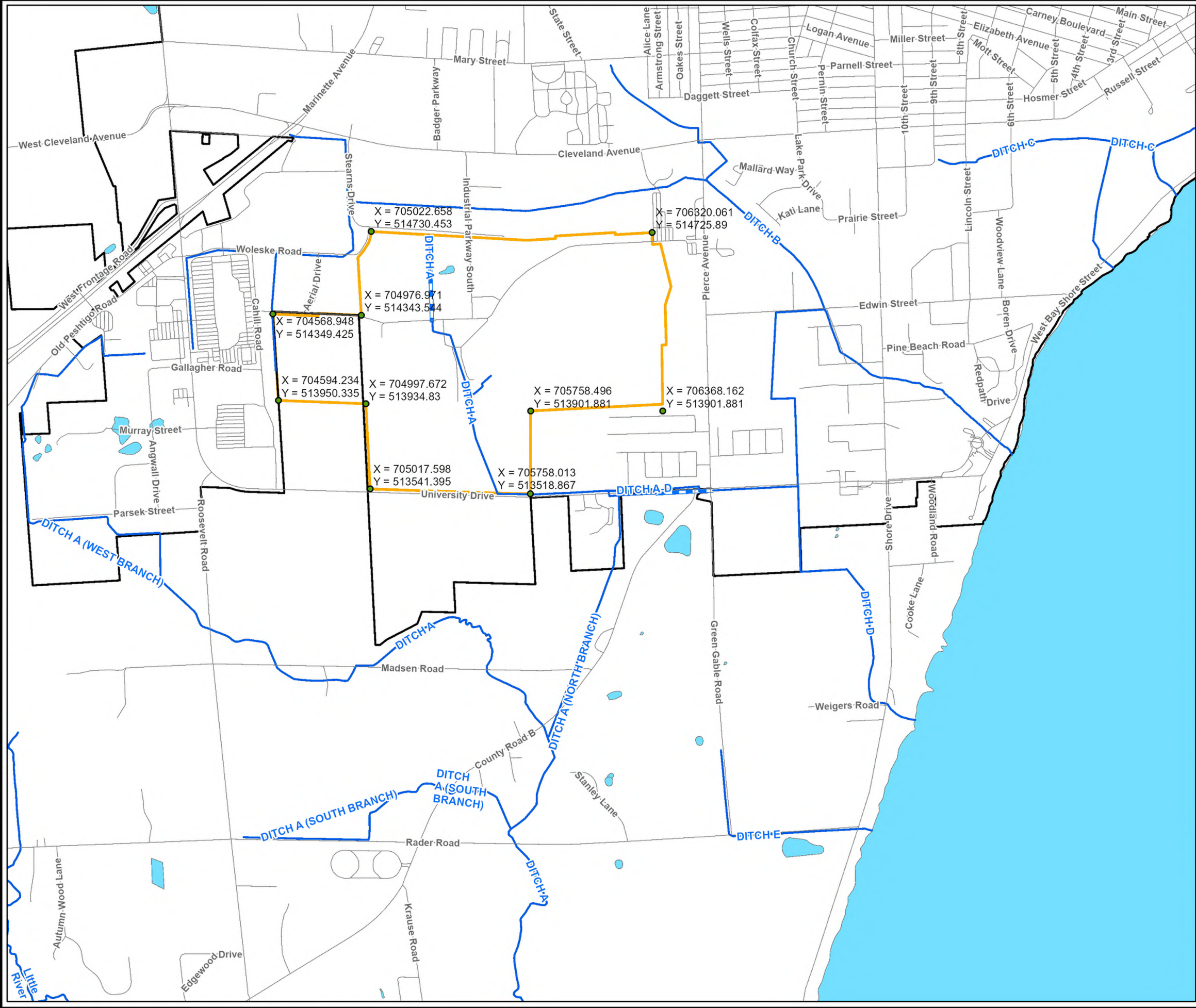
U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Analyte Abbreviations:







PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluoroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTriA	Perfluorotridecanoic acid
PFTeA	Perfluorotetradecanoic acid
PFHxDA	Perfluorohexadecanoic acid
PFODA	Perfluorooctadecanoic acid
PFBS	Perfluorobutanesulfonic acid
PFPeS	Perfluoropentanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFHpS	Perfluoroheptanesulfonic acid
PFOS	Perfluorooctanesulfonic acid
PFNS	Perfluorononanesulfonic acid
PFDS	Perfluorodecanesulfonic acid
PFDoS	Perfluorododecanesulfonic acid
4:2 FTS	4:2 Fluorotelomer sulfonic acid
6:2 FTS	6:2 Fluorotelomer sulfonic acid
8:2 FTS	8:2 Fluorotelomer sulfonic acid
10:2 FTS	10:2 Fluorotelomer sulfonic acid
FOSA	Perfluorooctane sulfonamide
NMeFOSA	N-Methyl perfluorooctane sulfonamide
NEtFOSA	N-Ethyl perfluorooctane sulfonamide
NMeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid
NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol
NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
HFPO-DA	Hexafluoropropylene oxide dimer acid
DONA	4,8-Dioxa-3H-perfluorononanoic acid
9CI-PF3ONS	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
11CI-PF3OUs	11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid

Figures

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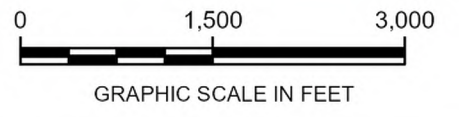


LEGEND:

-  APPROXIMATE SITE PROPERTY BOUNDARY
-  APPROXIMATE MARINETTE CITY BOUNDARY
-  ROAD
-  DITCH OR STREAM
-  CULVERT
-  WATERBODY

NOTES:

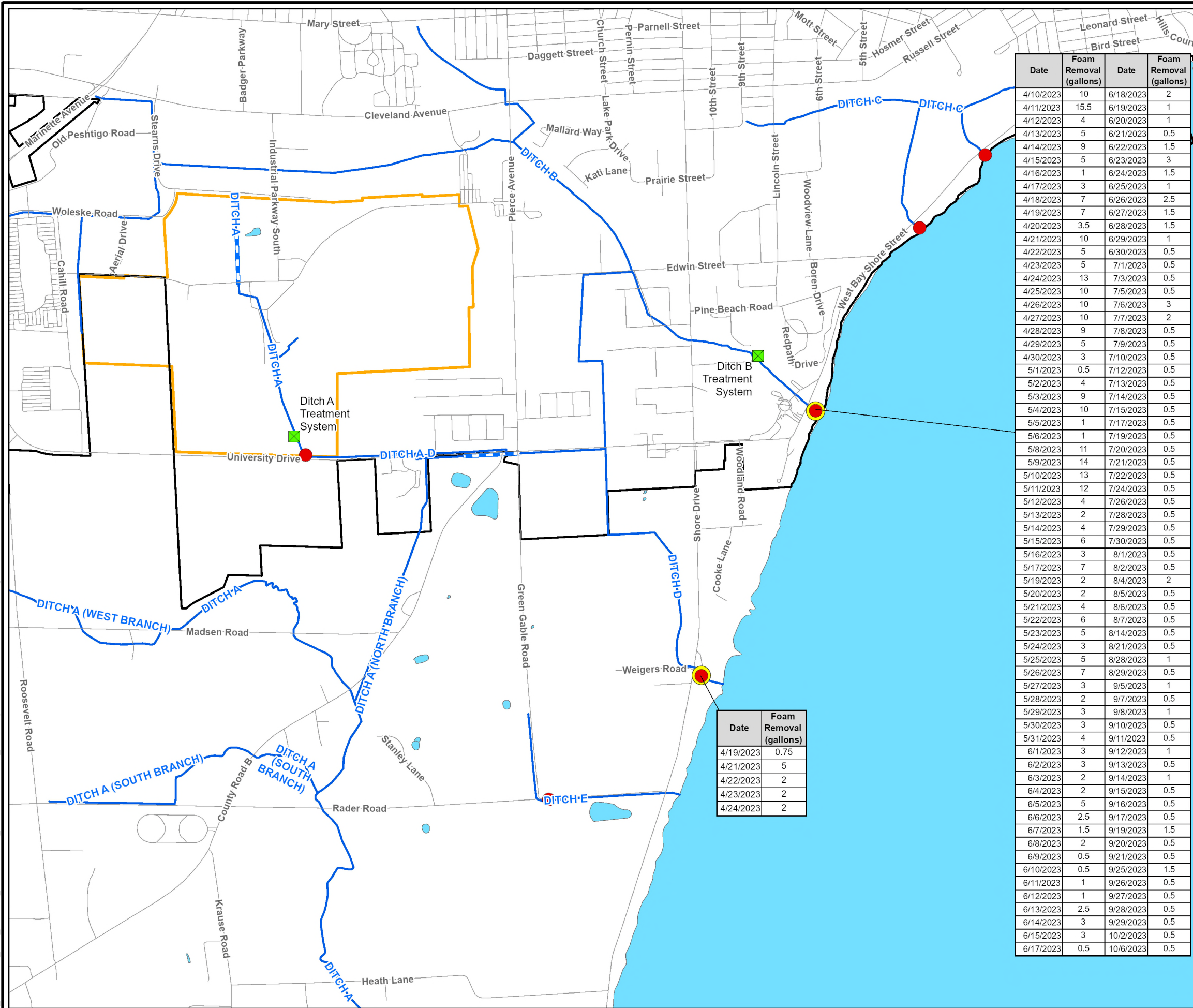
1. CITY BOUNDARY DATA SOURCE: WISCONSIN LEGISLATIVE TECHNOLOGY SERVICES BUREAU, WISCONSIN COUNTY CLERKS AND LAND INFORMATION OFFICES, ACCESSED FALL 2017.
2. DITCH/STREAM AND WATERBODY DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
4. COORDINATES ARE PRESENTED USING WISCONSIN TRANSVERSE MERCATOR 91 METERS AND LATITUDE/LONGITUDE COORDINATE SYSTEMS.



TYCO FIRE PRODUCTS LP
FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN

SITE LOCATION MAP

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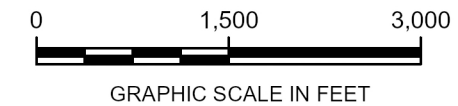


Date	Foam Removal (gallons)	Date	Foam Removal (gallons)
4/10/2023	10	6/18/2023	2
4/11/2023	15.5	6/19/2023	1
4/12/2023	4	6/20/2023	1
4/13/2023	5	6/21/2023	0.5
4/14/2023	9	6/22/2023	1.5
4/15/2023	5	6/23/2023	3
4/16/2023	1	6/24/2023	1.5
4/17/2023	3	6/25/2023	1
4/18/2023	7	6/26/2023	2.5
4/19/2023	7	6/27/2023	1.5
4/20/2023	3.5	6/28/2023	1.5
4/21/2023	10	6/29/2023	1
4/22/2023	5	6/30/2023	0.5
4/23/2023	5	7/1/2023	0.5
4/24/2023	13	7/3/2023	0.5
4/25/2023	10	7/5/2023	0.5
4/26/2023	10	7/6/2023	3
4/27/2023	10	7/7/2023	2
4/28/2023	9	7/8/2023	0.5
4/29/2023	5	7/9/2023	0.5
4/30/2023	3	7/10/2023	0.5
5/1/2023	0.5	7/12/2023	0.5
5/2/2023	4	7/13/2023	0.5
5/3/2023	9	7/14/2023	0.5
5/4/2023	10	7/15/2023	0.5
5/5/2023	1	7/17/2023	0.5
5/6/2023	1	7/19/2023	0.5
5/8/2023	11	7/20/2023	0.5
5/9/2023	14	7/21/2023	0.5
5/10/2023	13	7/22/2023	0.5
5/11/2023	12	7/24/2023	0.5
5/12/2023	4	7/26/2023	0.5
5/13/2023	2	7/28/2023	0.5
5/14/2023	4	7/29/2023	0.5
5/15/2023	6	7/30/2023	0.5
5/16/2023	3	8/1/2023	0.5
5/17/2023	7	8/2/2023	0.5
5/19/2023	2	8/4/2023	2
5/20/2023	2	8/5/2023	0.5
5/21/2023	4	8/6/2023	0.5
5/22/2023	6	8/7/2023	0.5
5/23/2023	5	8/14/2023	0.5
5/24/2023	3	8/21/2023	0.5
5/25/2023	5	8/28/2023	1
5/26/2023	7	8/29/2023	0.5
5/27/2023	3	9/5/2023	1
5/28/2023	2	9/7/2023	0.5
5/29/2023	3	9/8/2023	1
5/30/2023	3	9/10/2023	0.5
5/31/2023	4	9/11/2023	0.5
6/1/2023	3	9/12/2023	1
6/2/2023	3	9/13/2023	0.5
6/3/2023	2	9/14/2023	1
6/4/2023	2	9/15/2023	0.5
6/5/2023	5	9/16/2023	0.5
6/6/2023	2.5	9/17/2023	0.5
6/7/2023	1.5	9/19/2023	1.5
6/8/2023	2	9/20/2023	0.5
6/9/2023	0.5	9/21/2023	0.5
6/10/2023	0.5	9/25/2023	1.5
6/11/2023	1	9/26/2023	0.5
6/12/2023	1	9/27/2023	0.5
6/13/2023	2.5	9/28/2023	0.5
6/14/2023	3	9/29/2023	0.5
6/15/2023	3	10/2/2023	0.5
6/17/2023	0.5	10/6/2023	0.5

Date	Foam Removal (gallons)
4/19/2023	0.75
4/21/2023	5
4/22/2023	2
4/23/2023	2
4/24/2023	2

- LEGEND:**
- APPROXIMATE BOOM DEPLOYMENT LOCATIONS
 - APPROXIMATE FOAM REMOVAL LOCATION
 - APPROXIMATE SITE PROPERTY BOUNDARY
 - APPROXIMATE MARINETTE CITY BOUNDARY
 - ROAD
 - CULVERT
 - DITCH OR STREAM
 - WATERBODY
 - SURFACE WATER TREATMENT SYSTEM

- NOTES:**
1. CITY BOUNDARY DATA SOURCE: WISCONSIN LEGISLATIVE TECHNOLOGY SERVICES BUREAU, WISCONSIN COUNTY CLERKS AND LAND INFORMATION OFFICES, ACCESSED FALL 2017.
 2. DITCH/STREAM AND WATERBODY DATA SOURCE: U.S. GEOLOGICAL SURVEY NATIONAL HYDROGRAPHY DATASET, ACCESSED FALL 2017.
 3. ROAD DATA SOURCE: OPEN STREET MAP, ACCESSED FALL 2017.
 4. FOAM REMOVAL VOLUMES ARE APPROXIMATE BASED ON VISUAL OBSERVATION AT THE TIME OF COLLECTION.
 5. BOOMS WERE DEPLOYED ON DITCHES A, B, C, D, AND E BETWEEN 4/3/23 AND 4/10/23.
 6. BOOMS WERE REMOVED FROM DITCHES A, B, C, D, AND E ON 12/15/23.



TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN

**BOOM DEPLOYMENT AND
FOAM REMOVAL LOCATIONS**

ARCADIS | **FIGURE 2**

Attachment 1

Foam Observation Photo Log

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 1

Date: 4/10/2023

Weather: Cloudy, 4.5 mph wind (S), No precipitation

Foam Description:
White/tan, frothy

**Uncollapsed Foam
Volume Collected:** 10 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 2

Date: 4/11/2023

Weather: Cloudy, 5.3 mph wind (SW), No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected:
15.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 3

Date: 4/12/2023

Weather: Sunny, 5.7 mph wind (SSW), No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 4 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 4

Date: 4/13/2023

Weather: Sunny, 4.7 mph wind (S), No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 5

Date: 4/14/2023

Weather: Sunny, 2.5 mph wind (SSE), No precipitation

Foam Description:
Tan, frothy

**Uncollapsed Foam
Volume Collected:** 9 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 6

Date: 4/15/2023

Weather: Cloudy, 1.0 mph wind (SE), No precipitation

Foam Description:
Tan, some froth

**Uncollapsed Foam
Volume Collected:** 5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 7

Date: 4/16/2023

Weather: Rain, 6.0
mph wind (NE), 0.6
inches precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 8

Date: 4/17/2023

Weather: Cloudy, 11.5 mph wind (NW), 0.08 inches precipitation

Foam Description:
White, frothy

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 9

Date: 4/18/2023

Weather: Partly cloudy,
11.7 mph wind (W), No
precipitation

Foam Description:
White/tan, frothy

**Uncollapsed Foam
Volume Collected:** 7
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 10

Date: 4/19/2023

Weather: Cloudy, 2.5 mph wind (NW), 0.13 inches precipitation

Foam Description:
White/tan, frothy

**Uncollapsed Foam
Volume Collected:** 7 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 11

Date: 4/20/2023

Weather: Cloudy, 9.5 mph wind (ENE), 0.26 inches precipitation

Foam Description:
Tan, frothy

**Uncollapsed Foam
Volume Collected:** 3.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 12

Date: 4/19/2023

Weather: Cloudy, 2.5 mph wind (NW), 0.13 inches precipitation

Foam Description:
White, frothy

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch D.
Shore Drive crossing



Photograph: 13

Date: 4/19/2023

Weather: Cloudy, 2.5 mph wind (NW), 0.13 inches precipitation

Foam Description:
White, frothy

Uncollapsed Foam Volume Collected: 0.25 gal

Location: South ditch along University Drive (approximately 600 ft east of Pierce Avenue intersection)

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 14

Date: 4/21/2023

Weather: Sunny, 6 mph wind (SSW), No precipitation

Foam Description:
White/tan, some froth

Uncollapsed Foam Volume Collected: 10 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 15

Date: 4/22/2023

Weather: Cloudy, 6 mph wind (W), No precipitation

Foam Description:
Tan, some froth

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 16

Date: 4/23/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 17

Date: 4/24/2023

Weather: Cloudy, 2.5 mph wind (NW), No precipitation

Foam Description:
White/tan, frothy

Uncollapsed Foam Volume Collected: 13 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 18

Date: 4/25/2023

Weather: Cloudy, 5 mph wind (NNW), No precipitation

Foam Description:
White, frothy

**Uncollapsed Foam
Volume Collected:** 10 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 19

Date: 4/21/2023

Weather: Sunny, 6 mph wind (SSW), No precipitation

Foam Description:
Tan, frothy

**Uncollapsed Foam
Volume Collected:** 5 gal

Location: Ditch D.
Shore Drive crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 20

Date: 4/22/2023

Weather: Cloudy, 6 mph wind (W), No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch D.
Shore Drive crossing



Photograph: 21

Date: 4/23/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch D.
Shore Drive crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 22

Date: 4/24/2023

Weather: Cloudy, 2.5 mph wind (NW), No precipitation

Foam Description:
White/tan, frothy

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch D.
Shore Drive crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 23

Date: 4/26/2023

Weather: Sunny, 2.0 mph wind (WSW), No precipitation

Foam Description:
White/tan, frothy

**Uncollapsed Foam
Volume Collected:** 10 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 24

Date: 4/27/2023

Weather: Cloudy, 4.3 mph wind (S), 0.02 inches precipitation

Foam Description:
Tan, some froth

**Uncollapsed Foam
Volume Collected:** 10 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 25

Date: 4/28/2023

Weather: Partly cloudy,
4.5 mph wind (NNE),
No precipitation

Foam Description:
Tan, some froth

**Uncollapsed Foam
Volume Collected:** 9
gal

Location: Ditch B.
West Bay Shore Street
crossing



Photograph: 26

Date: 4/29/2023

Weather: Cloudy, 1.5
mph wind (ESE), 0.04
inches precipitation

Foam Description:
Tan, some froth

**Uncollapsed Foam
Volume Collected:** 5
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 27

Date: 4/30/2023

Weather: Rain, 5.3 mph wind (WNW), 0.18 inches precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 28

Date: 5/1/2023

Weather: Snow, 9 mph wind (WNW), 0.4 inches precipitation

Foam Description:
White, frothy

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 29

Date: 5/2/2023

Weather: Cloudy, 11 mph wind (NW), No precipitation

Foam Description:
White, frothy

Uncollapsed Foam Volume Collected: 4 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 30

Date: 5/3/2023

Weather: Partly Cloudy, 6 mph wind (NNW), No precipitation

Foam Description:
Tan, frothy

Uncollapsed Foam Volume Collected: 9 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 31

Date: 5/4/2023

Weather: Cloudy, 2 mph wind (ESE), 0.01 inches precipitation

Foam Description:
Tan, some froth

Uncollapsed Foam Volume Collected: 10 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 32

Date: 5/5/2023

Weather: Cloudy, 4 mph wind (ESE), 0.13 inches precipitation

Foam Description:
Tan, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 33

Date: 5/6/2023

Weather: Partly cloudy,
3 mph wind (SSE), 0.19
inches precipitation

Foam Description:
Tan, some froth

**Uncollapsed Foam
Volume Collected:** 1
gal

Location: Ditch B.
West Bay Shore Street
crossing



Photograph: 34

Date: 5/7/2023

Weather: Cloudy, 2
mph wind (NNE), 0.96
inches precipitation

Foam Description: No
foam observed

**Uncollapsed Foam
Volume Collected:** No
foam collected

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 35

Date: 5/8/2023

Weather: Cloudy, 1.7
mph wind (NE), No
precipitation

Foam Description:
White/Tan, frothy

**Uncollapsed Foam
Volume Collected:** 11
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 36

Date: 5/9/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
White/Tan, frothy

Uncollapsed Foam Volume Collected: 14 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 37

Date: 5/10/2023

Weather: Sunny, 2 mph wind (S), No precipitation

Foam Description:
White/Tan, frothy

Uncollapsed Foam Volume Collected: 13 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 38

Date: 5/11/2023

Weather: Cloudy, No wind, No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 12 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 39

Date: 5/12/2023

Weather: Cloudy, 2 mph wind (E), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 4 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 40

Date: 5/13/2023

Weather: Cloudy, 8 mph wind (NNE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 41

Date: 5/14/2023

Weather: Cloudy, 8 mph wind (NNE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 4 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 42

Date: 5/15/2023

Weather: Partly cloudy,
4 mph wind (SW), No
precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 6
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 43

Date: 5/16/2023

Weather: Cloudy, 6 mph wind (WSW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 44

Date: 5/17/2023

Weather: Sunny, 4 mph wind (NNE) wind, No precipitation

Foam Description:
Tan, some froth

Uncollapsed Foam Volume Collected: 7 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 45

Date: 5/19/2023

Weather: Cloudy, 4 mph wind (WSW), 0.16 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 46

Date: 5/20/2023

Weather: Sunny, 8.5 mph wind (NW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 47

Date: 5/21/2023

Weather: Cloudy, 1 mph wind (ENE), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 4 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 48

Date: 5/22/2023

Weather: Cloudy, 2 mph wind (ESE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 6 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 49

Date: 5/23/2023

Weather: Cloudy, No wind, No precipitation

Foam Description:
White/Brown, some froth

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 50

Date: 5/24/2023

Weather: Cloudy, 8.3 mph wind (N), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 51

Date: 5/25/2023

Weather: Cloudy, 5 mph wind (NE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 52

Date: 5/26/2023

Weather: Sunny, No wind, No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 7 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 53

Date: 5/27/2023

Weather: Sunny, 7 mph wind (SE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 54

Date: 5/28/2023

Weather: Cloudy, 3 mph wind (ESE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 55

Date: 5/29/2023

Weather: Sunny, 5.3 mph wind (N), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 56

Date: 5/30/2023

Weather: Sunny, 3.3 mph wind (SSW), No precipitation

Foam Description:
White/Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 57

Date: 5/31/2023

Weather: Sunny, 4.7 mph wind (SE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 4 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 58

Date: 6/1/2023

Weather: Sunny, 1.5 mph wind (ESE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 59

Date: 6/2/2023

Weather: Sunny, 1 mph wind (SE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 60

Date: 6/3/2023

Weather: Sunny, 4 mph wind (NNE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 61

Date: 6/4/2023

Weather: Sunny, 4 mph wind (NE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 62

Date: 6/5/2023

Weather: Sunny, 2 mph wind (SW), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 63

Date: 6/6/2023

Weather: Sunny, 8 mph wind (NNE), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 2.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 64

Date: 6/7/2023

Weather: Sunny, 4.5 mph wind (NE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 65

Date: 6/8/2023

Weather: Sunny, 1.5 mph wind (NNW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 66

Date: 6/9/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 67

Date: 6/10/2023

Weather: Sunny, 5 mph wind (E), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 68

Date: 6/11/2023

Weather: Sunny, 5 mph wind (NNW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 69

Date: 6/12/2023

Weather: Cloudy, 2 mph wind (WSW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 70

Date: 6/13/2023

Weather: Rainy, 4 mph wind (WSW), 0.65 in precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 2.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 71

Date: 6/14/2023

Weather: Cloudy, 1.3 mph wind (NW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 72

Date: 6/15/2023

Weather: Cloudy, 8 mph wind (NW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 73

Date: 6/17/2023

Weather: Sunny, 5 mph wind (ESE), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 74

Date: 6/18/2023

Weather: Sunny, 1
mph wind (SE), No
precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 2
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 75

Date: 6/19/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 76

Date: 6/20/2023

Weather: Sunny, 5 mph wind (NNE), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 77

Date: 6/21/2023

Weather: Sunny, 2
mph wind (NE), No
precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 78

Date: 6/22/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 79

Date: 6/23/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 3 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 80

Date: 6/24/2023

Weather: Sunny, 2.3 mph wind (SSW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 81

Date: 6/25/2023

Weather: Cloudy, 3.5 mph wind (ESE), 0.38 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 82

Date: 6/26/2023

Weather: Rain, 7.5
mph wind (NNW), 0.7
inches precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 2.5
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 83

Date: 6/27/2023

Weather: Sunny, 6 mph wind (NNW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 84

Date: 6/28/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 85

Date: 6/29/2023

Weather: Cloudy, 4 mph wind (SW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 86

Date: 6/30/2023

Weather: Sunny, 4 mph wind (WNW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 87

Date: 7/1/2023

Weather: Sunny, 1 mph wind (E), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 88

Date: 7/3/2023

Weather: Partly Cloudy, 2.3 mph wind (E), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 89

Date: 7/5/2023

Weather: Sunny, 2 mph wind (W), 0.63 in precipitation

Foam Description:
Brown/white, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 90

Date: 7/6/2023

Weather: Sunny, 6 mph wind (NW), 0.64 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 3 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 91

Date: 7/7/2023

Weather: Sunny, 3 mph wind (NW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 92

Date: 7/8/2023

Weather: Sunny, 2 mph wind (N), 0.16 in precipitation

Foam Description:
Tan, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 93

Date: 7/9/2023

Weather: Sunny, 2 mph wind (NNW), 0.16 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 94

Date: 7/10/2023

Weather: Partly
Cloudy, 1.5 mph wind
(SW), 0.58 in
precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5
gal

Location: Ditch B.
West Bay Shore Street
crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 95

Date: 7/12/2023

Weather: Cloudy, 2 mph wind (SSW), 0.08 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 96

Date: 7/13/2023

Weather: Cloudy, 2 mph wind (WNW), 0.09 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 97

Date: 7/14/2023

Weather: Sunny, 6 mph wind (W), 0.04 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 98

Date: 7/15/2023

Weather: Sunny, 3 mph wind (WSW), 0.07 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 99

Date: 7/17/2023

Weather: Sunny, 4 mph wind (WSW), 0.11 in precipitation

Foam Description:
White, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 100

Date: 7/19/2023

Weather: Sunny, 3 mph wind (NE), 0.06 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 101

Date: 7/20/2023

Weather: Partly Cloudy, 2 mph wind (NW), 0.09 in precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B. West Bay Shore Street crossing



Photograph: 102

Date: 7/21/2023

Weather: Sunny, 3 mph wind (ENE), 0.08 in precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B. West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 103

Date: 7/22/2023

Weather: Sunny, 2 mph wind (SW), 0.03 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 104

Date: 7/24/2023

Weather: Sunny, 4 mph wind (NNW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 105

Date: 7/26/2023

Weather: Cloudy, 5 mph wind (S), 0.05 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 106

Date: 7/28/2023

Weather: Sunny, No wind, 0.37 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 107

Date: 7/29/2023

Weather: Sunny, 7 mph wind (NNE), 0.15 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 108

Date: 7/30/2023

Weather: Sunny, 3 mph wind (W), 0.03 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 109

Date: 8/1/2023

Weather: Sunny, 1 mph wind (N), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 110

Date: 8/2/2023

Weather: Sunny, 4.5 mph (SW) wind, 0.89 in precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 111

Date: 8/4/2023

Weather: Sunny, 3 mph wind (NNE), 0.01 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 2 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 112

Date: 8/5/2023

Weather: Sunny, 4 mph wind (E), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 113

Date: 8/6/2023

Weather: Sunny, 2.7 mph wind (ENE), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 114

Date: 8/7/2023

Weather: Sunny, 3 mph wind (N), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 115

Date: 8/14/2023

Weather: Rainy, 5 mph wind (NW), 0.16 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 116

Date: 8/21/2023

Weather: Cloudy, 2 mph wind (N), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 117

Date: 8/28/2023

Weather: Sunny, 1 mph wind (SW), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 118

Date: 8/29/2023

Weather: Partly Cloudy, 3 mph wind (WNW), 0.12 inches precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 119

Date: 9/5/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 120

Date: 9/7/2023

Weather: Cloudy, 5 mph (NNW) wind, 0.09 in precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 121

Date: 9/8/2023

Weather: Cloudy, 3.5 mph wind (N), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 122

Date: 9/10/2023

Weather: Sunny, 1 mph wind (ENE), 0.29 in precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 123

Date: 9/11/2023

Weather: Cloudy, 2 mph wind (NNE), 0.04 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 124

Date: 9/12/2023

Weather: Sunny, 4 mph wind (NW), 0.04 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 125

Date: 9/13/2023

Weather: Cloudy, 1 mph wind (WNW), 0.01 in precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 126

Date: 9/14/2023

Weather: Cloudy, No wind, No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1 gal

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 127

Date: 9/15/2023

Weather: Partly
Cloudy, 3 mph wind
(SSW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5
gal

Location: Ditch B.
West Bay Shore Street
crossing



Photograph: 128

Date: 9/16/2023

Weather: Sunny, 2
mph wind (W), No
precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5
gal

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 129

Date: 9/17/2023

Weather: Cloudy, 5 mph wind (NNW), No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 130

Date: 9/19/2023

Weather: Cloudy, no wind, No precipitation

Foam Description:
Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 131

Date: 9/20/2023

Weather: Cloudy, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 132

Date: 9/21/2023

Weather: Cloudy, 1 mph (SSW) wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 133

Date: 9/25/2023

Weather: Cloudy, 1 mph wind (E), No precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 1.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 134

Date: 9/26/2023

Weather: Cloudy, 3 mph wind (ENE), 0.14 in precipitation

Foam Description: Brown, some froth

Uncollapsed Foam Volume Collected: 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 135

Date: 9/27/2023

Weather: Cloudy, 3 mph wind (ENE), 0.19 in precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 136

Date: 9/28/2023

Weather: Sunny, 2 mph wind (E), 0.03 in precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 137

Date: 9/29/2023

Weather: Sunny, No wind, No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing



Photograph: 138

Date: 10/2/2023

Weather: Sunny, 4 mph wind (SSW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Photograph Log

Tyco Fire Products LP
Marinette, Wisconsin



Photograph: 139

Date: 10/6/2023

Weather: Cloudy, 4 mph wind (WSW), No precipitation

Foam Description:
Brown, some froth

**Uncollapsed Foam
Volume Collected:** 0.5 gal

Location: Ditch B.
West Bay Shore Street crossing

Attachment 2

Transportation and Disposal Documentation

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

WIT560011850

2. Page 1 of

1

3. Emergency Response Phone

(262) 339-8762

4. Waste Tracking Number

W026-001-23-06

5. Generator's Name and Mailing Address

JCI/Tyco
1 Stanton Street
Marinette WI 54143

Att: Ryan Suennen

Generator's Site Address (if different than mailing address)

JCI/Tyco
2700 Industrial Parkway S
Marinette WI 54143

Generator's Phone: 715 753-7411 Ext. 84025

6. Transporter 1 Company Name

Endpoint Waste Solutions Corp.

U.S. EPA ID Number

WIR000170027

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Endpoint Waste Solutions Corp.
1024 Western Drive
Hartford WI 53027

U.S. EPA ID Number

Facility's Phone: 414 427-1200

License 4704

9. Waste Shipping Name and Description

10. Containers

No.

Type

11. Total Quantity

12. Unit Wt./Vol.

1. Non-RCRA, Non-DOT

0001

DF

15

G

2. Non-RCRA, Non-DOT

0002

TP

200

P

3.

4.

13. Special Handling Instructions and Additional Information

- 1. Skimmed Surface Water/Foam Profile# 05162022TIP-01
- 2. RCRA Empty Totes

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offor's Printed/Typed Name

Signature

Month Day Year

X *Tim Hanson*

[Signature]

7 | 7 | 23

15. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter Signature (for exports only):

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Signature

Month Day Year

Steven Bachtell

[Signature]

7 | 7 | 23

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name

Signature

Month Day Year

Fred J Ringle

[Signature]

10 | 7 | 23

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number: **WIT580011850** 2. Page 1 of **1** 3. Emergency Response Phone: **(800)-424-9300** 4. Waste Tracking Number: **W026-001-23-13**

5. Generator's Name and Mailing Address: **JCI/tyco, 1 Stanton Street, Marinette WI 54143** Attn: **Ryan Suennen** Generator's Site Address (if different than mailing address): **JCI/tyco, 2700 Industrial Parkway S, Marinette WI 54143**
 Generator's Phone: **715 753-7411 Ext. 84025**

6. Transporter 1 Company Name: **Endpoint Waste Solutions Corp.** U.S. EPA ID Number: **WIR000170027**

7. Transporter 2 Company Name: _____ U.S. EPA ID Number: _____

8. Designated Facility Name and Site Address: **Endpoint Waste Solutions Corp., S83 W18761 Saturn Drive, Muskego WI 53150** U.S. EPA ID Number: _____
 Facility's Phone: **414 858-2104** License: **4704**

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. Non-RCRA, Non-DOT	0001	DF	0015	G
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information: **1. Skimmed Surface Water/Foam Profile# 05162022TIP-01 1x55 gal**

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: **Trevor Roubal** Signature: *Trevor Roubal* Month: **8** Day: **15** Year: **23**

15. International Shipments: Import to U.S. Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: **Tim Hanson** Signature: *Tim Hanson* Month: **8** Day: **15** Year: **23**

Transporter 2 Printed/Typed Name: _____ Signature: _____ Month: _____ Day: _____ Year: _____

17. Discrepancy: 17a. Discrepancy Indication Space: Quantity Type Residue Partial Rejection Full Rejection

Manifest Reference Number: _____ U.S. EPA ID Number: _____

17b. Alternate Facility (or Generator): _____ U.S. EPA ID Number: _____

Facility's Phone: _____ 17c. Signature of Alternate Facility (or Generator): _____ Month: _____ Day: _____ Year: _____

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: **Fred J Ringle** Signature: *Fred J Ringle* Month: **08** Day: **15** Year: **23**

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number
W I T 5 6 0 0 1 1 8 5 0

2. Page 1 of 1

3. Emergency Response Phone
(800)-424-9300

4. Waste Tracking Number
W 0 2 6 - 0 0 1 - 2 3 - 1 7

5. Generator's Name and Mailing Address
JCI/Tyco
1 Stanton Street
Marinette WI 54143
Generator's Phone: 715 753-7411 Ext. 84025

Generator's Site Address (if different than mailing address)
JCI/Tyco
2700 Industrial Parkway S
Marinette WI 54143

6. Transporter 1 Company Name
Endpoint Waste Solutions Corp.

U.S. EPA ID Number
W I R 0 0 0 1 8 2 9 7 2

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address
Endpoint Waste Solutions Corp.
583 W18761 Saturn Drive
Muskego WI 53150
Facility's Phone: 414 858-2104

U.S. EPA ID Number
License 4959

9. Waste Shipping Name and Description	10. Containers		11. Total Quantity	12. Unit Wt./Vol.
	No.	Type		
1. Non-RCRA, Non-DOT	17 001	DF	935 800	G
2. Non-RCRA, Non-DOT	008	DM	4,800	P
3. Non-RCRA, Non-DOT	001	DM	200	P
4. Non-RCRA, Non-DOT	001	DF	70	P

13. Special Handling Instructions and Additional Information
 1. Bag Filters, Jute Filter, Booms Profile# 05162022TIP-03 1 DM
 2. Waste Flux Profile# 05162022TIP-04
 3. Bag House Dust Profile# 05162022TIP-05
 4. Skimmed Surface Water Foam Profile# 05162022TIP-01

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Steve Bachtell (on behalf of Tyco) Signature: [Signature] Month: 11 Day: 7 Year: 23

15. International Shipments Import to U.S. Export from U.S. Port of entry/exit: Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
 Transporter 1 Printed/Typed Name: Matthew Shaw Signature: [Signature] Month: 11 Day: 7 Year: 23

Transporter 2 Printed/Typed Name: Signature: Month: Day: Year:

17. Discrepancy
 17a. Discrepancy Indication Space Quantity Type Residue Partial Rejection Full Rejection

17b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:

Facility's Phone: 17c. Signature of Alternate Facility (or Generator) Month: Day: Year:

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
 Printed/Typed Name: Matthew Shaw Signature: [Signature] Month: 11 Day: 08 Year: 23

GENERATOR
INT'L
TRANSPORTER
DESIGNATED FACILITY

Attachment 3

Laboratory Analytical Reports

ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
ARCADIS US Inc
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Generated 6/13/2023 5:05:50 PM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.3 Collapsed Foam

JOB NUMBER

500-234252-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

Results relate only to the items tested and the sample(s) as received by the laboratory. The results, detection limits (LOD) and Quantitation Limits (LOQ) have been adjusted for sample dilutions and/or solids content.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



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Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Job ID: 500-234252-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-234252-1

Receipt

The sample was received on 5/23/2023 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.8° C.

LCMS

Method 537 (modified): The concentration of one or more analyte associated with the following samples exceeded the instrument calibration range: Collapsed SW Foam (5-22-23) (500-234252-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The samples were diluted within calibration range, and both sets of data were reported.

Method 537 (modified): The method blank for preparation batch 320-678381 and analytical batch 320-678709 contained 6:2 FTS above the method detection limit (MDL). Associated samples were not re-extracted and/or re-analyzed because results were greater than 10X the value found in the method blank.

Method 537 (modified): The continuing calibration verification (CCV) associated with the dilution analyses in batch 320-678850 recovered outside control limits for Perfluoro-n-octadecanoic acid (PFODA). This analyte was not over calibration range in the original analysis, therefore the data is reported. are not reported.

Method 537 (modified): Results for sample Collapsed SW Foam (5-22-23) (500-234252-1) were reported from the analysis of a diluted extract due to high concentration of the matrix 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. The percent recovery for the internal standard in the 100X analysis is 122% after the dilution factor was applied to the labeled internal standard area count.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: Collapsed SW Foam (5-22-23) (500-234252-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. The client as contacted and gave permission to report.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: Collapsed SW Foam (5-22-23) (500-234252-1). 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.

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. Collapsed SW Foam (5-22-23) (500-234252-1)

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 sample was dark brown and contained a foam prior to extraction: Collapsed SW Foam (5-22-23) (500-234252-1).

320-678381

Method: 3535_PFC

Matrix: Aqueous

Method 3535: Per client request, the initial volume used for the following sample deviated from the standard procedure: Collapsed SW Foam (5-22-23) (500-234252-1). A 10x dilution was made on the sample, then fortified with IDA and extracted. The reporting limits (RLs) have been adjusted proportionately.

320-678381

Method: 3535_PFC

Matrix: Aqueous

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-678381.

Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Job ID: 500-234252-1 (Continued)

Laboratory: Eurofins Chicago (Continued)

Method: 3535_PFC
Matrix: Aqueous

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

- 1
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Method Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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

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

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- 13
- 14

Sample Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-234252-1	Collapsed SW Foam (5-22-23)	Water	05/22/23 09:45	05/23/23 09:30

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

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Client Sample ID: Collapsed SW Foam (5-22-23)

Lab Sample ID: 500-234252-1

Date Collected: 05/22/23 09:45

Matrix: Water

Date Received: 05/23/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	180		50	24	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoropentanoic acid (PFPeA)	390		20	4.9	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorohexanoic acid (PFHxA)	3500		20	5.8	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoroheptanoic acid (PFHpA)	1400		20	2.5	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorooctanoic acid (PFOA)	160000	E	20	8.5	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorononanoic acid (PFNA)	90000	E	20	2.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorodecanoic acid (PFDA)	16000	E	20	3.1	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoroundecanoic acid (PFUnA)	4100	E	20	11	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorododecanoic acid (PFDoA)	240		20	5.5	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorotridecanoic acid (PFTriA)	37		20	13	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorotetradecanoic acid (PFTeA)	26		20	7.3	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<20		20	8.9	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoro-n-octadecanoic acid (PFODA)	<20		20	9.4	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorobutanesulfonic acid (PFBS)	9.0	J	20	2.0	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoropentanesulfonic acid (PFPeS)	8.4	J	20	3.0	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorohexanesulfonic acid (PFHxS)	2000		20	5.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluoroheptanesulfonic acid (PFHpS)	2500		20	1.9	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorooctanesulfonic acid (PFOS)	270000	E	20	5.4	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorononanesulfonic acid (PFNS)	110		20	3.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorodecanesulfonic acid (PFDS)	200		20	3.2	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorododecanesulfonic acid (PFDoS)	<20		20	9.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
Perfluorooctanesulfonamide (FOSA)	24000	E	20	9.8	ng/L		05/27/23 07:26	05/30/23 13:49	1
NEtFOSA	44		20	8.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
NMeFOSA	24		20	4.3	ng/L		05/27/23 07:26	05/30/23 13:49	1
NMeFOSAA	500	I	50	12	ng/L		05/27/23 07:26	05/30/23 13:49	1
NEtFOSAA	12000	E	50	13	ng/L		05/27/23 07:26	05/30/23 13:49	1
NMeFOSE	<40		40	14	ng/L		05/27/23 07:26	05/30/23 13:49	1
NEtFOSE	25		20	8.5	ng/L		05/27/23 07:26	05/30/23 13:49	1
4:2 FTS	90		20	2.4	ng/L		05/27/23 07:26	05/30/23 13:49	1
6:2 FTS	42000	E B	50	25	ng/L		05/27/23 07:26	05/30/23 13:49	1
8:2 FTS	40000	E	20	4.6	ng/L		05/27/23 07:26	05/30/23 13:49	1
10:2 FTS	610		20	6.7	ng/L		05/27/23 07:26	05/30/23 13:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<20		20	4.0	ng/L		05/27/23 07:26	05/30/23 13:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<40		40	15	ng/L		05/27/23 07:26	05/30/23 13:49	1
F-53B Major	<20		20	2.4	ng/L		05/27/23 07:26	05/30/23 13:49	1
F-53B Minor	<20		20	3.2	ng/L		05/27/23 07:26	05/30/23 13:49	1

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Client Sample ID: Collapsed SW Foam (5-22-23)

Lab Sample ID: 500-234252-1

Date Collected: 05/22/23 09:45

Matrix: Water

Date Received: 05/23/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	81		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C5 PFPeA	104		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFHxA	128		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C4 PFHpA	107		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C4 PFOA	61		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C5 PFNA	63		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFDA	69		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFUnA	105		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFDoA	57		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFTeDA	34		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 PFHxDA	25		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C3 PFBS	127		25 - 150	05/27/23 07:26	05/30/23 13:49	1
18O2 PFHxS	147		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C4 PFOS	65		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C8 FOSA	53		10 - 150	05/27/23 07:26	05/30/23 13:49	1
d3-NMeFOSAA	55		25 - 150	05/27/23 07:26	05/30/23 13:49	1
d5-NEtFOSAA	80		25 - 150	05/27/23 07:26	05/30/23 13:49	1
d-N-MeFOSA-M	65		10 - 150	05/27/23 07:26	05/30/23 13:49	1
d-N-EtFOSA-M	64		10 - 150	05/27/23 07:26	05/30/23 13:49	1
d7-N-MeFOSE-M	68		10 - 150	05/27/23 07:26	05/30/23 13:49	1
d9-N-EtFOSE-M	63		10 - 150	05/27/23 07:26	05/30/23 13:49	1
M2-4:2 FTS	194	*5+	25 - 150	05/27/23 07:26	05/30/23 13:49	1
M2-6:2 FTS	175	*5+	25 - 150	05/27/23 07:26	05/30/23 13:49	1
M2-8:2 FTS	464	*5+	25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C3 HFPO-DA	111		25 - 150	05/27/23 07:26	05/30/23 13:49	1
13C2 10:2 FTS	97		25 - 150	05/27/23 07:26	05/30/23 13:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<5000		5000	2400	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoropentanoic acid (PFPeA)	<2000		2000	490	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorohexanoic acid (PFHxA)	4400		2000	580	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoroheptanoic acid (PFHpA)	1300	J	2000	250	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorooctanoic acid (PFOA)	370000		2000	850	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorononanoic acid (PFNA)	180000		2000	270	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorodecanoic acid (PFDA)	17000		2000	310	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoroundecanoic acid (PFUnA)	5000		2000	1100	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorododecanoic acid (PFDoA)	<2000		2000	550	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorotridecanoic acid (PFTriA)	<2000		2000	1300	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorotetradecanoic acid (PFTeA)	<2000		2000	730	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2000		2000	890	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoro-n-octadecanoic acid (PFODA)	<2000		2000	940	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorobutanesulfonic acid (PFBS)	<2000		2000	200	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoropentanesulfonic acid (PFPeS)	<2000		2000	300	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorohexanesulfonic acid (PFHxS)	2100		2000	570	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluoroheptanesulfonic acid (PFHpS)	2400		2000	190	ng/L		05/27/23 07:26	06/09/23 00:22	100

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Client Sample ID: Collapsed SW Foam (5-22-23)

Lab Sample ID: 500-234252-1

Date Collected: 05/22/23 09:45

Matrix: Water

Date Received: 05/23/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	360000		2000	540	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorononanesulfonic acid (PFNS)	<2000		2000	370	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorodecanesulfonic acid (PFDS)	<2000		2000	320	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorododecanesulfonic acid (PFDoS)	<2000		2000	970	ng/L		05/27/23 07:26	06/09/23 00:22	100
Perfluorooctanesulfonamide (FOSA)	29000		2000	980	ng/L		05/27/23 07:26	06/09/23 00:22	100
NEtFOSA	<2000		2000	870	ng/L		05/27/23 07:26	06/09/23 00:22	100
NMeFOSA	<2000		2000	430	ng/L		05/27/23 07:26	06/09/23 00:22	100
NMeFOSAA	<5000		5000	1200	ng/L		05/27/23 07:26	06/09/23 00:22	100
NEtFOSAA	16000		5000	1300	ng/L		05/27/23 07:26	06/09/23 00:22	100
NMeFOSE	<4000		4000	1400	ng/L		05/27/23 07:26	06/09/23 00:22	100
NEtFOSE	<2000		2000	850	ng/L		05/27/23 07:26	06/09/23 00:22	100
4:2 FTS	<2000		2000	240	ng/L		05/27/23 07:26	06/09/23 00:22	100
6:2 FTS	82000	B	5000	2500	ng/L		05/27/23 07:26	06/09/23 00:22	100
8:2 FTS	79000		2000	460	ng/L		05/27/23 07:26	06/09/23 00:22	100
10:2 FTS	710	J	2000	670	ng/L		05/27/23 07:26	06/09/23 00:22	100
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2000		2000	400	ng/L		05/27/23 07:26	06/09/23 00:22	100
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<4000		4000	1500	ng/L		05/27/23 07:26	06/09/23 00:22	100
F-53B Major	<2000		2000	240	ng/L		05/27/23 07:26	06/09/23 00:22	100
F-53B Minor	<2000		2000	320	ng/L		05/27/23 07:26	06/09/23 00:22	100
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C5 PFPeA	83		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFHxA	89		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C4 PFHpA	77		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C4 PFOA	68		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C5 PFNA	73		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFDA	84		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFUnA	56		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFDoA	35		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFTeDA	23	*5-	25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C2 PFHxDA	18	*5-	25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C3 PFBS	66		25 - 150				05/27/23 07:26	06/09/23 00:22	100
18O2 PFHxS	80		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C4 PFOS	77		25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C8 FOSA	68		10 - 150				05/27/23 07:26	06/09/23 00:22	100
d3-NMeFOSAA	66		25 - 150				05/27/23 07:26	06/09/23 00:22	100
d5-NEtFOSAA	49		25 - 150				05/27/23 07:26	06/09/23 00:22	100
d-N-MeFOSA-M	48		10 - 150				05/27/23 07:26	06/09/23 00:22	100
d-N-EtFOSA-M	25		10 - 150				05/27/23 07:26	06/09/23 00:22	100
d7-N-MeFOSE-M	40		10 - 150				05/27/23 07:26	06/09/23 00:22	100
d9-N-EtFOSE-M	86		10 - 150				05/27/23 07:26	06/09/23 00:22	100
M2-4:2 FTS	106		25 - 150				05/27/23 07:26	06/09/23 00:22	100
M2-6:2 FTS	244	*5+	25 - 150				05/27/23 07:26	06/09/23 00:22	100
M2-8:2 FTS	673	*5+	25 - 150				05/27/23 07:26	06/09/23 00:22	100
13C3 HFPO-DA	59		25 - 150				05/27/23 07:26	06/09/23 00:22	100

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Client Sample Results

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Client Sample ID: Collapsed SW Foam (5-22-23)

Lab Sample ID: 500-234252-1

Date Collected: 05/22/23 09:45

Matrix: Water

Date Received: 05/23/23 09:30

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

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C2 10:2 FTS	50		25 - 150	05/27/23 07:26	06/09/23 00:22	100

- 1
- 2
- 3
- 4
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- 8
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- 10
- 11
- 12
- 13
- 14

Definitions/Glossary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
E	Result exceeded calibration range.
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

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-678381/1-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 678381

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.19	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		05/27/23 07:26	05/30/23 11:37	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		05/27/23 07:26	05/30/23 11:37	1
NEtFOSA	<2.0		2.0	0.87	ng/L		05/27/23 07:26	05/30/23 11:37	1
NMeFOSA	<2.0		2.0	0.43	ng/L		05/27/23 07:26	05/30/23 11:37	1
NMeFOSAA	<5.0		5.0	1.2	ng/L		05/27/23 07:26	05/30/23 11:37	1
NEtFOSAA	<5.0		5.0	1.3	ng/L		05/27/23 07:26	05/30/23 11:37	1
NMeFOSE	<4.0		4.0	1.4	ng/L		05/27/23 07:26	05/30/23 11:37	1
NEtFOSE	<2.0		2.0	0.85	ng/L		05/27/23 07:26	05/30/23 11:37	1
4:2 FTS	<2.0		2.0	0.24	ng/L		05/27/23 07:26	05/30/23 11:37	1
6:2 FTS	2.84	J	5.0	2.5	ng/L		05/27/23 07:26	05/30/23 11:37	1
8:2 FTS	<2.0		2.0	0.46	ng/L		05/27/23 07:26	05/30/23 11:37	1
10:2 FTS	<2.0		2.0	0.67	ng/L		05/27/23 07:26	05/30/23 11:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		05/27/23 07:26	05/30/23 11:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<4.0		4.0	1.5	ng/L		05/27/23 07:26	05/30/23 11:37	1
F-53B Major	<2.0		2.0	0.24	ng/L		05/27/23 07:26	05/30/23 11:37	1
F-53B Minor	<2.0		2.0	0.32	ng/L		05/27/23 07:26	05/30/23 11:37	1
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	96		25 - 150				05/27/23 07:26	05/30/23 11:37	1
13C5 PFPeA	94		25 - 150				05/27/23 07:26	05/30/23 11:37	1
13C2 PFHxA	97		25 - 150				05/27/23 07:26	05/30/23 11:37	1
13C4 PFHpA	95		25 - 150				05/27/23 07:26	05/30/23 11:37	1
13C4 PFOA	98		25 - 150				05/27/23 07:26	05/30/23 11:37	1

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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

Lab Sample ID: MB 320-678381/1-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 678381

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFNA	103		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 PFDA	95		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 PFUnA	94		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 PFDoA	92		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 PFTeDA	95		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 PFHxDA	92		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C3 PFBS	94		25 - 150	05/27/23 07:26	05/30/23 11:37	1
18O2 PFHxS	100		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C4 PFOS	102		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C8 FOSA	96		10 - 150	05/27/23 07:26	05/30/23 11:37	1
d3-NMeFOSAA	94		25 - 150	05/27/23 07:26	05/30/23 11:37	1
d5-NEtFOSAA	104		25 - 150	05/27/23 07:26	05/30/23 11:37	1
d-N-MeFOSA-M	82		10 - 150	05/27/23 07:26	05/30/23 11:37	1
d-N-EtFOSA-M	80		10 - 150	05/27/23 07:26	05/30/23 11:37	1
d7-N-MeFOSE-M	92		10 - 150	05/27/23 07:26	05/30/23 11:37	1
d9-N-EtFOSE-M	96		10 - 150	05/27/23 07:26	05/30/23 11:37	1
M2-4:2 FTS	71		25 - 150	05/27/23 07:26	05/30/23 11:37	1
M2-6:2 FTS	72		25 - 150	05/27/23 07:26	05/30/23 11:37	1
M2-8:2 FTS	85		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C3 HFPO-DA	98		25 - 150	05/27/23 07:26	05/30/23 11:37	1
13C2 10:2 FTS	97		25 - 150	05/27/23 07:26	05/30/23 11:37	1

Lab Sample ID: LCS 320-678381/2-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 678381

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	Limits
Perfluoropentanoic acid (PFPeA)	40.0	43.2		ng/L		108	60 - 135	
Perfluorohexanoic acid (PFHxA)	40.0	41.0		ng/L		102	60 - 135	
Perfluoroheptanoic acid (PFHpA)	40.0	41.4		ng/L		103	60 - 135	
Perfluorooctanoic acid (PFOA)	40.0	39.3		ng/L		98	60 - 135	
Perfluorononanoic acid (PFNA)	40.0	41.3		ng/L		103	60 - 135	
Perfluorodecanoic acid (PFDA)	40.0	42.3		ng/L		106	60 - 135	
Perfluoroundecanoic acid (PFUnA)	40.0	40.0		ng/L		100	60 - 135	
Perfluorododecanoic acid (PFDoA)	40.0	44.9		ng/L		112	60 - 135	
Perfluorotridecanoic acid (PFTriA)	40.0	38.0		ng/L		95	60 - 135	
Perfluorotetradecanoic acid (PFTeA)	40.0	40.2		ng/L		100	60 - 135	
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	40.7		ng/L		102	60 - 135	
Perfluoro-n-octadecanoic acid (PFODA)	40.0	29.0		ng/L		72	60 - 135	
Perfluorobutanesulfonic acid (PFBS)	35.5	36.3		ng/L		102	60 - 135	
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.0		ng/L		99	60 - 135	

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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

Lab Sample ID: LCS 320-678381/2-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 678381

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.9		ng/L		96	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.9		ng/L		99	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.4		ng/L		98	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	38.6		ng/L		100	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	36.5		ng/L		95	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	29.8		ng/L		77	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	40.6		ng/L		102	60 - 135
NEtFOSA	40.0	41.5		ng/L		104	60 - 135
NMeFOSA	40.0	45.5		ng/L		114	60 - 135
NMeFOSAA	40.0	40.9		ng/L		102	60 - 135
NEtFOSAA	40.0	45.1		ng/L		113	60 - 135
NMeFOSE	40.0	38.3		ng/L		96	60 - 135
NEtFOSE	40.0	41.0		ng/L		103	60 - 135
4:2 FTS	37.5	40.5		ng/L		108	60 - 135
6:2 FTS	38.1	40.9		ng/L		107	60 - 135
8:2 FTS	38.4	40.4		ng/L		105	60 - 135
10:2 FTS	38.6	34.7		ng/L		90	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.0		ng/L		103	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	42.9		ng/L		107	60 - 135
F-53B Major	37.4	36.3		ng/L		97	60 - 135
F-53B Minor	37.8	36.7		ng/L		97	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	103		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	96		25 - 150
13C4 PFHpA	101		25 - 150
13C4 PFOA	102		25 - 150
13C5 PFNA	103		25 - 150
13C2 PFDA	97		25 - 150
13C2 PFUnA	96		25 - 150
13C2 PFDoA	92		25 - 150
13C2 PFTeDA	94		25 - 150
13C2 PFHxDA	98		25 - 150
13C3 PFBS	102		25 - 150
18O2 PFHxS	106		25 - 150
13C4 PFOS	105		25 - 150
13C8 FOSA	97		10 - 150
d3-NMeFOSAA	94		25 - 150
d5-NEtFOSAA	97		25 - 150
d-N-MeFOSA-M	75		10 - 150
d-N-EtFOSA-M	75		10 - 150

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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

Lab Sample ID: LCS 320-678381/2-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 678381

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
d7-N-MeFOSE-M	90		10 - 150
d9-N-EtFOSE-M	91		10 - 150
M2-4:2 FTS	73		25 - 150
M2-6:2 FTS	80		25 - 150
M2-8:2 FTS	85		25 - 150
13C3 HFPO-DA	97		25 - 150
13C2 10:2 FTS	100		25 - 150

Lab Sample ID: LCSD 320-678381/3-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 678381

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	40.0	37.6		ng/L		94	60 - 135	2	30	
Perfluoropentanoic acid (PFPeA)	40.0	41.2		ng/L		103	60 - 135	5	30	
Perfluorohexanoic acid (PFHxA)	40.0	41.9		ng/L		105	60 - 135	2	30	
Perfluoroheptanoic acid (PFHpA)	40.0	43.5		ng/L		109	60 - 135	5	30	
Perfluorooctanoic acid (PFOA)	40.0	39.3		ng/L		98	60 - 135	0	30	
Perfluorononanoic acid (PFNA)	40.0	40.9		ng/L		102	60 - 135	1	30	
Perfluorodecanoic acid (PFDA)	40.0	43.7		ng/L		109	60 - 135	3	30	
Perfluoroundecanoic acid (PFUnA)	40.0	41.3		ng/L		103	60 - 135	3	30	
Perfluorododecanoic acid (PFDoA)	40.0	42.3		ng/L		106	60 - 135	6	30	
Perfluorotridecanoic acid (PFTriA)	40.0	36.6		ng/L		91	60 - 135	4	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	39.0		ng/L		97	60 - 135	3	30	
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	40.2		ng/L		101	60 - 135	1	30	
Perfluoro-n-octadecanoic acid (PFODA)	40.0	29.5		ng/L		74	60 - 135	2	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	35.2		ng/L		99	60 - 135	3	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.3		ng/L		102	60 - 135	3	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	33.3		ng/L		91	60 - 135	5	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.4		ng/L		98	60 - 135	1	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	36.6		ng/L		98	60 - 135	1	30	
Perfluorononanesulfonic acid (PFNS)	38.5	38.3		ng/L		99	60 - 135	1	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	37.8		ng/L		98	60 - 135	3	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	31.8		ng/L		82	60 - 135	6	30	
Perfluorooctanesulfonamide (FOSA)	40.0	39.2		ng/L		98	60 - 135	3	30	
NEtFOSA	40.0	40.2		ng/L		100	60 - 135	3	30	
NMeFOSA	40.0	39.6		ng/L		99	60 - 135	14	30	
NMeFOSAA	40.0	38.8		ng/L		97	60 - 135	5	30	

Eurofins Chicago

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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

Lab Sample ID: LCSD 320-678381/3-A
Matrix: Water
Analysis Batch: 678709

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 678381

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA	40.0	44.3		ng/L		111	60 - 135	2	30
NMeFOSE	40.0	40.2		ng/L		101	60 - 135	5	30
NEtFOSE	40.0	40.0		ng/L		100	60 - 135	2	30
4:2 FTS	37.5	34.1		ng/L		91	60 - 135	17	30
6:2 FTS	38.1	39.3		ng/L		103	60 - 135	4	30
8:2 FTS	38.4	38.5		ng/L		100	60 - 135	5	30
10:2 FTS	38.6	35.1		ng/L		91	60 - 135	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.7		ng/L		105	60 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	40.7		ng/L		102	60 - 135	5	30
F-53B Major	37.4	36.5		ng/L		98	60 - 135	0	30
F-53B Minor	37.8	36.7		ng/L		97	60 - 135	0	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	90		25 - 150
13C5 PFPeA	89		25 - 150
13C2 PFHxA	86		25 - 150
13C4 PFHpA	89		25 - 150
13C4 PFOA	94		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	88		25 - 150
13C2 PFUnA	88		25 - 150
13C2 PFDoA	89		25 - 150
13C2 PFTeDA	89		25 - 150
13C2 PFHxDA	87		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	99		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	92		10 - 150
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	90		25 - 150
d-N-MeFOSA-M	81		10 - 150
d-N-EtFOSA-M	76		10 - 150
d7-N-MeFOSE-M	82		10 - 150
d9-N-EtFOSE-M	89		10 - 150
M2-4:2 FTS	74		25 - 150
M2-6:2 FTS	75		25 - 150
M2-8:2 FTS	79		25 - 150
13C3 HFPO-DA	90		25 - 150
13C2 10:2 FTS	88		25 - 150

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Client Sample ID: Collapsed SW Foam (5-22-23)

Lab Sample ID: 500-234252-1

Date Collected: 05/22/23 09:45

Matrix: Water

Date Received: 05/23/23 09:30

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	3535			678381	EJR	EET SAC	05/27/23 07:26
Total/NA	Analysis	537 (modified)		1	678709	K1S	EET SAC	05/30/23 13:49
Total/NA	Prep	3535	DL		678381	EJR	EET SAC	05/27/23 07:26
Total/NA	Analysis	537 (modified)	DL	100	682032	RS1	EET SAC	06/09/23 00:22

Laboratory References:

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

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

Accreditation/Certification Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-23

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

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Regulatory Program: DW NPDES RCRA Other:

Project Manager: Lisa Rutkowski
Email: N/A
Tel/Fax: N/A

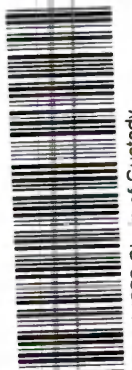
Client Contact
Arcadis U.S., Inc.
126 North Jefferson Street, Suite 400
Milwaukee, WI 53202
Phone _____
FAX _____

Project Name: Mannette, WI
Site: Mannette, WI
P O # 30171092.4.1.3

Sampler: Jacob Daminger
Lab Contact: Sandie Fredrick
Date: 5-22-23
Carrier: FedEx

COC No.: 1 of 1 COCs

For Lab Use Only:
Walk-in Client: _____
Lab Sampling: _____
Lab Project Number: 50018970

Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA 537 Modified (36 Compounds)
5-22-23	9:45	G	W	3	N	N	X
Sample Identification Collapsed SW Foam (5-22-23)							
 500-234252 Chain of Custody							

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

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.

Non-Hazard Flammable Skin Irritant Poison B Unknown

Return to Client Disposal by Lab Archive for _____ Months

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Special Instructions/QC Requirements & Comments:

Custody Seal No.: _____
Company: Barley Excavating

Relinquished by: Jacob Daminger Yes No
Date/Time: 5-22-23 10:15
Company: Fed Ex

Relinquished by: _____
Date/Time: _____
Company: _____

Relinquished by: _____
Date/Time: _____
Company: _____

Cooler Temp. (°C): Obs'd: 0.8 Corrid: 0.8 Therm ID No: 600
Received by: Fed Ex
Received by: _____
Received in Laboratory by: _____



Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-234252-1

Login Number: 234252

List Number: 2

Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

List Creation: 05/24/23 12:15 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	2110359
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	0.8C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <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	



Environment Testing
TestAmerica

Sacramento
Sample Receiving Notes



500-234252 Field Sheet

Job: _____

Tracking #: 5120 6510 6874

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSO / OnTrac / Goldstreak / USPS / Other _____

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

Therm. ID: U10 Corr. Factor: (+/-) _____ °C

Ice Wet Gel Other

Cooler Custody Seal: 2110359

Cooler ID: _____

Temp Observed: 0.8 °C Corrected: 0.8 °C
From: Temp Blank Sample

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: JF Date: 5/23/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples require splitting/compositing?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Samples w/o discrepancies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

Initials: B Date: 5/24/23

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Log Release checked in TALS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: B Date: 5/24/23

WR2-27C



Isotope Dilution Summary

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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)
500-234252-1	Collapsed SW Foam (5-22-23)	81	104	128	107	61	63	69	105
500-234252-1 - DL	Collapsed SW Foam (5-22-23)	82	83	89	77	68	73	84	56
LCS 320-678381/2-A	Lab Control Sample	103	94	96	101	102	103	97	96
LCSD 320-678381/3-A	Lab Control Sample Dup	90	89	86	89	94	96	88	88
MB 320-678381/1-A	Method Blank	96	94	97	95	98	103	95	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)
500-234252-1	Collapsed SW Foam (5-22-23)	57	34	25	127	147	65	53	55
500-234252-1 - DL	Collapsed SW Foam (5-22-23)	35	23 *5-	18 *5-	66	80	77	68	66
LCS 320-678381/2-A	Lab Control Sample	92	94	98	102	106	105	97	94
LCSD 320-678381/3-A	Lab Control Sample Dup	89	89	87	92	99	96	92	88
MB 320-678381/1-A	Method Blank	92	95	92	94	100	102	96	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-234252-1	Collapsed SW Foam (5-22-23)	80	65	64	68	63	194 *5+	175 *5+	464 *5+
500-234252-1 - DL	Collapsed SW Foam (5-22-23)	49	48	25	40	86	106	244 *5+	673 *5+
LCS 320-678381/2-A	Lab Control Sample	97	75	75	90	91	73	80	85
LCSD 320-678381/3-A	Lab Control Sample Dup	90	81	76	82	89	74	75	79
MB 320-678381/1-A	Method Blank	104	82	80	92	96	71	72	85

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	HFPODA (25-150)	M102FTS (25-150)
500-234252-1	Collapsed SW Foam (5-22-23)	111	97
500-234252-1 - DL	Collapsed SW Foam (5-22-23)	59	50
LCS 320-678381/2-A	Lab Control Sample	97	100
LCSD 320-678381/3-A	Lab Control Sample Dup	90	88
MB 320-678381/1-A	Method Blank	98	97

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M

Isotope Dilution Summary

Client: ARCADIS US Inc

Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-234252-1

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
M102FTS = 13C2 10:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
ARCADIS US Inc
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Generated 9/6/2023 5:53:57 PM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.3 Collapsed Foam

JOB NUMBER

500-238048-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

Results relate only to the items tested and the sample(s) as received by the laboratory. The results, detection limits (LOD) and Quantitation Limits (LOQ) have been adjusted for sample dilutions and/or solids content.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
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(920)261-1660



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Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Job ID: 500-238048-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-238048-1

Comments

No additional comments.

Receipt

The sample was received on 8/10/2023 10:00 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4° C.

LCMS

Method 537 (modified): The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries and precision for preparation batch 320-701569 and analytical batch 320-702524 recovered outside control limits for the following analyte: Perfluoro-n-octadecanoic acid (PFODA). This analyte is not a state regulated analyte; therefore, the data have been reported

Method 537 (modified): The Isotope Dilution Analyte (IDA), 13C2 PFHxDA, recovery associated with the following sample is below the method recommended limit: Collapsed SW Foam (8-9-23) (500-238048-1). The associated target analytes, Perfluoro-n-hexadecanoic acid (PFHxDA) and Perfluoro-n-octadecanoic acid (PFODA), are not state regulated analytes, therefore, the data have been reported.

Method 537 (modified): The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: Collapsed SW Foam (8-9-23) (500-238048-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The samples were diluted within calibration range, and both sets of data were reported.

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte: (CCB 320-702553/21).

Method 537 (modified): Results for sample Collapsed SW Foam (8-9-23) (500-238048-1) was 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. The percent recovery for the internal standard in the 10X analysis is 104% after the dilution factor was applied to the labeled internal standard area count.

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

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-701569.

preparation batch 320-701569

Method: 3535 PFC-W

Matrix: Aqueous

Method 3535: The following samples in preparation batch 320-701569 were yellow in color prior to extraction. Collapsed SW Foam (8-9-23) (500-238048-1)

preparation batch 320-701569

Method: 3535 PFC-W

Matrix: Aqueous

Method 3535: Due to the matrix being dark brown color, the initial volumes used for the following sample deviated from the standard procedure: Collapsed SW Foam (8-9-23) (500-238048-1). A 10x dilution was made on the sample, then fortified with IDA and extracted. The reporting limits (RLs) have been adjusted proportionately.

preparation batch 320-701569

Method: 3535 PFC-W

Matrix: Aqueous

Method 3535: The following samples in preparation batch 320-701569 were observed to have floating particulates present in the sample

Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Job ID: 500-238048-1 (Continued)

Laboratory: Eurofins Chicago (Continued)

bottle. 500-238048-C-1
preparation batch 320-701569
Method: 3535 PFC-W
Matrix: Aqueous

Method 3535: The following samples in preparation batch 320-701569 were yellow in color following extraction. Collapsed SW Foam (8-9-23) (500-238048-1).
preparation batch 320-701569
Method: 3535 PFC-W
Matrix: Aqueous

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

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Method Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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

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



Sample Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
500-238048-1	Collapsed SW Foam (8-9-23)	Water	08/09/23 12:15	08/10/23 10:00

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Client Sample ID: Collapsed SW Foam (8-9-23)

Lab Sample ID: 500-238048-1

Date Collected: 08/09/23 12:15

Matrix: Water

Date Received: 08/10/23 10:00

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	290		50	24	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoropentanoic acid (PFPeA)	440		20	4.9	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorohexanoic acid (PFHxA)	1500		20	5.8	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoroheptanoic acid (PFHpA)	240		20	2.5	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorooctanoic acid (PFOA)	2600		20	8.5	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorononanoic acid (PFNA)	1400		20	2.7	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorodecanoic acid (PFDA)	500		20	3.1	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoroundecanoic acid (PFUnA)	160		20	11	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorododecanoic acid (PFDoA)	18	J	20	5.5	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorotridecanoic acid (PFTriA)	<20		20	13	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorotetradecanoic acid (PFTeA)	<20		20	7.3	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<20		20	8.9	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoro-n-octadecanoic acid (PFODA)	<20	*- *1	20	9.4	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorobutanesulfonic acid (PFBS)	11	J	20	2.0	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoropentanesulfonic acid (PFPeS)	<20		20	3.0	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorohexanesulfonic acid (PFHxS)	63		20	5.7	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoroheptanesulfonic acid (PFHpS)	14	J	20	1.9	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorooctanesulfonic acid (PFOS)	6400	E	20	5.4	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluoronanesulfonic acid (PFNS)	<20		20	3.7	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorodecanesulfonic acid (PFDS)	8.4	J	20	3.2	ng/L		08/24/23 18:47	08/27/23 16:50	1
Perfluorooctanesulfonamide (FOSA)	560		20	9.8	ng/L		08/24/23 18:47	08/27/23 16:50	1
NEtFOSA	<20		20	8.7	ng/L		08/24/23 18:47	08/27/23 16:50	1
NMeFOSA	<20		20	4.3	ng/L		08/24/23 18:47	08/27/23 16:50	1
NMeFOSAA	13	J	50	12	ng/L		08/24/23 18:47	08/27/23 16:50	1
NEtFOSAA	260		50	13	ng/L		08/24/23 18:47	08/27/23 16:50	1
NMeFOSE	<40		40	14	ng/L		08/24/23 18:47	08/27/23 16:50	1
NEtFOSE	<20		20	8.5	ng/L		08/24/23 18:47	08/27/23 16:50	1
4:2 FTS	20		20	2.4	ng/L		08/24/23 18:47	08/27/23 16:50	1
6:2 FTS	4000	E	50	25	ng/L		08/24/23 18:47	08/27/23 16:50	1
8:2 FTS	8300	E	20	4.6	ng/L		08/24/23 18:47	08/27/23 16:50	1
10:2 FTS	34		20	6.7	ng/L		08/24/23 18:47	08/27/23 16:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<20		20	4.0	ng/L		08/24/23 18:47	08/27/23 16:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<40		40	15	ng/L		08/24/23 18:47	08/27/23 16:50	1
F-53B Major	<20		20	2.4	ng/L		08/24/23 18:47	08/27/23 16:50	1
F-53B Minor	<20		20	3.2	ng/L		08/24/23 18:47	08/27/23 16:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	71		25 - 150				08/24/23 18:47	08/27/23 16:50	1
13C5 PFPeA	92		25 - 150				08/24/23 18:47	08/27/23 16:50	1
13C2 PFHxA	87		25 - 150				08/24/23 18:47	08/27/23 16:50	1

Eurofins Chicago

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Client Sample ID: Collapsed SW Foam (8-9-23)

Lab Sample ID: 500-238048-1

Date Collected: 08/09/23 12:15

Matrix: Water

Date Received: 08/10/23 10:00

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	74		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C4 PFOA	76		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C5 PFNA	93		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 PFDA	84		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 PFUnA	70		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 PFDoA	61		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 PFTeDA	49		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 PFHxDA	39		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C3 PFBS	97		25 - 150	08/24/23 18:47	08/27/23 16:50	1
18O2 PFHxS	71		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C4 PFOS	92		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C8 FOSA	88		10 - 150	08/24/23 18:47	08/27/23 16:50	1
d3-NMeFOSAA	64		25 - 150	08/24/23 18:47	08/27/23 16:50	1
d5-NEtFOSAA	74		25 - 150	08/24/23 18:47	08/27/23 16:50	1
d-N-MeFOSA-M	52		10 - 150	08/24/23 18:47	08/27/23 16:50	1
d-N-EtFOSA-M	49		10 - 150	08/24/23 18:47	08/27/23 16:50	1
d7-N-MeFOSE-M	63		10 - 150	08/24/23 18:47	08/27/23 16:50	1
d9-N-EtFOSE-M	64		10 - 150	08/24/23 18:47	08/27/23 16:50	1
M2-4:2 FTS	122		25 - 150	08/24/23 18:47	08/27/23 16:50	1
M2-6:2 FTS	93		25 - 150	08/24/23 18:47	08/27/23 16:50	1
M2-8:2 FTS	104		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C3 HFPO-DA	85		25 - 150	08/24/23 18:47	08/27/23 16:50	1
13C2 10:2 FTS	83		25 - 150	08/24/23 18:47	08/27/23 16:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<500		500	240	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoropentanoic acid (PFPeA)	530		200	49	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorohexanoic acid (PFHxA)	1500		200	58	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoroheptanoic acid (PFHpA)	310		200	25	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorooctanoic acid (PFOA)	2800		200	85	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorononanoic acid (PFNA)	1700		200	27	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorodecanoic acid (PFDA)	500		200	31	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoroundecanoic acid (PFUnA)	220		200	110	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorododecanoic acid (PFDoA)	<200		200	55	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorotridecanoic acid (PFTriA)	<200		200	130	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorotetradecanoic acid (PFTeA)	<200		200	73	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoro-n-hexadecanoic acid (PFHxDA)	<200		200	89	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoro-n-octadecanoic acid (PFODA)	<200	*- *1	200	94	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorobutanesulfonic acid (PFBS)	<200		200	20	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoropentanesulfonic acid (PFPeS)	<200		200	30	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorohexanesulfonic acid (PFHxS)	<200		200	57	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluoroheptanesulfonic acid (PFHpS)	<200		200	19	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorooctanesulfonic acid (PFOS)	6700		200	54	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorononanesulfonic acid (PFNS)	<200		200	37	ng/L		08/24/23 18:47	08/30/23 00:55	10

Eurofins Chicago

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Client Sample ID: Collapsed SW Foam (8-9-23)

Lab Sample ID: 500-238048-1

Date Collected: 08/09/23 12:15

Matrix: Water

Date Received: 08/10/23 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	<200		200	32	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorododecanesulfonic acid (PFDoS)	<200		200	97	ng/L		08/24/23 18:47	08/30/23 00:55	10
Perfluorooctanesulfonamide (FOSA)	590		200	98	ng/L		08/24/23 18:47	08/30/23 00:55	10
NEtFOSA	<200		200	87	ng/L		08/24/23 18:47	08/30/23 00:55	10
NMeFOSA	<200		200	43	ng/L		08/24/23 18:47	08/30/23 00:55	10
NMeFOSAA	<500		500	120	ng/L		08/24/23 18:47	08/30/23 00:55	10
NEtFOSAA	300 J		500	130	ng/L		08/24/23 18:47	08/30/23 00:55	10
NMeFOSE	<400		400	140	ng/L		08/24/23 18:47	08/30/23 00:55	10
NEtFOSE	<200		200	85	ng/L		08/24/23 18:47	08/30/23 00:55	10
4:2 FTS	26 J		200	24	ng/L		08/24/23 18:47	08/30/23 00:55	10
6:2 FTS	4700		500	250	ng/L		08/24/23 18:47	08/30/23 00:55	10
8:2 FTS	8800		200	46	ng/L		08/24/23 18:47	08/30/23 00:55	10
10:2 FTS	<200		200	67	ng/L		08/24/23 18:47	08/30/23 00:55	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<200		200	40	ng/L		08/24/23 18:47	08/30/23 00:55	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<400		400	150	ng/L		08/24/23 18:47	08/30/23 00:55	10
F-53B Major	<200		200	24	ng/L		08/24/23 18:47	08/30/23 00:55	10
F-53B Minor	<200		200	32	ng/L		08/24/23 18:47	08/30/23 00:55	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	66		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C5 PFPeA	75		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFHxA	79		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C4 PFHpA	70		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C4 PFOA	80		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C5 PFNA	77		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFDA	78		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFUnA	68		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFDoA	57		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFTeDA	36		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 PFHxDA	23	*5-	25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C3 PFBS	69		25 - 150	08/24/23 18:47	08/30/23 00:55	10
18O2 PFHxS	68		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C4 PFOS	75		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C8 FOSA	82		10 - 150	08/24/23 18:47	08/30/23 00:55	10
d3-NMeFOSAA	69		25 - 150	08/24/23 18:47	08/30/23 00:55	10
d5-NEtFOSAA	67		25 - 150	08/24/23 18:47	08/30/23 00:55	10
d-N-MeFOSA-M	44		10 - 150	08/24/23 18:47	08/30/23 00:55	10
d-N-EtFOSA-M	42		10 - 150	08/24/23 18:47	08/30/23 00:55	10
d7-N-MeFOSE-M	50		10 - 150	08/24/23 18:47	08/30/23 00:55	10
d9-N-EtFOSE-M	47		10 - 150	08/24/23 18:47	08/30/23 00:55	10
M2-4:2 FTS	88		25 - 150	08/24/23 18:47	08/30/23 00:55	10
M2-6:2 FTS	74		25 - 150	08/24/23 18:47	08/30/23 00:55	10
M2-8:2 FTS	82		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C3 HFPO-DA	60		25 - 150	08/24/23 18:47	08/30/23 00:55	10
13C2 10:2 FTS	58		25 - 150	08/24/23 18:47	08/30/23 00:55	10

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Client Sample ID: Collapsed SW Foam (8-9-23)

Lab Sample ID: 500-238048-1

Date Collected: 08/09/23 12:15

Matrix: Water

Date Received: 08/10/23 10:00

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	<20		20	9.7	ng/L		08/24/23 18:47	09/05/23 16:19	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOS	73		25 - 150				08/24/23 18:47	09/05/23 16:19	1

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

Definitions/Glossary

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
E	Result exceeded calibration range.
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 Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-701569/1-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 701569

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.19	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		08/24/23 18:47	08/29/23 21:31	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		08/24/23 18:47	08/29/23 21:31	1
NEtFOSA	<2.0		2.0	0.87	ng/L		08/24/23 18:47	08/29/23 21:31	1
NMeFOSA	<2.0		2.0	0.43	ng/L		08/24/23 18:47	08/29/23 21:31	1
NMeFOSAA	<5.0		5.0	1.2	ng/L		08/24/23 18:47	08/29/23 21:31	1
NEtFOSAA	<5.0		5.0	1.3	ng/L		08/24/23 18:47	08/29/23 21:31	1
NMeFOSE	<4.0		4.0	1.4	ng/L		08/24/23 18:47	08/29/23 21:31	1
NEtFOSE	<2.0		2.0	0.85	ng/L		08/24/23 18:47	08/29/23 21:31	1
4:2 FTS	<2.0		2.0	0.24	ng/L		08/24/23 18:47	08/29/23 21:31	1
6:2 FTS	<5.0		5.0	2.5	ng/L		08/24/23 18:47	08/29/23 21:31	1
8:2 FTS	<2.0		2.0	0.46	ng/L		08/24/23 18:47	08/29/23 21:31	1
10:2 FTS	<2.0		2.0	0.67	ng/L		08/24/23 18:47	08/29/23 21:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		08/24/23 18:47	08/29/23 21:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<4.0		4.0	1.5	ng/L		08/24/23 18:47	08/29/23 21:31	1
F-53B Major	<2.0		2.0	0.24	ng/L		08/24/23 18:47	08/29/23 21:31	1
F-53B Minor	<2.0		2.0	0.32	ng/L		08/24/23 18:47	08/29/23 21:31	1
Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac			
	%Recovery	Qualifier							
13C4 PFBA	84		25 - 150	08/24/23 18:47	08/29/23 21:31	1			
13C5 PFPeA	84		25 - 150	08/24/23 18:47	08/29/23 21:31	1			
13C2 PFHxA	85		25 - 150	08/24/23 18:47	08/29/23 21:31	1			
13C4 PFHpA	89		25 - 150	08/24/23 18:47	08/29/23 21:31	1			
13C4 PFOA	89		25 - 150	08/24/23 18:47	08/29/23 21:31	1			

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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

Lab Sample ID: MB 320-701569/1-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 701569

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFNA	87		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 PFDA	93		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 PFUnA	90		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 PFDoA	89		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 PFTeDA	79		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 PFHxDA	66		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C3 PFBS	81		25 - 150	08/24/23 18:47	08/29/23 21:31	1
18O2 PFHxS	84		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C4 PFOS	86		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C8 FOSA	96		10 - 150	08/24/23 18:47	08/29/23 21:31	1
d3-NMeFOSAA	83		25 - 150	08/24/23 18:47	08/29/23 21:31	1
d5-NEtFOSAA	84		25 - 150	08/24/23 18:47	08/29/23 21:31	1
d-N-MeFOSA-M	67		10 - 150	08/24/23 18:47	08/29/23 21:31	1
d-N-EtFOSA-M	73		10 - 150	08/24/23 18:47	08/29/23 21:31	1
d7-N-MeFOSE-M	81		10 - 150	08/24/23 18:47	08/29/23 21:31	1
d9-N-EtFOSE-M	81		10 - 150	08/24/23 18:47	08/29/23 21:31	1
M2-4:2 FTS	76		25 - 150	08/24/23 18:47	08/29/23 21:31	1
M2-6:2 FTS	69		25 - 150	08/24/23 18:47	08/29/23 21:31	1
M2-8:2 FTS	87		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C3 HFPO-DA	75		25 - 150	08/24/23 18:47	08/29/23 21:31	1
13C2 10:2 FTS	92		25 - 150	08/24/23 18:47	08/29/23 21:31	1

Lab Sample ID: LCS 320-701569/2-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 701569

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	8.00	9.41		ng/L		118	60 - 135
Perfluorohexanoic acid (PFHxA)	8.00	8.82		ng/L		110	60 - 135
Perfluoroheptanoic acid (PFHpA)	8.00	9.41		ng/L		118	60 - 135
Perfluorooctanoic acid (PFOA)	8.00	9.91		ng/L		124	60 - 135
Perfluorononanoic acid (PFNA)	8.00	9.55		ng/L		119	60 - 135
Perfluorodecanoic acid (PFDA)	8.00	9.06		ng/L		113	60 - 135
Perfluoroundecanoic acid (PFUnA)	8.00	8.66		ng/L		108	60 - 135
Perfluorododecanoic acid (PFDoA)	8.00	9.81		ng/L		123	60 - 135
Perfluorotridecanoic acid (PFTriA)	8.00	8.81		ng/L		110	60 - 135
Perfluorotetradecanoic acid (PFTeA)	8.00	8.54		ng/L		107	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	8.00	9.50		ng/L		119	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	8.00	3.74	*-	ng/L		47	60 - 135
Perfluorobutanesulfonic acid (PFBS)	7.10	8.08		ng/L		114	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	7.52	8.84		ng/L		118	60 - 135

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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

Lab Sample ID: LCS 320-701569/2-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 701569

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	7.30	7.51		ng/L		103	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	7.63	8.33		ng/L		109	60 - 135
Perfluorooctanesulfonic acid (PFOS)	7.44	8.22		ng/L		111	60 - 135
Perfluorononanesulfonic acid (PFNS)	7.70	7.95		ng/L		103	60 - 135
Perfluorodecanesulfonic acid (PFDS)	7.71	7.97		ng/L		103	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	7.76	8.94		ng/L		115	60 - 135
Perfluorooctanesulfonamide (FOSA)	8.00	9.15		ng/L		114	60 - 135
NEtFOSA	8.00	7.25		ng/L		91	60 - 135
NMeFOSA	8.00	8.55		ng/L		107	60 - 135
NMeFOSAA	8.00	7.38		ng/L		92	60 - 135
NEtFOSAA	8.00	9.06		ng/L		113	60 - 135
NMeFOSE	8.00	9.78		ng/L		122	60 - 135
NEtFOSE	8.00	10.1		ng/L		126	60 - 135
4:2 FTS	7.50	8.73		ng/L		116	60 - 135
6:2 FTS	7.62	8.64		ng/L		113	60 - 135
8:2 FTS	7.68	7.44		ng/L		97	60 - 135
10:2 FTS	7.73	8.77		ng/L		113	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.57	9.45		ng/L		125	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	8.00	9.97		ng/L		125	60 - 135
F-53B Major	7.47	9.14		ng/L		122	60 - 135
F-53B Minor	7.55	8.58		ng/L		114	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	78		25 - 150
13C5 PFPeA	77		25 - 150
13C2 PFHxA	84		25 - 150
13C4 PFHpA	80		25 - 150
13C4 PFOA	78		25 - 150
13C5 PFNA	81		25 - 150
13C2 PFDA	82		25 - 150
13C2 PFUnA	85		25 - 150
13C2 PFDoA	84		25 - 150
13C2 PFTeDA	72		25 - 150
13C2 PFHxDA	65		25 - 150
13C3 PFBS	76		25 - 150
18O2 PFHxS	77		25 - 150
13C4 PFOS	77		25 - 150
13C8 FOSA	88		10 - 150
d3-NMeFOSAA	75		25 - 150
d5-NEtFOSAA	81		25 - 150
d-N-MeFOSA-M	62		10 - 150
d-N-EtFOSA-M	72		10 - 150

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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

Lab Sample ID: LCS 320-701569/2-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 701569

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
d7-N-MeFOSE-M	69		10 - 150
d9-N-EtFOSE-M	69		10 - 150
M2-4:2 FTS	67		25 - 150
M2-6:2 FTS	68		25 - 150
M2-8:2 FTS	81		25 - 150
13C3 HFPO-DA	67		25 - 150
13C2 10:2 FTS	83		25 - 150

Lab Sample ID: LCSD 320-701569/3-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 701569

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
Perfluorobutanoic acid (PFBA)	8.00	8.31		ng/L		104	60 - 135	12	30
Perfluoropentanoic acid (PFPeA)	8.00	8.66		ng/L		108	60 - 135	8	30
Perfluorohexanoic acid (PFHxA)	8.00	8.82		ng/L		110	60 - 135	0	30
Perfluoroheptanoic acid (PFHpA)	8.00	8.42		ng/L		105	60 - 135	11	30
Perfluorooctanoic acid (PFOA)	8.00	9.27		ng/L		116	60 - 135	7	30
Perfluorononanoic acid (PFNA)	8.00	9.31		ng/L		116	60 - 135	3	30
Perfluorodecanoic acid (PFDA)	8.00	8.55		ng/L		107	60 - 135	6	30
Perfluoroundecanoic acid (PFUnA)	8.00	8.79		ng/L		110	60 - 135	1	30
Perfluorododecanoic acid (PFDoA)	8.00	9.26		ng/L		116	60 - 135	6	30
Perfluorotridecanoic acid (PFTriA)	8.00	8.15		ng/L		102	60 - 135	8	30
Perfluorotetradecanoic acid (PFTeA)	8.00	8.12		ng/L		101	60 - 135	5	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	8.00	8.98		ng/L		112	60 - 135	6	30
Perfluoro-n-octadecanoic acid (PFODA)	8.00	1.59	J * - *1	ng/L		20	60 - 135	81	30
Perfluorobutanesulfonic acid (PFBS)	7.10	7.53		ng/L		106	60 - 135	7	30
Perfluoropentanesulfonic acid (PFPeS)	7.52	7.99		ng/L		106	60 - 135	10	30
Perfluorohexanesulfonic acid (PFHxS)	7.30	7.42		ng/L		102	60 - 135	1	30
Perfluoroheptanesulfonic acid (PFHpS)	7.63	7.11		ng/L		93	60 - 135	16	30
Perfluorooctanesulfonic acid (PFOS)	7.44	7.60		ng/L		102	60 - 135	8	30
Perfluorononanesulfonic acid (PFNS)	7.70	6.84		ng/L		89	60 - 135	15	30
Perfluorodecanesulfonic acid (PFDS)	7.71	7.36		ng/L		96	60 - 135	8	30
Perfluorododecanesulfonic acid (PFDoS)	7.76	7.65		ng/L		99	60 - 135	16	30
Perfluorooctanesulfonamide (FOSA)	8.00	8.83		ng/L		110	60 - 135	4	30
NEtFOSA	8.00	7.67		ng/L		96	60 - 135	6	30
NMeFOSA	8.00	8.11		ng/L		101	60 - 135	5	30
NMeFOSAA	8.00	7.41		ng/L		93	60 - 135	0	30

Eurofins Chicago

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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

Lab Sample ID: LCSD 320-701569/3-A
Matrix: Water
Analysis Batch: 702524

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 701569

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA	8.00	8.26		ng/L		103	60 - 135	9	30
NMeFOSE	8.00	7.54		ng/L		94	60 - 135	26	30
NEtFOSE	8.00	8.36		ng/L		104	60 - 135	19	30
4:2 FTS	7.50	8.34		ng/L		111	60 - 135	5	30
6:2 FTS	7.62	9.31		ng/L		122	60 - 135	7	30
8:2 FTS	7.68	7.96		ng/L		104	60 - 135	7	30
10:2 FTS	7.73	8.54		ng/L		111	60 - 135	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.57	8.27		ng/L		109	60 - 135	13	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	8.00	9.80		ng/L		123	60 - 135	2	30
F-53B Major	7.47	7.73		ng/L		103	60 - 135	17	30
F-53B Minor	7.55	7.72		ng/L		102	60 - 135	11	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	88		25 - 150
13C5 PFPeA	88		25 - 150
13C2 PFHxA	90		25 - 150
13C4 PFHpA	91		25 - 150
13C4 PFOA	92		25 - 150
13C5 PFNA	89		25 - 150
13C2 PFDA	94		25 - 150
13C2 PFUnA	96		25 - 150
13C2 PFDoA	92		25 - 150
13C2 PFTeDA	79		25 - 150
13C2 PFHxDA	64		25 - 150
13C3 PFBS	87		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	98		10 - 150
d3-NMeFOSAA	88		25 - 150
d5-NEtFOSAA	86		25 - 150
d-N-MeFOSA-M	65		10 - 150
d-N-EtFOSA-M	68		10 - 150
d7-N-MeFOSE-M	81		10 - 150
d9-N-EtFOSE-M	84		10 - 150
M2-4:2 FTS	76		25 - 150
M2-6:2 FTS	78		25 - 150
M2-8:2 FTS	89		25 - 150
13C3 HFPO-DA	74		25 - 150
13C2 10:2 FTS	99		25 - 150

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Client Sample ID: Collapsed SW Foam (8-9-23)

Lab Sample ID: 500-238048-1

Date Collected: 08/09/23 12:15

Matrix: Water

Date Received: 08/10/23 10:00

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	3535	DL		701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)	DL	10	702524	KCO	EET SAC	08/30/23 00:55
Total/NA	Prep	3535			701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)		1	701862	S1C	EET SAC	08/27/23 16:50
Total/NA	Prep	3535	RA		701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)	RA	1	703870	CV	EET SAC	09/05/23 16:19

Laboratory References:

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



Accreditation/Certification Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-23 *

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

Chain of Custody Record

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Regulatory Program: DW NPDES RCRA Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact Arcadis U.S., Inc. 126 North Jefferson Street, Suite 400 Milwaukee, WI 53202 Phone _____ FAX _____ Project Name: Marinette, WI Site: Marinette, WI P O # 30128077.04 (Collapsed Foam)		Project Manager: Lisa Rutkowski Email: N/A Tel/Fax: N/A Analysis Turnaround Time <input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input checked="" type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sampler: Jacob Rominger Date: 8-9-23 Lab Contact: Sandie Fredrick Carrier: FedEx COC No: 1 of 1 COCs	
Sample Identification Collapsed SW Foam (8-9-23)		Filled Sample (Y/N) N Perform MS / MSD (Y/N) N EPA S37 Modified (S6 Compounds) X		Sample Specific Notes: For Lab Use Only: Walk-in Client: Lab Sampling: Lab Project Number: 50018970	
Sample Date 8-9-23 12:15		Sample Type (c-comp, grab) G		Matrix W	
Sample Time 12:15		# of Cont. 3		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 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 checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temp. (°C): Obs'd: 1.9 Corr'd: 1.9 Received by: Fed Ex Date/Time: 8-9-23 12:10		Therm ID No.: 104 Date/Time: 08/10/23 1000	
Relinquished by: Jacob Rominger Date/Time: _____		Company: Barley Excavating Date/Time: _____		Company: ETK Soc Date/Time: _____	
Relinquished by: _____ Date/Time: _____		Company: _____ Date/Time: _____		Company: _____ Date/Time: _____	



Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-238048-1

Login Number: 238048

List Number: 1

Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

List Creation: 08/14/23 01:54 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	2330246
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	1.4C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <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 US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-238048-1	Collapsed SW Foam (8-9-23)	71	92	87	74	76	93	84	70
500-238048-1 - DL	Collapsed SW Foam (8-9-23)	66	75	79	70	80	77	78	68
500-238048-1 - RA	Collapsed SW Foam (8-9-23)								
LCS 320-701569/2-A	Lab Control Sample	78	77	84	80	78	81	82	85
LCSD 320-701569/3-A	Lab Control Sample Dup	88	88	90	91	92	89	94	96
MB 320-701569/1-A	Method Blank	84	84	85	89	89	87	93	90

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDaA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)
500-238048-1	Collapsed SW Foam (8-9-23)	61	49	39	97	71	92	88	64
500-238048-1 - DL	Collapsed SW Foam (8-9-23)	57	36	23 *5-	69	68	75	82	69
500-238048-1 - RA	Collapsed SW Foam (8-9-23)						73		
LCS 320-701569/2-A	Lab Control Sample	84	72	65	76	77	77	88	75
LCSD 320-701569/3-A	Lab Control Sample Dup	92	79	64	87	89	96	98	88
MB 320-701569/1-A	Method Blank	89	79	66	81	84	86	96	83

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-238048-1	Collapsed SW Foam (8-9-23)	74	52	49	63	64	122	93	104
500-238048-1 - DL	Collapsed SW Foam (8-9-23)	67	44	42	50	47	88	74	82
500-238048-1 - RA	Collapsed SW Foam (8-9-23)								
LCS 320-701569/2-A	Lab Control Sample	81	62	72	69	69	67	68	81
LCSD 320-701569/3-A	Lab Control Sample Dup	86	65	68	81	84	76	78	89
MB 320-701569/1-A	Method Blank	84	67	73	81	81	76	69	87

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)	
		HFPODA (25-150)	M102FTS (25-150)
500-238048-1	Collapsed SW Foam (8-9-23)	85	83
500-238048-1 - DL	Collapsed SW Foam (8-9-23)	60	58
500-238048-1 - RA	Collapsed SW Foam (8-9-23)		
LCS 320-701569/2-A	Lab Control Sample	67	83
LCSD 320-701569/3-A	Lab Control Sample Dup	74	99
MB 320-701569/1-A	Method Blank	75	92

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
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS

Isotope Dilution Summary

Client: ARCADIS US Inc

Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-238048-1

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
M102FTS = 13C2 10:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
ARCADIS US Inc
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Generated 10/27/2023 2:31:15 PM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.3 Collapsed Foam

JOB NUMBER

500-240907-1

Eurofins Chicago

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

Results relate only to the items tested and the sample(s) as received by the laboratory. The results, detection limits (LOD) and Quantitation Limits (LOQ) have been adjusted for sample dilutions and/or solids content.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Chicago Project Manager.

Authorization



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Authorized for release by
Sandie Fredrick, Project Manager II
Sandra.Fredrick@et.eurofinsus.com
(920)261-1660



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Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Job ID: 500-240907-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-240907-1

Receipt

The sample was received on 10/11/2023 9:30 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 7.3° C.

Receipt Exceptions

The following sample(s) was received at the laboratory outside the required temperature criteria: Collapsed SW Foam (10-9-23). Collapsed SW Foam (10-9-23) (500-240907-1).

LCMS

Method 537 (modified): The laboratory control sample and laboratory control sample duplicate (LCS/LCSD) for preparation batch 320-714498 and 320-714498 and analytical batch 320-714795 recovered below the control limit for the following analyte: Perfluoro-n-octadecanoic acid (PFODA). This is a legacy analyte for the method and the state of Wisconsin is no longer concerned with its recovery; therefore, the data have been reported.

Method 537 (modified): The RPD of the low laboratory control sample (LLCS) and low laboratory control sample duplicate (LLCSD) for preparation batch 320-714498 and 320-714498 and analytical batch 320-714795 recovered outside control limits for the following analytes: Perfluoro-n-octadecanoic acid (PFODA)

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte: Collapsed SW Foam (10-9-23) (500-240907-1).

Method 537 (modified): The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: Collapsed SW Foam (10-9-23) (500-240907-1). These analytes have been qualified; however, the peaks did not saturate the instrument detector. The samples were diluted within calibration range, and both sets of data were reported.

Method 537 (modified): The low level continuing calibration verification (CCVL) standard associated with batch 320-715285 failed to meet acceptance limits for Perfluoro-n-octadecanoic acid (PFODA). This analyte is not a state regulated analyte; therefore, the data have been reported.

Method 537 (modified): Results for sample Collapsed SW Foam (10-9-23) (500-240907-1) was 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. The percent recovery for the internal standard in the 20x analysis is 99.7% after the dilution factor was applied to the labeled internal standard area count.

Method 537 (modified): The continuing calibration verification (CCV) standard associated with batch 320-715656 failed to meet acceptance limits for 13C2 PFHxDA, the associated target analytes Perfluoro-n-hexadecanoic acid (PFHxDA) and Perfluoro-n-octadecanoic acid (PFODA), are not state regulated analytes; therefore, the data have been reported.

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was outside the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte: Collapsed SW Foam (10-9-23) (500-240907-1).

Method 537 (modified): The continuing calibration verification (CCV) standard associated with batch 320-715656 failed to meet acceptance limits for Perfluoro-n-octadecanoic acid (PFODA), is not a state regulated analyte; therefore, the data have been reported. (CCV 320-715656/13)

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

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-714498.

Case Narrative

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Job ID: 500-240907-1 (Continued)

Laboratory: Eurofins Chicago (Continued)

Method: 3535_PFC_28D
Matrix: Aqueous

Method 3535: Due to the sample being dark brown in color, containing floating particulates and the potential for high analyte concentrations, the initial volume used for the following sample deviated from the standard procedure: Collapsed SW Foam (10-9-23) (500-240907-1). A 10x dilution was made on the sample, then fortified with IDA and extracted. The reporting limits (RLs) have been adjusted proportionately.

Method: 3535_PFC_28D
Matrix: Aqueous

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

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Method Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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

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

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Sample Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-240907-1	Collapsed SW Foam (10-9-23)	Water	10/09/23 11:15	10/11/23 09:30

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Client Sample ID: Collapsed SW Foam (10-9-23)

Lab Sample ID: 500-240907-1

Date Collected: 10/09/23 11:15

Matrix: Water

Date Received: 10/11/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	540		50	24	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoropentanoic acid (PFPeA)	2200		20	4.9	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorohexanoic acid (PFHxA)	3700		20	5.8	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoroheptanoic acid (PFHpA)	970		20	2.5	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorooctanoic acid (PFOA)	7200 E		20	8.5	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorononanoic acid (PFNA)	6700 E		20	2.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorodecanoic acid (PFDA)	1400		20	3.1	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoroundecanoic acid (PFUnA)	460		20	11	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorododecanoic acid (PFDoA)	53		20	5.5	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorotridecanoic acid (PFTriA)	<20		20	13	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorotetradecanoic acid (PFTeA)	9.8 J		20	7.3	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<20		20	8.9	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoro-n-octadecanoic acid (PFODA)	<20 *1 *-		20	9.4	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorobutanesulfonic acid (PFBS)	31		20	2.0	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoropentanesulfonic acid (PFPeS)	<20		20	3.0	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorohexanesulfonic acid (PFHxS)	200		20	5.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluoroheptanesulfonic acid (PFHpS)	110		20	1.9	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorooctanesulfonic acid (PFOS)	25000 E		20	5.4	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorononanesulfonic acid (PFNS)	19 J		20	3.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorodecanesulfonic acid (PFDS)	26		20	3.2	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorododecanesulfonic acid (PFDoS)	<20		20	9.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
Perfluorooctanesulfonamide (FOSA)	2200		20	9.8	ng/L		10/20/23 10:39	10/21/23 18:26	1
NEtFOSA	<20		20	8.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
NMeFOSA	<20		20	4.3	ng/L		10/20/23 10:39	10/21/23 18:26	1
NMeFOSAA	45 J I		50	12	ng/L		10/20/23 10:39	10/21/23 18:26	1
NEtFOSAA	900		50	13	ng/L		10/20/23 10:39	10/21/23 18:26	1
NMeFOSE	<40		40	14	ng/L		10/20/23 10:39	10/21/23 18:26	1
NEtFOSE	18 J		20	8.5	ng/L		10/20/23 10:39	10/21/23 18:26	1
4:2 FTS	38		20	2.4	ng/L		10/20/23 10:39	10/21/23 18:26	1
6:2 FTS	8800 E		50	25	ng/L		10/20/23 10:39	10/21/23 18:26	1
8:2 FTS	25000 E		20	4.6	ng/L		10/20/23 10:39	10/21/23 18:26	1
10:2 FTS	91		20	6.7	ng/L		10/20/23 10:39	10/21/23 18:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<20		20	4.0	ng/L		10/20/23 10:39	10/21/23 18:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<40		40	15	ng/L		10/20/23 10:39	10/21/23 18:26	1
F-53B Major	<20		20	2.4	ng/L		10/20/23 10:39	10/21/23 18:26	1
F-53B Minor	<20		20	3.2	ng/L		10/20/23 10:39	10/21/23 18:26	1

Eurofins Chicago

Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Client Sample ID: Collapsed SW Foam (10-9-23)

Lab Sample ID: 500-240907-1

Date Collected: 10/09/23 11:15

Matrix: Water

Date Received: 10/11/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	49		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C5 PFPeA	51		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFHxA	79		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C4 PFHpA	79		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C4 PFOA	81		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C5 PFNA	70		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFDA	70		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFUnA	72		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFDoA	62		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFTeDA	43		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 PFHxDA	38		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C3 PFBS	63		25 - 150	10/20/23 10:39	10/21/23 18:26	1
18O2 PFHxS	80		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C4 PFOS	78		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C8 FOSA	68		10 - 150	10/20/23 10:39	10/21/23 18:26	1
d3-NMeFOSAA	81		25 - 150	10/20/23 10:39	10/21/23 18:26	1
d5-NEtFOSAA	96		25 - 150	10/20/23 10:39	10/21/23 18:26	1
d-N-MeFOSA-M	57		10 - 150	10/20/23 10:39	10/21/23 18:26	1
d-N-EtFOSA-M	58		10 - 150	10/20/23 10:39	10/21/23 18:26	1
d7-N-MeFOSE-M	47		10 - 150	10/20/23 10:39	10/21/23 18:26	1
d9-N-EtFOSE-M	43		10 - 150	10/20/23 10:39	10/21/23 18:26	1
M2-4:2 FTS	103		25 - 150	10/20/23 10:39	10/21/23 18:26	1
M2-6:2 FTS	98		25 - 150	10/20/23 10:39	10/21/23 18:26	1
M2-8:2 FTS	106		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C3 HFPO-DA	75		25 - 150	10/20/23 10:39	10/21/23 18:26	1
13C2 10:2 FTS	85		25 - 150	10/20/23 10:39	10/21/23 18:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	690	J	1000	480	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoropentanoic acid (PFPeA)	2300		400	98	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorohexanoic acid (PFHxA)	3900		400	120	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoroheptanoic acid (PFHpA)	1000		400	50	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorooctanoic acid (PFOA)	8100		400	170	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorononanoic acid (PFNA)	6800		400	54	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorodecanoic acid (PFDA)	1500		400	62	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoroundecanoic acid (PFUnA)	450	I	400	220	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorododecanoic acid (PFDoA)	<400		400	110	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorotridecanoic acid (PFTriA)	<400		400	260	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorotetradecanoic acid (PFTeA)	<400		400	150	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoro-n-hexadecanoic acid (PFHxDA)	<400		400	180	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoro-n-octadecanoic acid (PFODA)	<400	*- *1	400	190	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorobutanesulfonic acid (PFBS)	<400		400	40	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoropentanesulfonic acid (PFPeS)	<400		400	60	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorohexanesulfonic acid (PFHxS)	210	J	400	110	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluoroheptanesulfonic acid (PFHpS)	<400		400	38	ng/L		10/20/23 10:39	10/25/23 16:22	20

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Client Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Client Sample ID: Collapsed SW Foam (10-9-23)

Lab Sample ID: 500-240907-1

Date Collected: 10/09/23 11:15

Matrix: Water

Date Received: 10/11/23 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	27000		400	110	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorononanesulfonic acid (PFNS)	<400		400	74	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorodecanesulfonic acid (PFDS)	<400		400	64	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorododecanesulfonic acid (PFDoS)	<400		400	190	ng/L		10/20/23 10:39	10/25/23 16:22	20
Perfluorooctanesulfonamide (FOSA)	2100		400	200	ng/L		10/20/23 10:39	10/25/23 16:22	20
NEtFOSA	<400		400	170	ng/L		10/20/23 10:39	10/25/23 16:22	20
NMeFOSA	<400		400	86	ng/L		10/20/23 10:39	10/25/23 16:22	20
NMeFOSAA	<1000		1000	240	ng/L		10/20/23 10:39	10/25/23 16:22	20
NEtFOSAA	870 J		1000	260	ng/L		10/20/23 10:39	10/25/23 16:22	20
NMeFOSE	<800		800	280	ng/L		10/20/23 10:39	10/25/23 16:22	20
NEtFOSE	<400		400	170	ng/L		10/20/23 10:39	10/25/23 16:22	20
4:2 FTS	53 J		400	48	ng/L		10/20/23 10:39	10/25/23 16:22	20
6:2 FTS	8400		1000	500	ng/L		10/20/23 10:39	10/25/23 16:22	20
8:2 FTS	26000		400	92	ng/L		10/20/23 10:39	10/25/23 16:22	20
10:2 FTS	<400		400	130	ng/L		10/20/23 10:39	10/25/23 16:22	20
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<400		400	80	ng/L		10/20/23 10:39	10/25/23 16:22	20
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<800		800	300	ng/L		10/20/23 10:39	10/25/23 16:22	20
F-53B Major	<400		400	48	ng/L		10/20/23 10:39	10/25/23 16:22	20
F-53B Minor	<400		400	64	ng/L		10/20/23 10:39	10/25/23 16:22	20
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	94		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C5 PFPeA	97		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFHxA	91		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C4 PFHpA	90		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C4 PFOA	91		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C5 PFNA	93		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFDA	85		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFUnA	76		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFDoA	60		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFTeDA	42		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C2 PFHxDA	33		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C3 PFBS	95		25 - 150				10/20/23 10:39	10/25/23 16:22	20
18O2 PFHxS	84		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C4 PFOS	82		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C8 FOSA	78		10 - 150				10/20/23 10:39	10/25/23 16:22	20
d3-NMeFOSAA	90		25 - 150				10/20/23 10:39	10/25/23 16:22	20
d5-NEtFOSAA	104		25 - 150				10/20/23 10:39	10/25/23 16:22	20
d-N-MeFOSA-M	57		10 - 150				10/20/23 10:39	10/25/23 16:22	20
d-N-EtFOSA-M	63		10 - 150				10/20/23 10:39	10/25/23 16:22	20
d7-N-MeFOSE-M	60		10 - 150				10/20/23 10:39	10/25/23 16:22	20
d9-N-EtFOSE-M	54		10 - 150				10/20/23 10:39	10/25/23 16:22	20
M2-4:2 FTS	91		25 - 150				10/20/23 10:39	10/25/23 16:22	20
M2-6:2 FTS	88		25 - 150				10/20/23 10:39	10/25/23 16:22	20
M2-8:2 FTS	130		25 - 150				10/20/23 10:39	10/25/23 16:22	20
13C3 HFPO-DA	84		25 - 150				10/20/23 10:39	10/25/23 16:22	20

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Client Sample Results

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Client Sample ID: Collapsed SW Foam (10-9-23)

Lab Sample ID: 500-240907-1

Date Collected: 10/09/23 11:15

Matrix: Water

Date Received: 10/11/23 09:30

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

<u>Isotope Dilution</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
13C2 10:2 FTS	58		25 - 150	10/20/23 10:39	10/25/23 16:22	20

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Definitions/Glossary

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
E	Result exceeded calibration range.
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

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-714498/1-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 714498

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.19	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		10/19/23 18:18	10/21/23 16:00	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		10/19/23 18:18	10/21/23 16:00	1
NEtFOSA	<2.0		2.0	0.87	ng/L		10/19/23 18:18	10/21/23 16:00	1
NMeFOSA	<2.0		2.0	0.43	ng/L		10/19/23 18:18	10/21/23 16:00	1
NMeFOSAA	<5.0		5.0	1.2	ng/L		10/19/23 18:18	10/21/23 16:00	1
NEtFOSAA	<5.0		5.0	1.3	ng/L		10/19/23 18:18	10/21/23 16:00	1
NMeFOSE	<4.0		4.0	1.4	ng/L		10/19/23 18:18	10/21/23 16:00	1
NEtFOSE	<2.0		2.0	0.85	ng/L		10/19/23 18:18	10/21/23 16:00	1
4:2 FTS	<2.0		2.0	0.24	ng/L		10/19/23 18:18	10/21/23 16:00	1
6:2 FTS	<5.0		5.0	2.5	ng/L		10/19/23 18:18	10/21/23 16:00	1
8:2 FTS	<2.0		2.0	0.46	ng/L		10/19/23 18:18	10/21/23 16:00	1
10:2 FTS	<2.0		2.0	0.67	ng/L		10/19/23 18:18	10/21/23 16:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		10/19/23 18:18	10/21/23 16:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<4.0		4.0	1.5	ng/L		10/19/23 18:18	10/21/23 16:00	1
F-53B Major	<2.0		2.0	0.24	ng/L		10/19/23 18:18	10/21/23 16:00	1
F-53B Minor	<2.0		2.0	0.32	ng/L		10/19/23 18:18	10/21/23 16:00	1
	MB	MB							
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150				10/19/23 18:18	10/21/23 16:00	1
13C5 PFPeA	74		25 - 150				10/19/23 18:18	10/21/23 16:00	1
13C2 PFHxA	96		25 - 150				10/19/23 18:18	10/21/23 16:00	1
13C4 PFHpA	96		25 - 150				10/19/23 18:18	10/21/23 16:00	1
13C4 PFOA	98		25 - 150				10/19/23 18:18	10/21/23 16:00	1

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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

Lab Sample ID: MB 320-714498/1-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 714498

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C5 PFNA	92		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 PFDA	93		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 PFUnA	93		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 PFDoA	90		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 PFTeDA	83		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 PFHxDA	82		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C3 PFBS	85		25 - 150	10/19/23 18:18	10/21/23 16:00	1
18O2 PFHxS	97		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C4 PFOS	95		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C8 FOSA	92		10 - 150	10/19/23 18:18	10/21/23 16:00	1
d3-NMeFOSAA	115		25 - 150	10/19/23 18:18	10/21/23 16:00	1
d5-NEtFOSAA	115		25 - 150	10/19/23 18:18	10/21/23 16:00	1
d-N-MeFOSA-M	79		10 - 150	10/19/23 18:18	10/21/23 16:00	1
d-N-EtFOSA-M	86		10 - 150	10/19/23 18:18	10/21/23 16:00	1
d7-N-MeFOSE-M	78		10 - 150	10/19/23 18:18	10/21/23 16:00	1
d9-N-EtFOSE-M	77		10 - 150	10/19/23 18:18	10/21/23 16:00	1
M2-4:2 FTS	119		25 - 150	10/19/23 18:18	10/21/23 16:00	1
M2-6:2 FTS	118		25 - 150	10/19/23 18:18	10/21/23 16:00	1
M2-8:2 FTS	120		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C3 HFPO-DA	81		25 - 150	10/19/23 18:18	10/21/23 16:00	1
13C2 10:2 FTS	89		25 - 150	10/19/23 18:18	10/21/23 16:00	1

Lab Sample ID: LLCS 320-714498/2-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 714498

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	8.00	7.94		ng/L		99	50 - 150
Perfluorohexanoic acid (PFHxA)	8.00	7.83		ng/L		98	50 - 150
Perfluoroheptanoic acid (PFHpA)	8.00	8.10		ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	8.00	7.82		ng/L		98	50 - 150
Perfluorononanoic acid (PFNA)	8.00	8.07		ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	8.00	7.76		ng/L		97	50 - 150
Perfluoroundecanoic acid (PFUnA)	8.00	8.52		ng/L		107	50 - 150
Perfluorododecanoic acid (PFDoA)	8.00	8.32		ng/L		104	50 - 150
Perfluorotridecanoic acid (PFTriA)	8.00	7.38		ng/L		92	50 - 150
Perfluorotetradecanoic acid (PFTeA)	8.00	7.95		ng/L		99	50 - 150
Perfluoro-n-hexadecanoic acid (PFHxDA)	8.00	7.90		ng/L		99	50 - 150
Perfluoro-n-octadecanoic acid (PFODA)	8.00	3.44	*-	ng/L		43	50 - 150
Perfluorobutanesulfonic acid (PFBS)	7.10	7.38		ng/L		104	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	7.52	8.06		ng/L		107	50 - 150

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QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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

Lab Sample ID: LLCS 320-714498/2-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 714498

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	7.30	7.28		ng/L		100	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	7.63	7.51		ng/L		98	50 - 150
Perfluorooctanesulfonic acid (PFOS)	7.44	7.41		ng/L		100	50 - 150
Perfluorononanesulfonic acid (PFNS)	7.70	7.88		ng/L		102	50 - 150
Perfluorodecanesulfonic acid (PFDS)	7.71	7.48		ng/L		97	50 - 150
Perfluorododecanesulfonic acid (PFDoS)	7.76	8.37		ng/L		108	50 - 150
Perfluorooctanesulfonamide (FOSA)	8.00	8.49		ng/L		106	50 - 150
NEtFOSA	8.00	6.88		ng/L		86	50 - 150
NMeFOSA	8.00	8.54		ng/L		107	50 - 150
NMeFOSAA	8.00	7.25		ng/L		91	50 - 150
NEtFOSAA	8.00	7.73		ng/L		97	50 - 150
NMeFOSE	8.00	7.34		ng/L		92	50 - 150
NEtFOSE	8.00	8.09		ng/L		101	50 - 150
4:2 FTS	7.50	7.01		ng/L		93	50 - 150
6:2 FTS	7.62	6.98		ng/L		92	50 - 150
8:2 FTS	7.68	7.23		ng/L		94	50 - 150
10:2 FTS	7.73	7.59		ng/L		98	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.57	7.74		ng/L		102	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	8.00	8.78		ng/L		110	50 - 150
F-53B Major	7.47	7.08		ng/L		95	50 - 150
F-53B Minor	7.55	8.10		ng/L		107	50 - 150

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	81		25 - 150
13C5 PFPeA	74		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	94		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	95		25 - 150
13C2 PFDA	95		25 - 150
13C2 PFUnA	93		25 - 150
13C2 PFDoA	93		25 - 150
13C2 PFTeDA	87		25 - 150
13C2 PFHxDA	72		25 - 150
13C3 PFBS	86		25 - 150
18O2 PFHxS	96		25 - 150
13C4 PFOS	97		25 - 150
13C8 FOSA	93		10 - 150
d3-NMeFOSAA	124		25 - 150
d5-NEtFOSAA	115		25 - 150
d-N-MeFOSA-M	76		10 - 150
d-N-EtFOSA-M	85		10 - 150

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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

Lab Sample ID: LLCS 320-714498/2-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 714498

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
d7-N-MeFOSE-M	76		10 - 150
d9-N-EtFOSE-M	77		10 - 150
M2-4:2 FTS	115		25 - 150
M2-6:2 FTS	119		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	80		25 - 150
13C2 10:2 FTS	88		25 - 150

Lab Sample ID: LLCSD 320-714498/3-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 714498

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorobutanoic acid (PFBA)	8.00	7.34		ng/L		92	50 - 150	1	30	
Perfluoropentanoic acid (PFPeA)	8.00	8.15		ng/L		102	50 - 150	3	30	
Perfluorohexanoic acid (PFHxA)	8.00	8.05		ng/L		101	50 - 150	3	30	
Perfluoroheptanoic acid (PFHpA)	8.00	7.97		ng/L		100	50 - 150	2	30	
Perfluorooctanoic acid (PFOA)	8.00	8.07		ng/L		101	50 - 150	3	30	
Perfluorononanoic acid (PFNA)	8.00	8.50		ng/L		106	50 - 150	5	30	
Perfluorodecanoic acid (PFDA)	8.00	7.79		ng/L		97	50 - 150	0.3	30	
Perfluoroundecanoic acid (PFUnA)	8.00	8.39		ng/L		105	50 - 150	2	30	
Perfluorododecanoic acid (PFDoA)	8.00	8.79		ng/L		110	50 - 150	5	30	
Perfluorotridecanoic acid (PFTriA)	8.00	7.77		ng/L		97	50 - 150	5	30	
Perfluorotetradecanoic acid (PFTeA)	8.00	8.17		ng/L		102	50 - 150	3	30	
Perfluoro-n-hexadecanoic acid (PFHxDA)	8.00	7.60		ng/L		95	50 - 150	4	30	
Perfluoro-n-octadecanoic acid (PFODA)	8.00	6.44	*1	ng/L		80	50 - 150	61	30	
Perfluorobutanesulfonic acid (PFBS)	7.10	7.47		ng/L		105	50 - 150	1	30	
Perfluoropentanesulfonic acid (PFPeS)	7.52	7.73		ng/L		103	50 - 150	4	30	
Perfluorohexanesulfonic acid (PFHxS)	7.30	7.50		ng/L		103	50 - 150	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	7.63	7.48		ng/L		98	50 - 150	0.4	30	
Perfluorooctanesulfonic acid (PFOS)	7.44	7.34		ng/L		99	50 - 150	0.9	30	
Perfluorononanesulfonic acid (PFNS)	7.70	7.85		ng/L		102	50 - 150	0.3	30	
Perfluorodecanesulfonic acid (PFDS)	7.71	7.25		ng/L		94	50 - 150	3	30	
Perfluorododecanesulfonic acid (PFDoS)	7.76	7.92		ng/L		102	50 - 150	6	30	
Perfluorooctanesulfonamide (FOSA)	8.00	8.90		ng/L		111	50 - 150	5	30	
NEtFOSA	8.00	7.12		ng/L		89	50 - 150	3	30	
NMeFOSA	8.00	8.44		ng/L		105	50 - 150	1	30	
NMeFOSAA	8.00	7.36		ng/L		92	50 - 150	2	30	

Eurofins Chicago

QC Sample Results

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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

Lab Sample ID: LLCSD 320-714498/3-A
Matrix: Water
Analysis Batch: 714795

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 714498

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA	8.00	8.06		ng/L		101	50 - 150	4	30
NMeFOSE	8.00	9.96		ng/L		125	50 - 150	30	30
NEtFOSE	8.00	9.76		ng/L		122	50 - 150	19	30
4:2 FTS	7.50	7.05		ng/L		94	50 - 150	0.5	30
6:2 FTS	7.62	7.61		ng/L		100	50 - 150	9	30
8:2 FTS	7.68	7.25		ng/L		94	50 - 150	0.3	30
10:2 FTS	7.73	7.49		ng/L		97	50 - 150	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.57	7.74		ng/L		102	50 - 150	0.05	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	8.00	8.69		ng/L		109	50 - 150	1	30
F-53B Major	7.47	7.83		ng/L		105	50 - 150	10	30
F-53B Minor	7.55	8.46		ng/L		112	50 - 150	4	30

Isotope Dilution	LLCSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	76		25 - 150
13C5 PFPeA	69		25 - 150
13C2 PFHxA	95		25 - 150
13C4 PFHpA	93		25 - 150
13C4 PFOA	91		25 - 150
13C5 PFNA	88		25 - 150
13C2 PFDA	91		25 - 150
13C2 PFUnA	86		25 - 150
13C2 PFDoA	84		25 - 150
13C2 PFTeDA	83		25 - 150
13C2 PFHxDA	82		25 - 150
13C3 PFBS	83		25 - 150
18O2 PFHxS	89		25 - 150
13C4 PFOS	91		25 - 150
13C8 FOSA	81		10 - 150
d3-NMeFOSAA	109		25 - 150
d5-NEtFOSAA	105		25 - 150
d-N-MeFOSA-M	68		10 - 150
d-N-EtFOSA-M	74		10 - 150
d7-N-MeFOSE-M	68		10 - 150
d9-N-EtFOSE-M	73		10 - 150
M2-4:2 FTS	104		25 - 150
M2-6:2 FTS	111		25 - 150
M2-8:2 FTS	107		25 - 150
13C3 HFPO-DA	80		25 - 150
13C2 10:2 FTS	89		25 - 150

Lab Chronicle

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

Client Sample ID: Collapsed SW Foam (10-9-23)

Lab Sample ID: 500-240907-1

Date Collected: 10/09/23 11:15

Matrix: Water

Date Received: 10/11/23 09:30

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	3535			714498	EFG	EET SAC	10/20/23 10:39
Total/NA	Analysis	537 (modified)		1	714795	RS1	EET SAC	10/21/23 18:26
Total/NA	Prep	3535	DL		714498	EFG	EET SAC	10/20/23 10:39
Total/NA	Analysis	537 (modified)	DL	20	715656	S1C	EET SAC	10/25/23 16:22

Laboratory References:

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



Accreditation/Certification Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1


Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-24

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

Client Contact	Client Contact	Sampler: <u>Jacob Kammerer</u>	Date: <u>10-9-23</u>	COC No.: <u>1</u> of <u>1</u> COCs
Arcadis U.S., Inc.	Lab Contact: <u>Sandle Fredjick</u>	Carrier: <u>FedEx</u>		
126 North Jefferson Street, Suite 400	Analysis Turnaround Time			
Milwaukee, WI 53202	<input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			
Phone	TAT: if different from Below			
FAX	<input checked="" type="checkbox"/> 2 weeks			
Project Name: <u>Marinette, WI</u>	<input type="checkbox"/> 1 week			
Site: <u>Marinette, WI</u>	<input type="checkbox"/> 2 days			
P O # <u>30171092.4.1.3</u>	<input type="checkbox"/> 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537 Modified (36 Compounds)
<u>Collapsed SW Foam (10-9-23)</u>	<u>10-9-23</u>	<u>11:15</u>	<u>G</u>	<u>W</u>	<u>3</u>	<u>N</u>	<u>N</u>	<u>X</u>
 500-240907 Chain of Custody								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other

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.

Special Instructions/QC Requirements & Comments:
 Non-Hazard Flammable Skin Irritant Poison B Unknown
 Return to Client Disposal by Lab Archive for _____ Months

Custody Seal No.: <u>2077932</u>	Cooler Temp. (°C): <u>7.3</u>	Corr'd: <u>7.3</u>	Therm ID No.: <u>102</u>
Relinquished by: <u>Jacob Kammerer</u>	Company: <u>Barley Excavating</u>	Received by: <u>Fred Ex</u>	Company: _____
Relinquished by: _____	Company: _____	Received by: <u>[Signature]</u>	Company: <u>Barley Exc</u>
Relinquished by: _____	Company: _____	Received in Laboratory by: _____	Company: _____



Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-240907-1

Login Number: 240907

List Number: 1

Creator: Morazzini, Dominic S

List Source: Eurofins Sacramento

List Creation: 10/11/23 02:37 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	2077432
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.	False	
Cooler Temperature is acceptable.	False	
Cooler Temperature is recorded.	True	7.3
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.	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	



Testing

Sacramento Sample Receiving Notes (SSRN)



500-240907 Field Sheet

Tracking # 6463 4233 4458

Job _____

SO (PO) FO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other _____

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

Therm ID <u>W2</u> Corr Factor (+/-) _____ °C	Notes <u>wet water, no ice</u>	
Ice _____ Wet <input checked="" type="checkbox"/> Gel _____ Other _____		
Cooler Custody Seal <u>2077432</u>		
Cooler ID _____		
Temp Observed <u>7.7</u> °C Corrected <u>7.3</u> °C From Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>		
Opening/Processing The Shipment		
Cooler compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		
Cooler Temperature is acceptable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		
Frozen samples show signs of thaw? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Initials <u>DM</u> Date <u>10/11/23</u>		
Unpacking/Labeling The Samples	Trizma Lot #(s) _____ Ammonium Acetate Lot #(s) _____	
Containers are not broken or leaking? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Samples compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		
COC is complete w/o discrepancies? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample custody seal? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Sample containers have legible labels? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample date/times are provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Appropriate containers are used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample bottles are completely filled? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample preservatives verified? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Is the Field Sampler's name on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Login Completion Receipt Temperature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA NCM Filed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA Samples received within hold time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA Log Release checked in TALS? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Samples w/o discrepancies? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Zero headspace?* <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Alkalinity has no headspace? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Perchlorate has headspace? (Methods 314, 331 6850) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Multiphasic samples are not present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")		
Initials <u>DM</u> Date <u>10/11/23</u>		Initials <u>DM</u> Date <u>10/11/23</u>

Isotope Dilution Summary

Client: ARCADIS US Inc
 Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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)	PFA (25-150)
500-240907-1	Collapsed SW Foam (10-9-23)	49	51	79	79	81	70	70	72
500-240907-1 - DL	Collapsed SW Foam (10-9-23)	94	97	91	90	91	93	85	76
LLCS 320-714498/2-A	Lab Control Sample	81	74	100	94	97	95	95	93
LLCSD 320-714498/3-A	Lab Control Sample Dup	76	69	95	93	91	88	91	86
MB 320-714498/1-A	Method Blank	82	74	96	96	98	92	93	93

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 (10-150)	d3NMFOS (25-150)
500-240907-1	Collapsed SW Foam (10-9-23)	62	43	38	63	80	78	68	81
500-240907-1 - DL	Collapsed SW Foam (10-9-23)	60	42	33	95	84	82	78	90
LLCS 320-714498/2-A	Lab Control Sample	93	87	72	86	96	97	93	124
LLCSD 320-714498/3-A	Lab Control Sample Dup	84	83	82	83	89	91	81	109
MB 320-714498/1-A	Method Blank	90	83	82	85	97	95	92	115

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-240907-1	Collapsed SW Foam (10-9-23)	96	57	58	47	43	103	98	106
500-240907-1 - DL	Collapsed SW Foam (10-9-23)	104	57	63	60	54	91	88	130
LLCS 320-714498/2-A	Lab Control Sample	115	76	85	76	77	115	119	109
LLCSD 320-714498/3-A	Lab Control Sample Dup	105	68	74	68	73	104	111	107
MB 320-714498/1-A	Method Blank	115	79	86	78	77	119	118	120

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)	M102FTS (25-150)
500-240907-1	Collapsed SW Foam (10-9-23)	75	85
500-240907-1 - DL	Collapsed SW Foam (10-9-23)	84	58
LLCS 320-714498/2-A	Lab Control Sample	80	88
LLCSD 320-714498/3-A	Lab Control Sample Dup	80	89
MB 320-714498/1-A	Method Blank	81	89

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFA = 13C2 PFA
- PFTDA = 13C2 PFTeDA
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M

Isotope Dilution Summary

Client: ARCADIS US Inc

Project/Site: Marinette, WI 30171092.4.1.3 Collapsed Foam

Job ID: 500-240907-1

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
M102FTS = 13C2 10:2 FTS

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