State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Public Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name		
Nelson	Denice		Tyco Fire Products LP		
Mailing Address			City	State	ZIP Code
2700 Industrial Parkway South			Marinette	WI	54143
Phone # (include area code)	Fax # (include area code)		Email		

The requester listed above: (select all that apply)

- [x] Is currently the owner
- [ ] Is considering selling the Property
- [ ] Is renting or leasing the Property
- [ ] Is considering acquiring the Property
- [ ] Is a lender with a mortgagee interest in the Property
- [ ] Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request)

☐ Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name		
Ziska	Jim		Arcadis		
Mailing Address			City	State	ZIP Code
790 North Milwaukee Street, Suite 100A			Milwaukee	WI	53202
Phone # (include area code)	Fax # (include area code)		Email		
(612) 339-9434			james.ziska@arcadis.com		

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name		
Ziska	Jim		Arcadis		
Mailing Address			City	State	ZIP Code
790 North Milwaukee Street, Suite 100A			Milwaukee	WI	53202
Phone # (include area code)	Fax # (include area code)		Email		
(612) 339-9434			james.ziska@arcadis.com		

Section 2. Property Information

Property Name			FID No. (if known)	
Tyco Fire Technology Center - PFCs			438005590	
BRRTS No. (if known)		Parcel Identification Number		
0238580694				
Street Address		City	State	ZIP Code
2700 Industrial Parkway South		Marinette	WI	54143
County	Municipality where the Property is located	Property is composed of:	Property Size Acres	
Marinette	(●) City ( ) Town ( ) Village of Marinette	( ) Single tax parcel ( ) Multiple tax parcels	380	

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

◉ No ◯ Yes

Date requested by: _____

Reason:

_____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◉ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

◯ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [**Numbers in brackets are for WI DNR Use]**

- ☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - Include a fee of $350. Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- ☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**
- ☐ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**
- ☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**
- ☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**
- ☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**
- ☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**
- ☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**
- ☒ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- ☐ Schedule a Technical Assistance Meeting - **Include a fee of $700.**
- ☐ Hazardous Waste Determination - **Include a fee of $700.**
- ☐ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- ☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**
  - ☐ Include a fee of $300 for sites with residual soil contamination; and
  - ☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

☐ "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the real Property, and/or the personal Property and fixtures;

(2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;

(3) the date the environmental assessment was conducted by the lender;

(4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.

(5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.

(6) a copy of the Property deed with the correct legal description; and,

(7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).

(8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:

h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.

i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

☐ "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the Property;

(2) the date of Property acquisition by the representative;

(3) the means by which the Property was acquired;

(4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;

(5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and

(6) a copy of the Property deed with the correct legal description.

☐ Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

☐ hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];

☐ Perceived environmental contamination - [649];

☐ hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or

☐ solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of $700, a summary of the environmental liability clarification being requested, and the following:**

(1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).

(2) current and proposed ownership status of the Property;

(3) date and means by which the Property was acquired by the LGU, where applicable;

(4) a map and the ¼, ¼ section location of the Property;

(5) summary of current uses of the Property;

(6) intended or potential use(s) of the Property;

(7) descriptions of other investigations that have taken place on the Property; and

(8) (for solid waste clarifications) a summary of the license history of the facility.

Section 4. Request for Liability Clarification (cont.)

☐ Lease liability clarification - s. 292.55, Wis. Stats. [646]

❖ **Include a fee of $700 for a single Property, or $1400 for multiple Properties and the information listed below:**

(1) a copy of the proposed lease;

(2) the name of the current owner of the Property and the person who will lease the Property;

(3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;

(4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;

(5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and

(6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

❖ **Include a fee of $700 and an adequate summary of relevant environmental work to date.**

☐ No Action Required (NAR) - NR 716.05, [682]

❖ **Include a fee of $700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

☐ Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

❖ **Include a fee of $700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,

(2) a copy of the Property deed with the correct legal description.

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,

(2) a copy of the Property deed with the correct legal description.

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

❖ **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,

(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Send both a paper copy of the signed form and all reports and supporting materials, and an electronic copy of the form and all reports, including Environmental Site Assessment Reports, and supporting materials on a compact disk.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

- ☐ Phase I Environmental Site Assessment Report - Date: _____
- ☐ Phase II Environmental Site Assessment Report - Date: _____
- ☐ Legal Description of Property (required for all liability requests and specialized agreements)
- ☐ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☐ Groundwater ☐ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

- ☐ A copy of the closure letter and submittal materials
- ☐ Draft tax cancellation agreement
- ☐ Draft agreement for assignment of tax foreclosure judgment
- ☒ Other report(s) or information - Describe: Ditch A Semi-Annual Operation, Maintenance, Optimization Progress Report

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

- ◯ Yes - Date (if known): _____
- ◯ No

Note: The Notification for Hazardous Substance Discharge Form - Non-Emergency Only (Form 4400-225) is accessible through the RR Program Submittal Portal application. Directions for using the form and the Submittal Portal application are available on the Submittal Portal web page.

Section 7. Certification by the Person who completed this form

- ☐ I am the person submitting this request (requester)
- ☒ I prepared this request for: Denice Nelson
  Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Signature: _____ Date Signed: 3/27/2026

Title: Principal Environmental Specialist Telephone Number (include area code): (312) 575-3732

Section 8. DNR Contacts and Addresresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

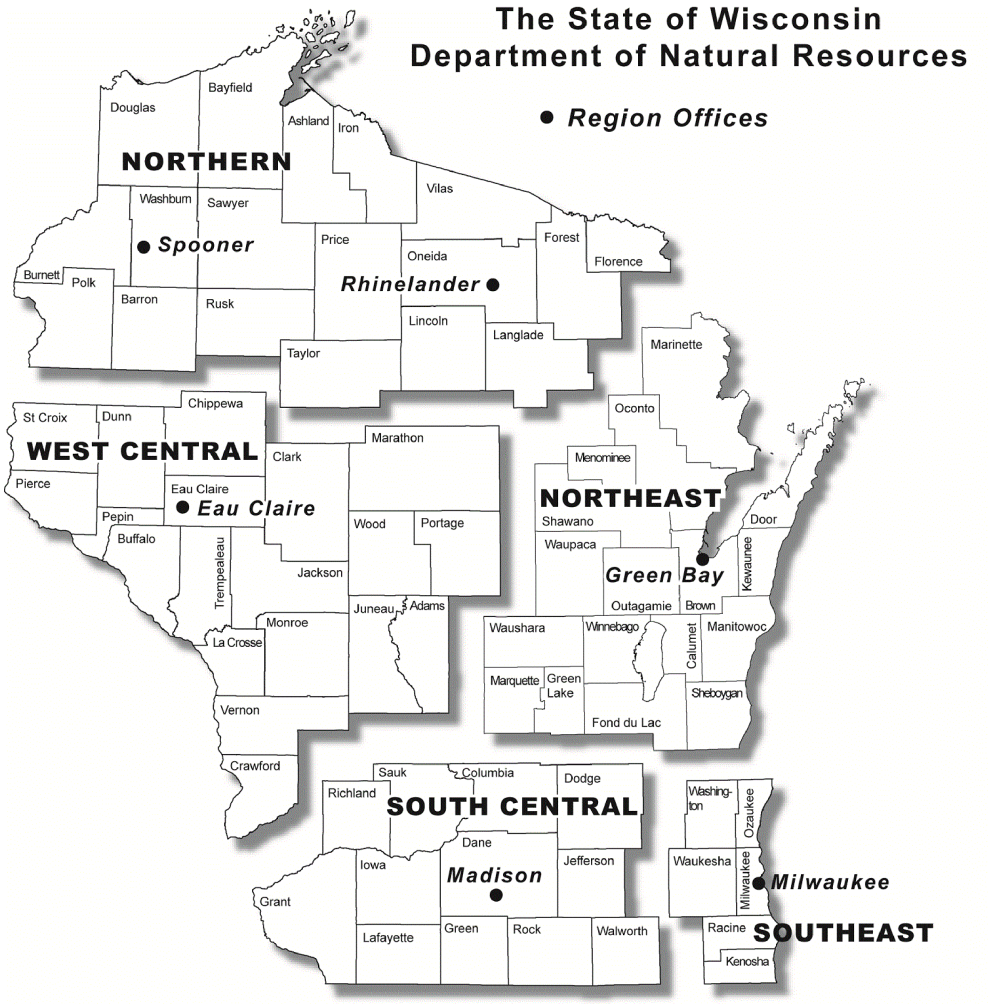
DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION
Attn: RR Program Assistant
Milwaukee DNR Office
1027 West St. Paul Ave
Milwaukee WI 53233

DNR WEST CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer		Comments	
Fee Enclosed? ◯ Yes ◯ No	Fee Amount $	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		

Tyco Fire Products LP

Ditch A Semi-Annual Operation, Maintenance, and Optimization Progress Report #14

Tyco Fire Technology Center
Ditch A Interim Action Treatment System
BRRTS# 02-38-580694
July 1, 2025 – December 31, 2025

March 2026

Ditch A Semi-Annual Operation, Maintenance, and Optimization Progress Report #14

Tyco Fire Technology Center
Ditch A Interim Action Treatment System
BRRTS# 02-38-580694
July 1, 2025 – December 31, 2025

March 27, 2026

Prepared By:
Arcadis U.S., Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee
Wisconsin 53202
Phone: 414 276 7742
Fax: 414 276 7603

Prepared For:
Tyco Fire Products LP
2700 Industrial Parkway South
Marinette
Wisconsin 54143

Our Ref.:
30171092.4.1.1

Jeffrey Yuen
Senior Environmental Engineer

Joe Darby
Technical Expert - Engineer

Jim Ziska, PE
Principal Engineer

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Contents

Executive Summary 1

1 Introduction 1

2 Site Background 2

3 Site Specific Information 3

3.1 Relevant Contaminants 3

3.2 Basis of Design and Ditch A System Overview 3

3.3 System Size and Remediation Method 3

3.4 System Modifications and Maintenance Activities 4

4 System Effectiveness Evaluation 5

4.1 Ditch A System Operation 5

4.2 Ditch A Surface Water Levels 5

4.3 Treatment System Sampling 5

4.3.1 Sample Collection 5

4.3.2 Laboratory Analytical Methods 6

4.3.3 WPDES Permit Exceedances and Sampling Omissions 6

4.4 Quantity of Contaminants Treated and System Efficiency 6

5 Ditch A Surface Water PFAS Trend Evaluation 7

5.1 Upstream of Treatment System 7

5.2 Downstream of Treatment System 7

5.3 Upstream and Downstream Analytical Results 8

6 Waste Management 9

6.1 Bag Filters 9

6.2 Sediment and Solids 9

6.3 Spent GAC 9

7 Sustainability 10

8 Summary 11

9 References 12

10 Professional Certification 13

Tables

Table 1. Ditch A System Operational Data

Table 2. Ditch A System WDPES Sampling Laboratory Analytical Results

Table 3. Ditch A System PFAS Mass Removal and Mass Migrating Downstream

Table 4. Ditch A System PFAS Treatment Efficiency

Table 5. Weekly Ditch A Treatment System and Stream Flow Volumes

Table 6. Ditch A Downstream Surface Water Analytical Results

Table 7. Ditch A System Monthly Upstream and Downstream Analytical Results

Figures

Figure 1. Site Location

Figure 2. Ditch A Site Plan

Figure 3. Ditch A System Upstream Water Elevations (7/1/25 – 12/31/25)

Figure 4. Ditch A System Cumulative PFAS Mass Removal

Figure 5. Ditch A System Influent Concentrations

Figure 6. Ditch A Downstream Surface Water Sample Locations

Figure 7. Ditch A Downstream Surface Water Concentrations (SW-40)

Figure 8. Ditch A Downstream Surface Water Concentrations (SW-26A)

Figure 9. Summary of Groundwater Elevations Near Ditch A

Appendices

A. Ditch A System Piping and Instrumentation Diagram

B. WPDES Laboratory Analytical Reports

C. Ditch A Flow Monitoring and Reporting Methods

D. Ditch A Downstream Surface Water Analytical Reports

E. Waste Management Documentation

Executive Summary

Arcadis U.S., Inc. (Arcadis) has prepared this *Semi-Annual Operation, Maintenance and Optimization Progress Report #14* (Progress Report #14) for the Tyco Fire Technology Center Ditch A Interim Action Treatment System (the Ditch A System) located at 2700 Industrial Parkway South in Marinette, Wisconsin (the Site), on behalf of Tyco Fire Products LP (Tyco) for the July 1, 2025 to December 31, 2025 reporting period. Progress Report #14 is submitted in accordance with S. NR 724.13(3), Wisconsin Administrative Code.

The Tyco Fire Technology Center has been a fire suppressant training, testing, research and development facility since the 1960s. Historically, aqueous film-forming foams have been used as part of the firefighting, development, and quality testing activities at the Site. Per Natural Resources Ch. 708.11 Wisconsin Administration Code, Tyco evaluated the on-Site surface water data and determined that an interim action was appropriate to limit the discharge of per- and polyfluoroalkyl substances (PFAS) in on-Site surface water to off-Site surface water. The interim action focuses on the removal of PFAS, which encompasses both perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), in on-Site surface water using best available technology.

The treatment technology chosen to remediate PFAS in surface water from Ditch A is granular activated carbon (GAC). Water is pumped from Ditch A upstream of a check dam through an equalization tank, bag filters, and GAC vessels before being discharged back to Ditch A downstream of the check dam.

The Ditch A System was operated intermittently throughout the reporting period and times when the system was non-operational were due to dry/frozen channel conditions in Ditch A. The Ditch A System operated for a total of 32 days during the reporting period and treated 3,900,880 gallons of surface water. No exceedances of the Wisconsin Pollutant Discharge Elimination System (WPDES) permit limits occurred. The system removed approximately 0.002 pounds of PFOA and 0.006 pounds of PFOS during the reporting period, and approximately 1.05 pounds of PFOA and 0.51 pounds of PFOS since startup in January 2019.

13,200 pounds of GAC (12,000 pounds reactivated; 1,200 pounds virgin) were utilized by the Ditch A System during the reporting period. Operation of the system consumed 40,139 kilowatt-hours of electricity.

Flow in Ditch A was observed intermittently throughout the reporting period along with fluctuating PFOA and PFOS concentrations at the Ditch A treatment system influent. Heavy precipitation in the Marinette area resulted in one check dam overtopping event on July 5 (21 hours).

Surface water samples were collected downstream of the Ditch A treatment system from SW-40 and SW-26A on July 17 during the reporting period. At SW-40, PFOA was below the surface water standard and PFOS was above the surface water standard; however, PFOS was qualified as an estimated result (J-flagged) due to variation between the parent and duplicate samples. At SW-26A, both PFOA and PFOS were higher than the applicable surface water standards and are likely the result of the groundwater table interacting with bottom of Ditch A at this location. Tyco installed extraction wells EX-10 and EX-11 in the vicinity of Ditch A to mitigate potential flows within Ditch A related to groundwater and associated seasonal water table changes. The impact of these extraction wells will be evaluated in future monitoring reports.

Overall, the Ditch A system is effective as an interim action and removes PFOA and PFOS efficiently from processed surface water. The Ditch A system is also effective at reducing the surface water concentrations of PFOA and PFOS to below the applicable surface water standards in Ditch A immediately downstream of the system under normal operating conditions.

1 Introduction

Arcadis U.S., Inc. (Arcadis) prepared this *Semi-Annual Operation, Maintenance and Optimization Progress Report #14* (Progress Report #14) for the Tyco Fire Technology Center (FTC) Interim Action Treatment System (the Ditch A System) located at 2700 Industrial Parkway South in Marinette, Wisconsin (the Site), on behalf of Tyco Fire Products LP (Tyco). The system was started up in January 2019 to address per- and polyfluoroalkyl substances (PFAS) in Ditch A surface water. Progress Report #14 summarizes system design and construction details; operations, maintenance, and monitoring activities; and an evaluation of system performance over the reporting period (July 1, 2025 through December 31, 2025).

2 Site Background

The Site is located along the southern border of the City of Marinette, Marinette County, Wisconsin, depicted in **Figure 1**. The Site is a fire suppressant training, testing, research and development facility built in the 1960s. Historically, aqueous film-forming foams (AFFF) were used at the Site as part of research and development, quality testing and firefighting training activities. Site investigation activities have been conducted to define the nature and extent of PFAS related to the past use of PFAS-containing AFFF.

The Ditch A System is located south of the Site and north of University Drive, also described as being in the SE1/4 of the NE1/4 of Section 13, Township 30 North, Range 23 East; and is within the Wisconsin Department of Natural Resources (WDNR) Northeast Region. The location of the Ditch A System and the Site plan are shown in **Figure 1** and **Figure 2**, respectively. The Ditch A System is continuously operated (except for dry or frozen conditions) and managed by Arcadis with operational support from Tyco's contractors.

The system discharge is regulated by the WDNR under Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-0046566-07-0 (the WPDES Permit) and the associated revised coverage letter issued by WDNR on June 4, 2021 (the Coverage Letter). The WDNR Bureau for Remediation and Redevelopment Tracking System identification number for the Site is 02-38-580694. Electronic discharge monitoring reports (eDMRs) are submitted to the WDNR monthly.

3 Site Specific Information

3.1 Relevant Contaminants

PFAS in surface water are the primary contaminants of concern treated by the Ditch A System. Additional compounds sampled on a quarterly basis as required by the WPDES Permit include oil and grease; total suspended solids (TSS); polycyclic aromatic hydrocarbons (PAHs); pH; total residual chlorine; and benzene, toluene, ethylbenzene, and xylene (BTEX).

3.2 Basis of Design and Ditch A System Overview

Arcadis completed a detailed Site review utilizing preliminary hydraulic data (e.g., stream gauging), desktop research, and select analytical modeling to evaluate base flow conditions. From this data set, the base flow during non-frozen conditions in Ditch A was estimated to be 100 gallons per minute (gpm). The Ditch A System was designed to treat flow rates up to base flow conditions. Wetland and waterway boundaries within the project area were determined by conducting a wetland and waterbody delineation survey. The resulting boundaries were incorporated into engineering and design plans to minimize wetland and waterway impacts to the extent practicable while still accomplishing the engineering design objectives for the project (Arcadis 2018).

A check dam was placed perpendicular to water flow in order to route surface water from Ditch A to the Ditch A System clear well (located adjacent to the ditch and installed to an invert elevation approximately 11 feet below the natural bottom of the ditch) without restricting surface water flow. Flow to the Ditch A System is regulated by a submersible pump installed in the clear well. The pump operates based on the level condition in the clear well; once the water level in the ditch reaches the programmed set point, the pump conveys water to the equalization tank (T-01).

Water from the equalization tank is conveyed to two identical treatment trains consisting of bag filters (F-01/F-02, F-03/F-04, F-05, and F-06) and multiple granular activated carbon vessels (GAC-101 through GAC-103 and GAC-201 through GAC-203) connected in series using a feed pump (P-01A/P-01B) controlled by a variable frequency drive, which allows operators to control the speed of the pump. Flow meters are also included downstream of the feed pump. The bag filters are in place to remove particulates in the influent water. Pressure gauges and transmitters are used to determine when bag filters need to be replaced and when the GAC vessels need to be backwashed. The treated water is discharged to Ditch A immediately downstream of the check dam.

Piping and instrumentation diagrams of the Ditch A System are included in **Appendix A**.

3.3 System Size and Remediation Method

The Ditch A Treatment System is primarily contained within three structures consisting of two 320-square foot (Container 1 and Container 3) and one 160-square foot (Container 2) Conex boxes. Additional system components are in the clear well, and valve vault, as shown in **Figure 2**.

The Ditch A System was designed to treat flow rates up to base flow conditions (100 gpm) in Ditch A. PFAS are removed from the process flow via adsorption onto GAC media in six 2,000-pound vessels that run concurrently in two parallel treatment trains. GAC was selected as the treatment technology option due to advantages in ease of

operation, ability to reactivate and regenerate carbon, flexibility to modify the system in the field, and the ability to add pre-treatment unit operations in the field if needed to address water chemistry.

3.4 System Modifications and Maintenance Activities

No modifications or maintenance activities were required during the reporting period. Tyco evaluated additional options to optimize PFAS removal from groundwater near the Ditch A system as detailed in the November 2025 GETS Semi-Annual Monitoring Report (Arcadis 2025). Two extraction wells (EX-10 and EX-11) were installed in the vicinity of Ditch A and began operation on June 10, 2025. The intent of these extraction wells is to mitigate potential flows within Ditch A related to groundwater and associated seasonal water table changes.

4 System Effectiveness Evaluation

4.1 Ditch A System Operation

The Ditch A System operational data and calculation details are presented in **Table 1**. The system was operated for portions of 32 days over the reporting period, treating and discharging 3,900,880 gallons of water. System utilization over the reporting period, as calculated per WDNR Form 4400-194 daily, was 17%. Dry and/or frozen channel conditions were present throughout portions of August, September, October, November, and December during the reporting period. Stream flow conditions sufficient to support system operation were present for 32 days during the reporting period. Therefore, the utilization rate accounting for days the system was operated and adequate stream flow conditions were present was 100%.

The system was designed to operate at up to 100 gpm (144,000 gallons per day [gpd]). The average treatment system flow rate, as calculated per WDNR Form 4400-194 daily, was 21,200 gpd. The average treatment system flow rate over the 32 operating days was 121,903 gpd. Based on the 32 days of operation, the system operated at an uptime of 95% and downtime was associated with system maintenance.

The system operated within the design specifications over the reporting period, and all alarm-related shutdowns were responded to within one day.

4.2 Ditch A Surface Water Levels

A level transmitter installed in a stilling well upstream of the Ditch A check dam continuously measures the water level in Ditch A. A high-level alarm is activated when the water level nears the top of the check dam. WDNR, Arcadis, and Tyco are notified via an automatically generated email. High-level events are generally caused by heavy precipitation. Water levels recorded during the reporting period upstream of the check dam are presented in **Figure 3**. The water level in Ditch A overtopped the check dam following heavy precipitation on July 5 (21 hours) during the reporting period, as shown in **Figure 3** and **Table 5**. As discussed above, extraction wells EX-10 and EX-11 were installed in the vicinity of Ditch A to mitigate potential flows within Ditch A related to groundwater and associated seasonal water table changes. Extraction wells EX-10 and EX-11 began operation on June 10, 2025.

Ditch A was dry or frozen throughout portions of August, September, October, November, and December during the reporting period.

4.3 Treatment System Sampling

4.3.1 Sample Collection

Weekly PFAS samples and quarterly oil and grease, TSS, BTEX, and PAHs samples are collected at the effluent sampling port, V-900-A, in accordance with the WPDES Permit and Coverage Letter. The results for the reporting periods were submitted to WDNR in monthly eDMRs.

The pH is measured quarterly in the field using a calibrated pH meter. Total residual chlorine measurements are collected in the field quarterly with a calibrated meter when chlorine tablets are added to the system. All other

WPDES sampling parameters are collected directly into clean, laboratory provided sample containers and immediately stored on ice in preparation of shipment to a WDNR-certified laboratory for analysis.

4.3.2 Laboratory Analytical Methods

WPDES Discharge compliance samples were analyzed for the following analytes and methods:

- PFAS using United States Environmental Protection Agency (U.S. EPA) Method 1633A
- Oil and Grease using U.S. EPA Method 1664
- TSS using Standard Methods 2540D
- BTEX using U.S. EPA Method 624
- PAHs using U.S. EPA Method 625.

Samples were submitted to the following laboratories under standard chain-of-custody procedures:

- Oil and Grease/TSS/BTEX/PAHs: Eurofins in Tinley Park, Illinois (Eurofins Chicago).
- PFAS: Eurofins in West Sacramento, California (Eurofins Sacramento).

4.3.3 WPDES Permit Exceedances and Sampling Omissions

Laboratory analytical results for WPDES samples are presented in **Table 2** and compared to the system effluent limitations per the Coverage Letter. Laboratory analytical reports are included as **Appendix B**.

There were no WPDES Permit exceedance or sampling omissions during the reporting period.

4.4 Quantity of Contaminants Treated and System Efficiency

As shown in **Figure 4** and **Table 3**, the system removed approximately 0.021 pounds of PFOA and 0.006 pounds of perfluorooctanesulfonic acid (PFOS) over the reporting period. The system has removed approximately 1.05 pounds of PFOA and 0.51 pounds of PFOS since startup in January 2019. **Table 4** summarizes the weekly influent and effluent concentrations of PFOA and PFOS over the reporting period.

All discharge from the treatment system contained concentrations below applicable WPDES permit limits.

A comparison of the weekly Ditch A system discharge volume (since startup in January 2019) and weekly Ditch A stream flow volume (since tracking began in July 2021) is presented in **Table 5.** The Ditch A stream flow volumes were estimated per the methods outlined in **Appendix C**.

5 Ditch A Surface Water PFAS Trend Evaluation

5.1 Upstream of Treatment System

Baseline PFOA and PFOS concentrations were collected from Ditch A near the proposed Ditch A System location in May 2018 and July 2018 (prior to system startup). PFOA concentrations in samples collected from location SW-27 ranged from 2,200 ng/L in May 2018 to 990 ng/L in July 2018 (Arcadis 2018). PFOS concentrations in samples collected from location SW-27 ranged from 570 ng/L in May 2018 to 1,100 ng/L in July 2018. The PFOA and PFOS concentration from samples collected from the Ditch A System influent from startup (January 2019) through the end of the reporting period are shown in **Figure 5** in comparison to baseline samples. Influent concentrations of PFOA and PFOS have declined since the start of system operations.

Ditch A is a surface water body and is subject to a variety of intermittent inputs (rainfall, snowmelt, stormwater discharge, surface runoff, etc.) and groundwater seepage that impact the PFAS concentrations in the Ditch A surface water. The interconnected nature of these factors is expected to result in varying PFAS concentrations in Ditch A surface water. Continuous water level monitoring at monitoring wells MW-EX-10 and MW-EX-11 is presented in **Figure 9**. These wells are adjacent to Ditch A (upstream of the Ditch A treatment system) and paired with extraction wells EX-10 and EX-11 to monitor capture of the PFAS plume and groundwater to surface water interactions. EX-10 and EX-11 convey water to the GETS and were brought into full-time operation on June 10, 2025.

As shown in **Table 1**, sufficient water to operate the Ditch A treatment system was present at the intake between July 1 and August 1 during the reporting period. As discussed above, all influent PFOA and PFOS during the reporting period were treated to below applicable WPDES permit limits prior to discharge back into Ditch A.

Groundwater elevations at MW-EX-10 and MW-EX-11 were near or above the bottom of Ditch A from July 10 to July 11 and July 17 to July 19, as shown in **Figure 9**. Correspondingly, samples collected from the Ditch A system influent during these timeframes contained elevated PFOA and PFOS concentrations (**Table 4** and **Figure 5**), indicating that PFAS-impacted groundwater was seeping into Ditch A. Groundwater elevations at MW-EX-10 and MW-EX-11 subsequently declined to below the bottom of Ditch A for the remainder of the reporting period and corresponded with declining PFOA and PFOS concentrations at the Ditch A system influent.

5.2 Downstream of Treatment System

Monthly surface water sample collection immediately downstream of the Ditch A treatment system (SW-40) began in August 2021. Per WDNR's request, an additional sampling location (SW-26) farther downstream was added to the sampling program in August 2023. Consistent vegetation overgrowth around SW-26 made the area difficult to access for sampling and inspection; therefore, this sampling location was moved to the north side of University Drive and identified as SW-26A in October 2024. The locations of SW-40 and SW-26/SW-26A are shown in **Figure 6**. During the reporting period, monthly samples were collected on July 17 at SW-40 and SW-26A. No natural flow was observed in Ditch A between August and December during the reporting period; therefore, no downstream samples were collected.

Samples were collected directly into clean, laboratory provided sample containers and immediately stored on ice in preparation of shipment to Eurofins Sacramento under standard chain-of-custody procedures for analysis of PFAS by U.S. EPA Method 1633A. Analytical results of the downstream surface water samples collected during

the reporting period are presented in **Table 6, Figure 7** and **Figure 8**. Laboratory analytical reports are included in **Appendix D**.

Monthly surface water sample results were compared to the following surface water standards (per NR 102.04 (8d), effective August 1, 2022):

- PFOA: The surface water standard is 20 ng/L in waters classified as public water supplies under ch. NR 104, and 95 ng/L for other surface waters. Tributaries to the Menominee River or Green Bay are not included in the list of sources subject to the public water supply standard under NR 104.07, therefore the surface water standard applicable to PFOA in Ditch A is 95 ng/L.
- PFOS: The surface water standard is 8 ng/L for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.

PFOA was below the applicable surface water standard in the one sample (July 17) collected at SW-40 during the reporting period. An elevated PFOS concentration was detected in this sample, however, the value was qualified as estimated (J-flagged) due to variation between the parent and duplicate sample (**Table 6**).

Both PFOA and PFOS were higher than the applicable surface water standards in the one sample (July 17) collected at SW-26A during the reporting period (**Table 6**). As shown in **Table 2**, the Ditch A treatment system effluent PFOA and PFOS concentrations were near laboratory detection limits and below the applicable WPDES permit limits and surface water standards on July 17. As shown in **Figure 3**, the Ditch A check dam did not overtop on July 17. Additionally, PFOA and PFOS concentrations in the surface water sample collected near the treatment system effluent location (SW-40) on July 17 were lower than observed at SW-26A. The elevated concentrations observed at SW-26A are likely the result of the groundwater table interreacting with the bottom of Ditch A at this location. As shown on Figure 9, pumping effects from EX-10 and EX-11 (installed to mitigate seasonal groundwater-related flows in Ditch A) were established at the end of July.

5.3 Upstream and Downstream Analytical Results

A summary of monthly surface water PFAS analytical results from samples collected upstream and downstream of the Ditch A system are presented in **Table 7**. The upstream results were calculated as the average of the weekly samples collected from the Ditch A System influent, per the Ditch A System OM&M Plan submitted on July 22, 2021. The monthly upstream and downstream analytical results support the system effectiveness evaluation presented in this Progress Report #14, as discussed in Sections 4.4, 5.1 and 5.2. Overall, the Ditch A System is effective as an interim action and removes PFOA and PFOS efficiently from processed surface water. The Ditch A System is also effective at reducing the surface water concentrations of PFOA and PFOS in Ditch A to below the applicable surface water standards immediately downstream of the system under normal operating conditions. Tyco began operating extraction wells EX-10 and EX-11 in the vicinity of Ditch A on June 10, 2025. The intent of these extraction wells is to mitigate potential flows within Ditch A related to groundwater and associated seasonal water table changes. The impact of these extraction wells will be evaluated in future monitoring reports.

6 Waste Management

PFAS-impacted materials generated by the Ditch A System include bag filters, sediments/solids generated from backwashing the GAC vessels, and spent GAC. These materials are managed per the Ditch A System OM&M Plan submitted in July 2021 and additional details are provided below.

6.1 Bag Filters

Used bag filters are containerized in 55-gallon drums and staged at the FTC prior to transport by Endpoint Solutions Corporation (Endpoint) to their waste transfer facility located in Hartford, Wisconsin. The drum contents are consolidated with similar material generated by the Ditch B system at Endpoint's facility for more efficient transportation and disposal. Manifests documenting transport from the FTC to Endpoint's facility are included in **Appendix E**.

6.2 Sediment and Solids

Backwashing the GAC vessels during the reporting period generated a minimal amount of sediment and solids. All sediment and solids are consolidated in the decant tank (T-03) pending removal and disposal.

6.3 Spent GAC

Spent GAC removed from the Ditch A treatment system is consolidated with similar material from the Ditch B treatment system, GETS, and residential point of entry treatment (POET) systems and is transported to TetraSolv Filtration, Inc. for reactivation at a facility operated by Cabot Corporation in Pryor, Oklahoma. Certificates of recycling confirming proper reactivation of spent carbon are included in **Appendix E**. 460,000 pounds of combined spent GAC were transported offsite for reactivation during the reporting period, including 12,000 pounds used by the Ditch A treatment system.

7 Sustainability

The Ditch A treatment system has a net zero impact on water in operations by design. All surface water captured by the system is returned to the environment via discharge to Ditch A. As noted in Section 4.1, approximately 3.9 million gallons of surface water were treated during the reporting period.

All spent GAC from the treatment system is transported offsite for reactivation and returned to the site for reuse. Up to 10% of the GAC is destroyed during the reactivation process and is replaced by virgin GAC. Therefore, approximately 13,200 pounds of GAC (12,000 pounds reactivated GAC; 1,200 pounds virgin GAC) were used by the Ditch A treatment system during the reporting period.

Power for the Ditch A treatment system is provided by an electric power drop at the treatment system building. The system consumed 40,139 kilowatt-hours during the reporting period.

8 Summary

The Ditch A System was operated throughout the reporting period with limited downtime for system maintenance activities. Over the reporting period, the Ditch A System operated a total of 32 days and treated 3,900,880 gallons of surface water while effectively removing PFOA and PFOS from the Ditch A influent. The system removed approximately 0.020 pounds of PFOA and 0.006 pounds of PFOS over the reporting period. The system has removed approximately 1.05 pounds of PFOA and 0.51 pounds of PFOS since startup in January 2019.

13,200 pounds of GAC (12,000 pounds reactivated GAC; 1,200 pounds virgin GAC) were utilized by the Ditch A System during the reporting period. Operation of the system consumed 40,139 kilowatt-hours of electricity.

The Ditch A System operated per the OM&M Plan during the reporting period and no exceedances of the WPDES permit were observed.

Flow in Ditch A was observed intermittently throughout the reporting period along with fluctuating PFOA and PFOS concentrations at the Ditch A treatment system influent. Heavy precipitation in the Marinette area resulted in one check dam overtopping event on July 5 (21 hours).

Surface water samples were collected downstream of the Ditch A treatment system from SW-40 and SW-26A on July 17 during the reporting period. At SW-40, PFOA was below the surface water standard and PFOS was above the surface water standard; however, PFOS was qualified as an estimated result (J-flagged) due to variation between the parent and duplicate samples. At SW-26A, both PFOA and PFOS were higher than the applicable surface water standards and are likely the result of the groundwater table interacting with bottom of Ditch A at this location. Tyco installed extraction wells EX-10 and EX-11 in the vicinity of Ditch A to mitigate potential flows within Ditch A related to groundwater and associated seasonal water table changes. The impact of these extraction wells will be evaluated in future monitoring reports.

Overall, the Ditch A system is effective as an interim action and removes PFOA and PFOS efficiently from processed surface water. The Ditch A system is also effective at reducing the surface water concentrations of PFOA and PFOS to below the applicable surface water standards in Ditch A immediately downstream of the system under normal operating conditions.

9 References

Arcadis. 2018. Discharge Management Plan for WPDES Permit No. WI-0046566-07-0. August 2018.

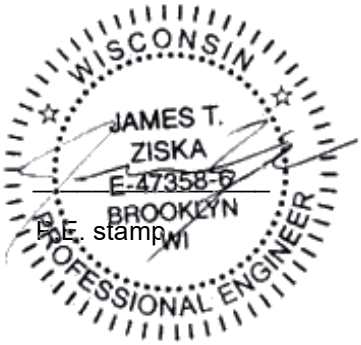
Arcadis. 2025. GETS Semi-Annual Monitoring Report #6. November 17, 2025.

10 Professional Certification

I, Jim 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, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, 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, Wis. Adm. Code.

Principal Engineer, E-47358-6

Signature, title, and P.E. number



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Tables

Table 1
Ditch A System Operational Data
Tyco Fire Fire Products LP
Marinette, Wisconsin

Month-Year	Total Volume of Treated Water Discharged (gallons)	Days in Period	Potential Operating Days (with Adequate Stream Flow Conditions)[1]	Potential Operating Hours (with Adequate Stream Flow Conditions)[2]	Reporting Statistics					Operational Statistics			Comments
					Actual Operating Days[3]	Utilization (Days in Period)[4]	Utilization (Operating Days)[5]	Average System Flow Rate (Days in Period)[6] [GPD]	Average System Flow Rate (Actual Operating Days)[7] [GPD]	Actual Operating Hours	Uptime (Operating Hours with Adequate Stream Flow Conditions)[8]	Average System Flow Rate (Actual Operating Hours)[9] [GPD]	
Jul-25	3,865,220	31	31	744	31	100%	100%	124,685	124,685	706	95%	131,433	--
Aug-25	35,660	31	1	8	1	3%	100%	1,150	35,660	8	100%	106,980	The system was offline 8/2/25 - 8/31/25 due to dry/frozen conditions in Ditch A.
Sep-25	0	30	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 9/1/25 - 9/30/25 due to dry/frozen conditions in Ditch A.
Oct-25	0	31	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 10/1/25 - 10/31/25 due to dry/frozen conditions in Ditch A.
Nov-25	0	30	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 11/1/25 - 11/30/25 due to dry/frozen conditions in Ditch A.
Dec-25	0	31	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 12/1/25 - 12/31/25 due to dry/frozen conditions in Ditch A.
Total:	**3,900,880**	**184**	**32**	**752**	**32**	**17%**	**100%**	**21,200**	**121,903**	**714**	**95%**	**131,159**	

Notes:
1 = Days in period during which weather and flow conditions in Ditch A could support system operation
2 = Hours in period during which weather and flow conditions in Ditch A could support system operation
3 = Days during which system operation occurred
4 = Utilization (Days in Period) = Actual Operating Days / Days in Period (per WDNR form 4400-194)
5 = Utilization (Operating Days) = Actual Days of Operation / Potential Operating Days (with Adequate Stream Flow Conditions)
6 = Average Flow Rate (Days in Period) = Volume Discharged / Days in Period (per WDNR form 4400-194)
7 = Average Flow Rate (Actual Operating Days) = Volume Discharged / Actual Operating Days
8 = Uptime = Actual Operating Hours / Potential Operating Hours with Adequate Stream Flow Conditions
9 = Average Flow Rate (Actual Operating Hours) = Volume Discharged / ([Actual Operating Hours] * 24)

Abbreviations:
eDMR = electronic discharge monitoring report
GPD = gallons per day
NA = not available
WDNR = Wisconsin Department of Natural Resources

Table 2
Ditch A System WPDES Laboratory Analytical Results
Tyco Fire Fire Products LP
Marinette, Wisconsin

		Total Suspended Solids (TSS)	Oil & Grease	BTEX, total		PAH, total		Perfluorooctanesulfonic Acid (PFOS)		Perfluorooctanoic Acid (PFOA)		pH		Chlorine, Total Residual
Units:		mg/L	mg/L	µg/L		µg/L		µg/L		µg/L		s.u.		µg/L
Effluent Limitations:		40	10		750		0.1		0.011		0.42	6	9	19
		Daily Max	Daily Max		Monthly Average		Monthly Average		Monthly Average		Monthly Average	Daily Min	Daily Max	Daily Max
Location	**Sample Date**													
V-900	7/1/2025	NS	NS	NS	0.0000	NS	0.0000	< 0.00022 U	0.0002	0.0005 J	0.0004	NS		X
V-900	7/7/2025	NS	NS	NS		NS		0.00042 J		0.001 J		NS		X
V-900	7/17/2025	NS	NS	NS		NS		0.00033 J		0.00038 J		NS		X
V-900	7/21/2025	< 1.9 U	1.4 J	< 0.4		< 0.38		< 0.00021 U		< 0.0003 U		7.03		X
V-900	7/28/2025	NS	NS	NS		NS		0.00027 J		< 0.00031 U		NS		X

Notes:

B = Compound was found in blank and sample
Bold and Yellow = Result exceeds effluent limitation
BTEX = Benzene, ethylbenzene, toluene, and xylenes
J = Result is less than the reporting limit (RL) and greater than the MDL. The result is estimated.
µg/L = micrograms per liter
mg/L = miligrams per liter
NA = not available
ng/L = nanograms per liter
NS = not sampled
PAH = Polycyclic aromatic hydrocarbons
s.u. = standard units
U = Result is less than the method detection limit (MDL)
X = Chlorine not added to system

V-900-A is the Ditch A System WPDES discharge sampling location.
Effluent Limitations per Coverage Letter dated June 4, 2021 (under WPDES General Permit No. WI-0046566-07-0).

Per the coverage letter dated June 4, 2021, TSS, oil & grease, BTEX, PAH, pH, and total residual chlorine samples are collected quarterly.

Table 3
Ditch A System PFOA and PFOS Mass Removal
Tyco Fire Products LP
Marinette, Wisconsin

Month-Year	Ditch A Treatment System PFOA and PFOS Mass Removal			
	Monthly		Cumulative	
	PFOS	PFOA	PFOS	PFOA
	lbs	lbs	lbs	lbs
Jan-19	0.0003	0.0007	0.0003	0.0007
Feb-19	0.0000	0.0000	0.0003	0.0007
Mar-19	0.0030	0.0044	0.0033	0.0051
Apr-19	0.0099	0.0220	0.0132	0.0270
May-19	0.0122	0.0327	0.0254	0.0598
Jun-19	0.0144	0.0339	0.0398	0.0937
Jul-19	0.0175	0.0318	0.0573	0.1255
Aug-19	0.0132	0.0189	0.0705	0.1443
Sep-19	0.0184	0.0285	0.0889	0.1728
Oct-19	0.0242	0.0422	0.1131	0.2150
Nov-19	0.0217	0.0474	0.1347	0.2623
Dec-19	0.0252	0.0494	0.1600	0.3118
Jan-20	0.0216	0.0417	0.1816	0.3535
Feb-20	0.0138	0.0327	0.1954	0.3862
Mar-20	0.0280	0.0518	0.2234	0.4381
Apr-20	0.0168	0.0327	0.2402	0.4708
May-20	0.0205	0.0359	0.2606	0.5067
Jun-20	0.0246	0.0424	0.2852	0.5491
Jul-20	0.0327	0.0561	0.3179	0.6053
Aug-20	0.0119	0.0219	0.3299	0.6272
Sep-20	0.0026	0.0031	0.3325	0.6303
Oct-20	0.0016	0.0015	0.3341	0.6317
Nov-20	0.0057	0.0077	0.3398	0.6394
Dec-20	0.0024	0.0033	0.3422	0.6427
Jan-21	0.0001	0.0001	0.3424	0.6428
Feb-21	0.0000	0.0000	0.3424	0.6428
Mar-21	0.0037	0.0042	0.3461	0.6470
Apr-21	0.0128	0.0219	0.3589	0.6689
May-21	0.0061	0.0108	0.3650	0.6797
Jun-21	0.0004	0.0005	0.3653	0.6802
Jul-21	0.0170	0.0279	0.3823	0.7081
Aug-21	0.0070	0.0111	0.3893	0.7192
Sep-21	0.0000	0.0000	0.3893	0.7192
Oct-21	0.0000	0.0000	0.3893	0.7192
Nov-21	0.0000	0.0000	0.3893	0.7192
Dec-21	0.0001	0.0047	0.3894	0.7239

Table 3
Ditch A System PFOA and PFOS Mass Removal
Tyco Fire Products LP
Marinette, Wisconsin

Month-Year	Ditch A Treatment System PFOA and PFOS Mass Removal			
	Monthly		Cumulative	
	PFOS	PFOA	PFOS	PFOA
	lbs	lbs	lbs	lbs
Jan-22	0.0003	0.0030	0.3897	0.7269
Feb-22	0.0001	0.0013	0.3898	0.7282
Mar-22	0.0018	0.0045	0.3916	0.7326
Apr-22	0.0122	0.0238	0.4038	0.7564
May-22	0.0127	0.0284	0.4166	0.7848
Jun-22	0.0085	0.0262	0.4251	0.8110
Jul-22	0.0013	0.0039	0.4264	0.8149
Aug-22	0.0011	0.0017	0.4275	0.8166
Sep-22	0.0000	0.0000	0.4275	0.8166
Oct-22	0.0000	0.0000	0.4275	0.8166
Nov-22	0.0000	0.0000	0.4275	0.8166
Dec-22	0.0000	0.0000	0.4275	0.8166
Jan-23	0.0000	0.0000	0.4275	0.8166
Feb-23	0.0000	0.0000	0.4275	0.8166
Mar-23	0.0002	0.0005	0.4277	0.8170
Apr-23	0.0169	0.0292	0.4446	0.8462
May-23	0.0117	0.0359	0.4563	0.8821
Jun-23	0.0021	0.0057	0.4584	0.8879
Jul-23	0.0006	0.0011	0.4590	0.8889
Aug-23	0.0000	0.0000	0.4590	0.8889
Sep-23	0.0000	0.0000	0.4590	0.8889
Oct-23	0.0000	0.0000	0.4590	0.8889
Nov-23	0.0000	0.0000	0.4590	0.8889
Dec-23	0.0000	0.0000	0.4590	0.8889
Jan-24	0.0000	0.0000	0.4590	0.8889
Feb-24	0.0000	0.0000	0.4590	0.8889
Mar-24	0.0000	0.0000	0.4590	0.8889
Apr-24	0.0019	0.0041	0.4609	0.8930
May-24	0.0070	0.0140	0.4680	0.9070
Jun-24	0.0083	0.0154	0.4762	0.9225

Table 3
Ditch A System PFOA and PFOS Mass Removal
Tyco Fire Products LP
Marinette, Wisconsin

Month-Year	Ditch A Treatment System PFOA and PFOS Mass Removal			
	Monthly		Cumulative	
	PFOS	PFOA	PFOS	PFOA
	lbs	lbs	lbs	lbs
Jul-24	0.0110	0.0326	0.4872	0.9551
Aug-24	0.0011	0.0019	0.4883	0.9570
Sep-24	0.0000	0.0000	0.4883	0.9570
Oct-24	0.0000	0.0000	0.4883	0.9570
Nov-24	0.0005	0.0018	0.4888	0.9588
Dec-24	0.0003	0.0015	0.4891	0.9602
Jan-25	0.0001	0.0006	0.4892	0.9608
Feb-25	0.0000	0.0000	0.4892	0.9608
Mar-25	0.0010	0.0033	0.4902	0.9641
Apr-25	0.0072	0.0251	0.4974	0.9892
May-25	0.0066	0.0255	0.5040	1.0147
Jun-25	0.0029	0.0099	0.5068	1.0246
Jul-25	0.0059	0.0201	0.5127	1.0447
Aug-25	0.0000	0.0000	0.5128	1.0447
Sep-25	0.0000	0.0000	0.5128	1.0447
Oct-25	0.0000	0.0000	0.5128	1.0447
Nov-25	0.0000	0.0000	0.5128	1.0447
Dec-25	0.0000	0.0000	0.5128	1.0447

Abbreviations:

-- = Not Quantified

lbs = Pounds

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonic acid

Table 4
Ditch A System PFAS Treatment Efficiency
Tyco Fire Products LP
Marinette, Wisconsin

Date	PFOS			PFOA		
	Influent (µg/L)	Effluent (µg/L)	Efficiency (%)	Influent (µg/L)	Effluent (µg/L)	Efficiency (%)
7/1/2025	0.048	< 0.00022 U	100.0	0.15	0.0005 J	99.7
7/7/2025	0.27	0.00042 J	99.8	0.52 D	0.001 J	99.8
7/17/2025	0.45 D	0.00033 J	99.9	2 D	0.00038 J	100.0
7/21/2025	0.072	< 0.00021 U	100.0	0.23	< 0.0003 U	100.0
7/28/2025	0.032	0.00027 J	99.2	0.1	< 0.00031 U	100.0
		Average:	**99.8**		**Average:**	**99.9**
		Overall Average:	**99.8**		**Overall Average:**	**99.9**

Notes:

+ = The associate numerical value is expected to have a positive or high bias

- = The associated numerical value is expected to have a negative or low bias

< = Result is less than the method detection limit (MDL)

Abbreviations:

D = Result is from a diluted extract

J = Result is less than the reporting limit (RL) and greater than the MDL. The result is estimated.

µg/L = Micrograms per liter

NA = Not Available

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctanesulfonic acid

U = Result is less than the method detection limit (MDL)

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

ARCADIS

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, January 13, 2019	Saturday, January 19, 2019	746,980	Not Quantified	--
Sunday, January 20, 2019	Saturday, January 26, 2019	975,180	Not Quantified	--
Sunday, January 27, 2019	Saturday, February 2, 2019	444,670	Not Quantified	--
Sunday, February 3, 2019	Saturday, February 9, 2019	0	Not Quantified	--
Sunday, February 10, 2019	Saturday, February 16, 2019	0	Not Quantified	--
Sunday, February 17, 2019	Saturday, February 23, 2019	0	Not Quantified	--
Sunday, February 24, 2019	Saturday, March 2, 2019	0	Not Quantified	--
Sunday, March 3, 2019	Saturday, March 9, 2019	0	Not Quantified	--
Sunday, March 10, 2019	Saturday, March 16, 2019	496,070	Not Quantified	--
Sunday, March 17, 2019	Saturday, March 23, 2019	954,830	Not Quantified	--
Sunday, March 24, 2019	Saturday, March 30, 2019	908,290	Not Quantified	--
Sunday, March 31, 2019	Saturday, April 6, 2019	747,220	Not Quantified	--
Sunday, April 7, 2019	Saturday, April 13, 2019	958,080	Not Quantified	--
Sunday, April 14, 2019	Saturday, April 20, 2019	796,100	Not Quantified	--
Sunday, April 21, 2019	Saturday, April 27, 2019	765,820	Not Quantified	--
Sunday, April 28, 2019	Saturday, May 4, 2019	626,240	Not Quantified	--
Sunday, May 5, 2019	Saturday, May 11, 2019	710,160	Not Quantified	--
Sunday, May 12, 2019	Saturday, May 18, 2019	769,040	Not Quantified	--
Sunday, May 19, 2019	Saturday, May 25, 2019	748,130	Not Quantified	--
Sunday, May 26, 2019	Saturday, June 1, 2019	588,420	Not Quantified	--
Sunday, June 2, 2019	Saturday, June 8, 2019	400,460	Not Quantified	--
Sunday, June 9, 2019	Saturday, June 15, 2019	651,820	Not Quantified	--
Sunday, June 16, 2019	Saturday, June 22, 2019	566,290	Not Quantified	--
Sunday, June 23, 2019	Saturday, June 29, 2019	560,850	Not Quantified	--
Sunday, June 30, 2019	Saturday, July 6, 2019	694,990	Not Quantified	--
Sunday, July 7, 2019	Saturday, July 13, 2019	741,820	Not Quantified	--
Sunday, July 14, 2019	Saturday, July 20, 2019	562,290	Not Quantified	--
Sunday, July 21, 2019	Saturday, July 27, 2019	671,110	Not Quantified	--
Sunday, July 28, 2019	Saturday, August 3, 2019	672,540	Not Quantified	--
Sunday, August 4, 2019	Saturday, August 10, 2019	732,500	Not Quantified	--
Sunday, August 11, 2019	Saturday, August 17, 2019	675,020	Not Quantified	--
Sunday, August 18, 2019	Saturday, August 24, 2019	590,400	Not Quantified	--
Sunday, August 25, 2019	Saturday, August 31, 2019	785,670	Not Quantified	--
Sunday, September 1, 2019	Saturday, September 7, 2019	778,040	Not Quantified	--
Sunday, September 8, 2019	Saturday, September 14, 2019	757,080	Not Quantified	--
Sunday, September 15, 2019	Saturday, September 21, 2019	643,670	Not Quantified	--
Sunday, September 22, 2019	Saturday, September 28, 2019	568,370	Not Quantified	--
Sunday, September 29, 2019	Saturday, October 5, 2019	774,090	Not Quantified	--
Sunday, October 6, 2019	Saturday, October 12, 2019	682,050	Not Quantified	--
Sunday, October 13, 2019	Saturday, October 19, 2019	705,380	Not Quantified	--
Sunday, October 20, 2019	Saturday, October 26, 2019	425,900	Not Quantified	--
Sunday, October 27, 2019	Saturday, November 2, 2019	511,360	Not Quantified	--
Sunday, November 3, 2019	Saturday, November 9, 2019	691,000	Not Quantified	--
Sunday, November 10, 2019	Saturday, November 16, 2019	741,510	Not Quantified	--
Sunday, November 17, 2019	Saturday, November 23, 2019	572,690	Not Quantified	--
Sunday, November 24, 2019	Saturday, November 30, 2019	776,610	Not Quantified	--
Sunday, December 1, 2019	Saturday, December 7, 2019	923,570	Not Quantified	--
Sunday, December 8, 2019	Saturday, December 14, 2019	966,260	Not Quantified	--
Sunday, December 15, 2019	Saturday, December 21, 2019	646,910	Not Quantified	--
Sunday, December 22, 2019	Saturday, December 28, 2019	862,980	Not Quantified	--
Sunday, December 29, 2019	Saturday, January 4, 2020	940,640	Not Quantified	--
Sunday, January 5, 2020	Saturday, January 11, 2020	935,890	Not Quantified	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

ARCADIS

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, January 12, 2020	Saturday, January 18, 2020	924,470	Not Quantified	--
Sunday, January 19, 2020	Saturday, January 25, 2020	605,560	Not Quantified	--
Sunday, January 26, 2020	Saturday, February 1, 2020	653,510	Not Quantified	--
Sunday, February 2, 2020	Saturday, February 8, 2020	925,610	Not Quantified	--
Sunday, February 9, 2020	Saturday, February 15, 2020	954,610	Not Quantified	--
Sunday, February 16, 2020	Saturday, February 22, 2020	972,220	Not Quantified	--
Sunday, February 23, 2020	Saturday, February 29, 2020	830,470	Not Quantified	--
Sunday, March 1, 2020	Saturday, March 7, 2020	948,410	Not Quantified	--
Sunday, March 8, 2020	Saturday, March 14, 2020	954,390	Not Quantified	--
Sunday, March 15, 2020	Saturday, March 21, 2020	930,780	Not Quantified	--
Sunday, March 22, 2020	Saturday, March 28, 2020	703,260	Not Quantified	--
Sunday, March 29, 2020	Saturday, April 4, 2020	861,640	Not Quantified	--
Sunday, April 5, 2020	Saturday, April 11, 2020	766,820	Not Quantified	--
Sunday, April 12, 2020	Saturday, April 18, 2020	383,520	Not Quantified	--
Sunday, April 19, 2020	Saturday, April 25, 2020	271,890	Not Quantified	--
Sunday, April 26, 2020	Saturday, May 2, 2020	218,510	Not Quantified	--
Sunday, May 3, 2020	Saturday, May 9, 2020	246,820	Not Quantified	--
Sunday, May 10, 2020	Saturday, May 16, 2020	775,230	Not Quantified	--
Sunday, May 17, 2020	Saturday, May 23, 2020	590,680	Not Quantified	--
Sunday, May 24, 2020	Saturday, May 30, 2020	651,170	Not Quantified	--
Sunday, May 31, 2020	Saturday, June 6, 2020	784,660	Not Quantified	--
Sunday, June 7, 2020	Saturday, June 13, 2020	690,470	Not Quantified	--
Sunday, June 14, 2020	Saturday, June 20, 2020	613,140	Not Quantified	--
Sunday, June 21, 2020	Saturday, June 27, 2020	580,250	Not Quantified	--
Sunday, June 28, 2020	Saturday, July 4, 2020	941,070	Not Quantified	--
Sunday, July 5, 2020	Saturday, July 11, 2020	812,520	Not Quantified	--
Sunday, July 12, 2020	Saturday, July 18, 2020	749,320	Not Quantified	--
Sunday, July 19, 2020	Saturday, July 25, 2020	749,480	Not Quantified	--
Sunday, July 26, 2020	Saturday, August 1, 2020	860,940	Not Quantified	--
Sunday, August 2, 2020	Saturday, August 8, 2020	935,600	Not Quantified	--
Sunday, August 9, 2020	Saturday, August 15, 2020	911,510	Not Quantified	--
Sunday, August 16, 2020	Saturday, August 22, 2020	879,620	Not Quantified	--
Sunday, August 23, 2020	Saturday, August 29, 2020	988,730	Not Quantified	--
Sunday, August 30, 2020	Saturday, September 5, 2020	980,170	Not Quantified	--
Sunday, September 6, 2020	Saturday, September 12, 2020	379,840	Not Quantified	--
Sunday, September 13, 2020	Saturday, September 19, 2020	612,690	Not Quantified	--
Sunday, September 20, 2020	Saturday, September 26, 2020	187,340	Not Quantified	--
Sunday, September 27, 2020	Saturday, October 3, 2020	0	Not Quantified	--
Sunday, October 4, 2020	Saturday, October 10, 2020	0	Not Quantified	--
Sunday, October 11, 2020	Saturday, October 17, 2020	0	Not Quantified	--
Sunday, October 18, 2020	Saturday, October 24, 2020	226,530	Not Quantified	--
Sunday, October 25, 2020	Saturday, October 31, 2020	1,008,160	Not Quantified	--
Sunday, November 1, 2020	Saturday, November 7, 2020	807,250	Not Quantified	--
Sunday, November 8, 2020	Saturday, November 14, 2020	617,810	Not Quantified	--
Sunday, November 15, 2020	Saturday, November 21, 2020	961,220	Not Quantified	--
Sunday, November 22, 2020	Saturday, November 28, 2020	980,480	Not Quantified	--
Sunday, November 29, 2020	Saturday, December 5, 2020	983,120	Not Quantified	--
Sunday, December 6, 2020	Saturday, December 12, 2020	1,013,640	Not Quantified	--
Sunday, December 13, 2020	Saturday, December 19, 2020	1,023,290	Not Quantified	--
Sunday, December 20, 2020	Saturday, December 26, 2020	982,810	Not Quantified	--
Sunday, December 27, 2020	Saturday, January 2, 2021	882,610	Not Quantified	--
Sunday, January 3, 2021	Saturday, January 9, 2021	723,000	Not Quantified	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, January 10, 2021	Saturday, January 16, 2021	0	Not Quantified	--
Sunday, January 17, 2021	Saturday, January 23, 2021	640,290	Not Quantified	--
Sunday, January 24, 2021	Saturday, January 30, 2021	0	Not Quantified	--
Sunday, January 31, 2021	Saturday, February 6, 2021	0	Not Quantified	--
Sunday, February 7, 2021	Saturday, February 13, 2021	0	Not Quantified	--
Sunday, February 14, 2021	Saturday, February 20, 2021	0	Not Quantified	--
Sunday, February 21, 2021	Saturday, February 27, 2021	0	Not Quantified	--
Sunday, February 28, 2021	Saturday, March 6, 2021	0	Not Quantified	--
Sunday, March 7, 2021	Saturday, March 13, 2021	458,650	Not Quantified	--
Sunday, March 14, 2021	Saturday, March 20, 2021	957,470	Not Quantified	--
Sunday, March 21, 2021	Saturday, March 27, 2021	996,610	Not Quantified	--
Sunday, March 28, 2021	Saturday, April 3, 2021	896,360	Not Quantified	--
Sunday, April 4, 2021	Saturday, April 10, 2021	989,920	Not Quantified	--
Sunday, April 11, 2021	Saturday, April 17, 2021	968,470	Not Quantified	--
Sunday, April 18, 2021	Saturday, April 24, 2021	980,120	Not Quantified	--
Sunday, April 25, 2021	Saturday, May 1, 2021	892,050	Not Quantified	--
Sunday, May 2, 2021	Saturday, May 8, 2021	760,720	Not Quantified	--
Sunday, May 9, 2021	Saturday, May 15, 2021	750,480	Not Quantified	--
Sunday, May 16, 2021	Saturday, May 22, 2021	895,230	Not Quantified	--
Sunday, May 23, 2021	Saturday, May 29, 2021	976,040	Not Quantified	--
Sunday, May 30, 2021	Saturday, June 5, 2021	945,780	Not Quantified	--
Sunday, June 6, 2021	Saturday, June 12, 2021	515,150	Not Quantified	--
Sunday, June 13, 2021	Saturday, June 19, 2021	0	Not Quantified	--
Sunday, June 20, 2021	Saturday, June 26, 2021	0	Not Quantified	--
Sunday, June 27, 2021	Saturday, July 3, 2021	470,400	470,400	--
Sunday, July 4, 2021	Saturday, July 10, 2021	923,960	923,960	--
Sunday, July 11, 2021	Saturday, July 17, 2021	849,050	849,050	--
Sunday, July 18, 2021	Saturday, July 24, 2021	862,210	862,210	--
Sunday, July 25, 2021	Saturday, July 31, 2021	806,590	806,590	--
Sunday, August 1, 2021	Saturday, August 7, 2021	1,002,360	1,002,360	--
Sunday, August 8, 2021	Saturday, August 14, 2021	965,060	965,060	--
Sunday, August 15, 2021	Saturday, August 21, 2021	906,250	906,250	--
Sunday, August 22, 2021	Saturday, August 28, 2021	256,440	256,440	--
Sunday, August 29, 2021	Saturday, September 4, 2021	934,260	934,260	--
Sunday, September 5, 2021	Saturday, September 11, 2021	0	0	--
Sunday, September 12, 2021	Saturday, September 18, 2021	0	0	--
Sunday, September 19, 2021	Saturday, September 25, 2021	0	0	--
Sunday, September 26, 2021	Saturday, October 2, 2021	0	0	--
Sunday, October 3, 2021	Saturday, October 9, 2021	0	0	--
Sunday, October 10, 2021	Saturday, October 16, 2021	0	0	--
Sunday, October 17, 2021	Saturday, October 23, 2021	0	0	--
Sunday, October 24, 2021	Saturday, October 30, 2021	0	0	--
Sunday, October 31, 2021	Saturday, November 6, 2021	0	0	--
Sunday, November 7, 2021	Saturday, November 13, 2021	0	0	--
Sunday, November 14, 2021	Saturday, November 20, 2021	0	0	--
Sunday, November 21, 2021	Saturday, November 27, 2021	0	0	--
Sunday, November 28, 2021	Saturday, December 4, 2021	0	0	--
Sunday, December 5, 2021	Saturday, December 11, 2021	0	0	--
Sunday, December 12, 2021	Saturday, December 18, 2021	0	0	--
Sunday, December 19, 2021	Saturday, December 25, 2021	46,720	0	Additional system flow due to processing construction dewatering water.

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

ARCADIS

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, December 26, 2021	Saturday, January 1, 2022	0	0	--
Sunday, January 2, 2022	Saturday, January 8, 2022	0	0	--
Sunday, January 9, 2022	Saturday, January 15, 2022	123,800	0	Additional system flow due to processing construction dewatering water.
Sunday, January 16, 2022	Saturday, January 22, 2022	135,880	0	Additional system flow due to processing construction dewatering water.
Sunday, January 23, 2022	Saturday, January 29, 2022	54,700	0	Additional system flow due to processing construction dewatering water.
Sunday, January 30, 2022	Saturday, February 5, 2022	111,000	0	Additional system flow due to processing construction dewatering water.
Sunday, February 6, 2022	Saturday, February 12, 2022	0	0	--
Sunday, February 13, 2022	Saturday, February 19, 2022	0	0	--
Sunday, February 20, 2022	Saturday, February 26, 2022	0	0	--
Sunday, February 27, 2022	Saturday, March 5, 2022	0	0	--
Sunday, March 6, 2022	Saturday, March 12, 2022	0	0	--
Sunday, March 13, 2022	Saturday, March 19, 2022	0	0	--
Sunday, March 20, 2022	Saturday, March 26, 2022	532,910	515,220	Additional system flow due to processing construction dewatering water.
Sunday, March 27, 2022	Saturday, April 2, 2022	839,860	839,860	--
Sunday, April 3, 2022	Saturday, April 9, 2022	971,490	> 971,490	Check dam overtop on 4/6/22
Sunday, April 10, 2022	Saturday, April 16, 2022	991,800	991,800	--
Sunday, April 17, 2022	Saturday, April 23, 2022	995,510	995,510	--
Sunday, April 24, 2022	Saturday, April 30, 2022	854,650	854,650	--
Sunday, May 1, 2022	Saturday, May 7, 2022	1,012,040	1,012,040	--
Sunday, May 8, 2022	Saturday, May 14, 2022	982,480	> 982,480	Check dam overtop on 5/12/22
Sunday, May 15, 2022	Saturday, May 21, 2022	757,610	> 757,610	Check dam overtop on 5/20/22
Sunday, May 22, 2022	Saturday, May 28, 2022	722,340	> 722,340	Check dam overtop on 5/25/22
Sunday, May 29, 2022	Saturday, June 4, 2022	965,620	965,620	--
Sunday, June 5, 2022	Saturday, June 11, 2022	979,620	979,620	--
Sunday, June 12, 2022	Saturday, June 18, 2022	966,200	966,200	--
Sunday, June 19, 2022	Saturday, June 25, 2022	971,800	971,800	--
Sunday, June 26, 2022	Saturday, July 2, 2022	782,400	782,400	--
Sunday, July 3, 2022	Saturday, July 9, 2022	943,830	943,830	--
Sunday, July 10, 2022	Saturday, July 16, 2022	402,080	402,080	--
Sunday, July 17, 2022	Saturday, July 23, 2022	0	0	--
Sunday, July 24, 2022	Saturday, July 30, 2022	0	0	--
Sunday, July 31, 2022	Saturday, August 6, 2022	208,280	208,280	--
Sunday, August 7, 2022	Saturday, August 13, 2022	0	0	--
Sunday, August 14, 2022	Saturday, August 20, 2022	735,570	735,570	--
Sunday, August 21, 2022	Saturday, August 27, 2022	944,460	944,460	--
Sunday, August 28, 2022	Saturday, September 3, 2022	182,390	182,390	--
Sunday, September 4, 2022	Saturday, September 10, 2022	0	0	--
Sunday, September 11, 2022	Saturday, September 17, 2022	0	0	--
Sunday, September 18, 2022	Saturday, September 24, 2022	0	0	--
Sunday, September 25, 2022	Saturday, October 1, 2022	0	0	--
Sunday, October 2, 2022	Saturday, October 8, 2022	0	0	--
Sunday, October 9, 2022	Saturday, October 15, 2022	0	0	--
Sunday, October 16, 2022	Saturday, October 22, 2022	0	0	--
Sunday, October 23, 2022	Saturday, October 29, 2022	0	0	--
Sunday, October 30, 2022	Saturday, November 5, 2022	0	0	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, November 6, 2022	Saturday, November 12, 2022	0	0	--
Sunday, November 13, 2022	Saturday, November 19, 2022	0	0	--
Sunday, November 20, 2022	Saturday, November 26, 2022	0	0	--
Sunday, November 27, 2022	Saturday, December 3, 2022	0	0	--
Sunday, December 4, 2022	Saturday, December 10, 2022	0	0	--
Sunday, December 11, 2022	Saturday, December 17, 2022	0	0	--
Sunday, December 18, 2022	Saturday, December 24, 2022	0	0	--
Sunday, December 25, 2022	Saturday, December 31, 2022	0	0	--
Sunday, January 1, 2023	Saturday, January 7, 2023	0	0	--
Sunday, January 8, 2023	Saturday, January 14, 2023	0	0	--
Sunday, January 15, 2023	Saturday, January 21, 2023	0	0	--
Sunday, January 22, 2023	Saturday, January 28, 2023	0	0	--
Sunday, January 29, 2023	Saturday, February 4, 2023	0	0	--
Sunday, February 5, 2023	Saturday, February 11, 2023	0	0	--
Sunday, February 12, 2023	Saturday, February 18, 2023	0	0	--
Sunday, February 19, 2023	Saturday, February 25, 2023	0	0	--
Sunday, February 26, 2023	Saturday, March 4, 2023	0	0	--
Sunday, March 5, 2023	Saturday, March 11, 2023	0	0	--
Sunday, March 12, 2023	Saturday, March 18, 2023	0	0	--
Sunday, March 19, 2023	Saturday, March 25, 2023	0	0	--
Sunday, March 26, 2023	Saturday, April 1, 2023	202,760	202,760	--
Sunday, April 2, 2023	Saturday, April 8, 2023	976,020	> 976,020	Check dam overtop on 4/5/23 (5 hrs)
Sunday, April 9, 2023	Saturday, April 15, 2023	979,000	979,000	--
Sunday, April 16, 2023	Saturday, April 22, 2023	985,410	> 985,410	Check dam overtop on 4/20/23 (0.75 hrs)
Sunday, April 23, 2023	Saturday, April 29, 2023	1,003,760	1,003,760	--
Sunday, April 30, 2023	Saturday, May 6, 2023	960,520	> 960,520	Check dam overtop on 5/1/23 (29 hrs)
Sunday, May 7, 2023	Saturday, May 13, 2023	823,270	> 823,270	Check dam overtop on 5/7/23 (46 hrs), 5/9/23 (15 hrs), and 5/10/23 (0.5 hrs)
Sunday, May 14, 2023	Saturday, May 20, 2023	869,560	869,560	--
Sunday, May 21, 2023	Saturday, May 27, 2023	940,340	940,340	--
Sunday, May 28, 2023	Saturday, June 3, 2023	822,310	822,310	--
Sunday, June 4, 2023	Saturday, June 10, 2023	932,060	932,060	--
Sunday, June 11, 2023	Saturday, June 17, 2023	829,090	829,090	--
Sunday, June 18, 2023	Saturday, June 24, 2023	859,900	859,900	--
Sunday, June 25, 2023	Saturday, July 1, 2023	592,700	592,700	--
Sunday, July 2, 2023	Saturday, July 8, 2023	50,890	50,890	--
Sunday, July 9, 2023	Saturday, July 15, 2023	363,920	363,920	--
Sunday, July 16, 2023	Saturday, July 22, 2023	0	0	--
Sunday, July 23, 2023	Saturday, July 29, 2023	0	0	--
Sunday, July 30, 2023	Saturday, August 5, 2023	20,560	20,560	--
Sunday, August 6, 2023	Saturday, August 12, 2023	0	0	--
Sunday, August 13, 2023	Saturday, August 19, 2023	0	0	--
Sunday, August 20, 2023	Saturday, August 26, 2023	0	0	--
Sunday, August 27, 2023	Saturday, September 2, 2023	0	0	--
Sunday, September 3, 2023	Saturday, September 9, 2023	0	0	--
Sunday, September 10, 2023	Saturday, September 16, 2023	0	0	--
Sunday, September 17, 2023	Saturday, September 23, 2023	0	0	--
Sunday, September 24, 2023	Saturday, September 30, 2023	0	0	--
Sunday, October 1, 2023	Saturday, October 7, 2023	0	0	--
Sunday, October 8, 2023	Saturday, October 14, 2023	0	0	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, October 15, 2023	Saturday, October 21, 2023	0	0	--
Sunday, October 22, 2023	Saturday, October 28, 2023	0	0	--
Sunday, October 29, 2023	Saturday, November 4, 2023	0	0	--
Sunday, November 5, 2023	Saturday, November 11, 2023	0	0	--
Sunday, November 12, 2023	Saturday, November 18, 2023	0	0	--
Sunday, November 19, 2023	Saturday, November 25, 2023	0	0	--
Sunday, November 26, 2023	Saturday, December 2, 2023	0	0	--
Sunday, December 3, 2023	Saturday, December 9, 2023	0	0	--
Sunday, December 10, 2023	Saturday, December 16, 2023	0	0	--
Sunday, December 17, 2023	Saturday, December 23, 2023	0	0	--
Sunday, December 24, 2023	Saturday, December 30, 2023	0	0	--
Sunday, December 31, 2023	Saturday, January 6, 2024	0	0	--
Sunday, January 7, 2024	Saturday, January 13, 2024	0	0	--
Sunday, January 14, 2024	Saturday, January 20, 2024	0	0	--
Sunday, January 21, 2024	Saturday, January 27, 2024	0	0	--
Sunday, January 28, 2024	Saturday, February 3, 2024	0	0	--
Sunday, February 4, 2024	Saturday, February 10, 2024	0	0	--
Sunday, February 11, 2024	Saturday, February 17, 2024	0	0	--
Sunday, February 18, 2024	Saturday, February 24, 2024	0	0	--
Sunday, February 25, 2024	Saturday, March 2, 2024	0	0	--
Sunday, March 3, 2024	Saturday, March 9, 2024	0	0	--
Sunday, March 10, 2024	Saturday, March 16, 2024	0	0	--
Sunday, March 17, 2024	Saturday, March 23, 2024	0	0	--
Sunday, March 24, 2024	Saturday, March 30, 2024	0	0	--
Sunday, March 31, 2024	Saturday, April 6, 2024	362,090	362,090	--
Sunday, April 7, 2024	Saturday, April 13, 2024	984,600	984,600	--
Sunday, April 14, 2024	Saturday, April 20, 2024	974,330	974,330	--
Sunday, April 21, 2024	Saturday, April 27, 2024	984,160	984,160	--
Sunday, April 28, 2024	Saturday, May 4, 2024	951,240	> 951,240	Check dam overtop on 5/1/24 (4 hours)
Sunday, May 5, 2024	Saturday, May 11, 2024	821,920	> 821,920	Check dam overtop on 5/7/24 (18 hours)
Sunday, May 12, 2024	Saturday, May 18, 2024	872,930	872,930	--
Sunday, May 19, 2024	Saturday, May 25, 2024	847,100	> 847,100	Check dam overtop on 5/22/24 (8 hours)
Sunday, May 26, 2024	Saturday, June 1, 2024	898,240	> 898,240	Check dam overtop on 5/26/24 (37 hours)
Sunday, June 2, 2024	Saturday, June 8, 2024	803,830	803,830	--
Sunday, June 9, 2024	Saturday, June 15, 2024	734,060	734,060	--
Sunday, June 16, 2024	Saturday, June 22, 2024	743,680	> 743,680	Check dam overtop on 6/22/24 (15 hours)
Sunday, June 23, 2024	Saturday, June 29, 2024	892,510	> 892,510	Check dam overtop on 6/25/24 (36 hours) and 6/29/24 (12 hours)
Sunday, June 30, 2024	Saturday, July 6, 2024	823,740	> 823,740	Check dam overtop on 7/3/24 (12 hours) and 7/5/24 (16 hours)
Sunday, July 7, 2024	Saturday, July 13, 2024	889,980	> 889,980	Check dam overtop on 7/8/24 (11 hours)
Sunday, July 14, 2024	Saturday, July 20, 2024	956,320	956,320	--
Sunday, July 21, 2024	Saturday, July 27, 2024	952,800	952,800	--
Sunday, July 28, 2024	Saturday, August 3, 2024	728,060	728,060	--
Sunday, August 4, 2024	Saturday, August 10, 2024	778,530	778,530	--
Sunday, August 11, 2024	Saturday, August 17, 2024	5,600	5,600	--
Sunday, August 18, 2024	Saturday, August 24, 2024	452,150	452,150	--
Sunday, August 25, 2024	Saturday, August 31, 2024	0	0	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

ARCADIS

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, September 1, 2024	Saturday, September 7, 2024	0	0	--
Sunday, September 8, 2024	Saturday, September 14, 2024	0	0	--
Sunday, September 15, 2024	Saturday, September 21, 2024	0	0	--
Sunday, September 22, 2024	Saturday, September 28, 2024	0	0	--
Sunday, September 29, 2024	Saturday, October 5, 2024	0	0	--
Sunday, October 6, 2024	Saturday, October 12, 2024	0	0	--
Sunday, October 13, 2024	Saturday, October 19, 2024	0	0	--
Sunday, October 20, 2024	Saturday, October 26, 2024	0	0	--
Sunday, October 27, 2024	Saturday, November 2, 2024	0	0	--
Sunday, November 3, 2024	Saturday, November 9, 2024	360,270	360,270	--
Sunday, November 10, 2024	Saturday, November 16, 2024	956,040	956,040	--
Sunday, November 17, 2024	Saturday, November 23, 2024	992,180	992,180	--
Sunday, November 24, 2024	Saturday, November 30, 2024	996,800	996,800	--
Sunday, December 1, 2024	Saturday, December 7, 2024	995,270	995,270	--
Sunday, December 8, 2024	Saturday, December 14, 2024	751,390	751,390	--
Sunday, December 15, 2024	Saturday, December 21, 2024	791,040	791,040	--
Sunday, December 22, 2024	Saturday, December 28, 2024	924,050	924,050	--
Sunday, December 29, 2024	Saturday, January 4, 2025	950,910	950,910	--
Sunday, January 5, 2025	Saturday, January 11, 2025	482,220	482,220	--
Sunday, January 12, 2025	Saturday, January 18, 2025	0	0	--
Sunday, January 19, 2025	Saturday, January 25, 2025	0	0	--
Sunday, January 26, 2025	Saturday, February 1, 2025	0	0	--
Sunday, February 2, 2025	Saturday, February 8, 2025	0	0	--
Sunday, February 9, 2025	Saturday, February 15, 2025	0	0	--
Sunday, February 16, 2025	Saturday, February 22, 2025	0	0	--
Sunday, February 23, 2025	Saturday, March 1, 2025	0	0	--
Sunday, March 2, 2025	Saturday, March 8, 2025	0	0	--
Sunday, March 9, 2025	Saturday, March 15, 2025	803,570	803,570	--
Sunday, March 16, 2025	Saturday, March 22, 2025	992,080	992,080	--
Sunday, March 23, 2025	Saturday, March 29, 2025	1,004,930	1,004,930	--
Sunday, March 30, 2025	Saturday, April 5, 2025	977,300	> 977,300	Check dam overtop on 3/30/25 (12 hours)
Sunday, April 6, 2025	Saturday, April 12, 2025	816,450	816,450	--
Sunday, April 13, 2025	Saturday, April 19, 2025	960,900	960,900	--
Sunday, April 20, 2025	Saturday, April 26, 2025	995,260	995,260	--
Sunday, April 27, 2025	Saturday, May 3, 2025	937,840	> 937,840	Check dam overtop on 5/1/25 (18 hours)
Sunday, May 4, 2025	Saturday, May 10, 2025	905,150	905,150	--
Sunday, May 11, 2025	Saturday, May 17, 2025	805,160	805,160	--
Sunday, May 18, 2025	Saturday, May 24, 2025	738,800	738,800	--
Sunday, May 25, 2025	Saturday, May 31, 2025	922,320	922,320	--
Sunday, June 1, 2025	Saturday, June 7, 2025	881,090	881,090	--
Sunday, June 8, 2025	Saturday, June 14, 2025	906,880	906,880	--
Sunday, June 15, 2025	Saturday, June 21, 2025	939,110	939,110	--
Sunday, June 22, 2025	Saturday, June 28, 2025	951,740	951,740	--
Sunday, June 29, 2025	Saturday, July 5, 2025	892,400	> 892,400	Check dam overtop on 7/5/25 (21 hours)
Sunday, July 6, 2025	Saturday, July 12, 2025	869,890	869,890	--
Sunday, July 13, 2025	Saturday, July 19, 2025	795,190	795,190	--
Sunday, July 20, 2025	Saturday, July 26, 2025	901,450	901,450	--
Sunday, July 27, 2025	Saturday, August 2, 2025	700,550	700,550	--
Sunday, August 3, 2025	Saturday, August 9, 2025	0	0	--
Sunday, August 10, 2025	Saturday, August 16, 2025	0	0	--

Table 5
Weekly Ditch A Treatment System and Stream Flow Volumes
Tyco Fire Products LP
Marinette, Wisconsin

Week Start Date	Week End Date	Ditch A Treatment System Discharge Volume	Ditch A Stream Flow Volume	Comments
		gallons	gallons	
Sunday, August 17, 2025	Saturday, August 23, 2025	0	0	--
Sunday, August 24, 2025	Saturday, August 30, 2025	0	0	--
Sunday, August 31, 2025	Saturday, September 6, 2025	0	0	--
Sunday, September 7, 2025	Saturday, September 13, 2025	0	0	--
Sunday, September 14, 2025	Saturday, September 20, 2025	0	0	--
Sunday, September 21, 2025	Saturday, September 27, 2025	0	0	--
Sunday, September 28, 2025	Saturday, October 4, 2025	0	0	--
Sunday, October 5, 2025	Saturday, October 11, 2025	0	0	--
Sunday, October 12, 2025	Saturday, October 18, 2025	0	0	--
Sunday, October 19, 2025	Saturday, October 25, 2025	0	0	--
Sunday, October 26, 2025	Saturday, November 1, 2025	0	0	--
Sunday, November 2, 2025	Saturday, November 8, 2025	0	0	--
Sunday, November 9, 2025	Saturday, November 15, 2025	0	0	--
Sunday, November 16, 2025	Saturday, November 22, 2025	0	0	--
Sunday, November 23, 2025	Saturday, November 29, 2025	0	0	--
Sunday, November 30, 2025	Saturday, December 6, 2025	0	0	--
Sunday, December 7, 2025	Saturday, December 13, 2025	0	0	--
Sunday, December 14, 2025	Saturday, December 20, 2025	0	0	--
Sunday, December 21, 2025	Saturday, December 27, 2025	0	0	--
Sunday, December 28, 2025	Saturday, January 3, 2026	0	0	--

Table 6
Ditch A Downstream Surface Water Laboratory Analytical Results
Tyco Fire Products LP
Marinette, Wisconsin

Location	Surface Water Standard - Other Water Bodies[1][2]	Surface Water Standard - All Waters with Exception[1][3]	SW-40		SW-26A
Sample ID			SW-40 (7-17-25)	DUP-01-A (7-17-25)	SW-26A (7-17-25)
Sample Date			7/17/2025	7/17/2025	7/17/2025
Units	ng/L	ng/L	ng/L	ng/L	ng/L
Per- and Polyfluoroalkyl Substances					
PFBA	--	--	3.7	4.0	14
PFPeA	--	--	11	11	42
PFHxA	--	--	8.1	8.3	34
PFHpA	--	--	7.0	7.2	27
PFOA	**95**	--	39	41	**160**
PFNA	--	--	2.5	3.5	8.8
PFDA	--	--	2.4 J	7.6 J	5.6
PFUnA	--	--	2.2 J	10 J	2.4
PFDoA	--	--	< 1.6 U	1.6 J	< 1.8 U
PFTriA	--	--	< 1.6 U	0.52 J	< 1.8 U
PFTeA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFBS	--	--	< 1.6 U	< 1.8 U	1.0 J
PFPeS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFHxS	--	--	1.4 J	1.3 J	5.8
PFHpS	--	--	< 1.6 U	< 1.8 U	0.42 J
PFOS	--	**8**	**14 J**	**30 J**	**40**
PFNS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFDS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFDoS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
4:2 FTS	--	--	< 3.2 U	< 3.6 U	0.73 J
6:2 FTS	--	--	36	36	150
8:2 FTS	--	--	37 J	100 J	91
FOSA	--	--	< 1.6 U	1.7 J	1.6 J
NMeFOSA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
NEtFOSA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
NMeFOSAA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
NEtFOSAA	--	--	< 1.6 U	0.83 J	< 1.8 U
NMeFOSE	--	--	< 8.0 U	< 9.0 U	< 9.2 U
NEtFOSE	--	--	< 8.0 U	< 9.0 U	< 9.2 U
PFMPA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFMBA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
NFDHA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
HFPO-DA	--	--	< 1.2 U	< 1.4 U	< 1.4 U
DONA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
PFEESA	--	--	< 1.6 U	< 1.8 U	< 1.8 U
9Cl-PF3ONS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
11Cl-PF3OUdS	--	--	< 1.6 U	< 1.8 U	< 1.8 U
3:3 FTCA	--	--	< 3.2 U	< 3.6 U	< 3.7 U
5:3 FTCA	--	--	< 8.0 U	< 9.0 U	3.2 J
7:3 FTCA	--	--	< 8.0 U	< 9.0 U	< 9.2 U

Notes:

-- = No Standard
< = Compound not detected at method detection limit

ng/L = Nanograms per liter
(1) = Surface water standards per NR 102.04 (8d).
(2) = The PFOA surface water standard is 95 ng/L in Other Water Bodies (waters not classified as public water supplies) under ch. NR 104.07.
(3) = The PFOS surface water standard is 8 ng/L for all waters except those that cannot naturally support fish and do not have downstream waters that support fish.

Formatting Key:
Bold = Value exceeds applicable surface water standard per NR 102.04 (8d).

Data Qualifiers:
U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
J = The result is an estimated quantity. The associated numberical value is the approximate concentration of the analyte in the sample.

Analyte Abbreviations:

PFBA	Perfluorobutanoic acid	6:2 FTS	6:2 Fluorotelomer sulfonic acid
PFPeA	Perfluoropentanoic acid	8:2 FTS	8:2 Fluorotelomer sulfonic acid
PFHxA	Perfluorohexanoic acid	FOSA	Perfluorooctane sulfonamide
PFHpA	Perfluoroheptanoic acid	NMeFOSA	N-Methyl perfluorooctane sulfonamide
PFOA	Perfluorooctanoic acid	NEtFOSA	N-Ethyl perfluorooctane sulfonamide
PFNA	Perfluorononanoic acid	NMeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid
PFDA	Perfluorodecanoic acid	NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
PFUnA	Perfluoroundecanoic acid	NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol
PFDoA	Perfluorododecanoic acid	NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
PFTriA	Perfluorotridecanoic acid	PFMPA	Perfluoro-3-methoxypropanoic acid
PFTeA	Perfluorotetradecanoic acid	PFMBA	Perfluoro-4-methoxybutanoic acid
PFBS	Perfluorobutanesulfonic acid	NFDHA	Nonafluoro-3,6-dioxaheptanoic acid
PFPeS	Perfluoropentanesulfonic acid	HFPO-DA	Hexafluoropropylene oxide dimer acid
PFHxS	Perfluorohexanesulfonic acid	DONA	4,8-Dioxa-3H-perfluorononanoic acid
PFHpS	Perfluoroheptanesulfonic acid	PFEESA	Perfluoro (2-ethoxyethane) sulfonic acid
PFOS	Perfluorooctanesulfonic acid	9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
PFNS	Perfluorononanesulfonic acid	11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
PFDS	Perfluorodecanesulfonic acid	3:3 FTCA	3:3 Fluorotelomer carboxylic acid
PFDoS	Perfluorododecanesulfonic acid	5:3 FTCA	5:3 Fluorotelomer carboxylic acid
4:2 FTS	4:2 Fluorotelomer sulfonic acid	7:3 FTCA	7:3 Fluorotelomer carboxylic acid

Table 7
Ditch A System Monthly Upstream and Downstream Analytical Results
Tyco Fire Products LP
Marinette, Wisconsin

Location:	Upstream of Ditch A Treatment System			Downstream of Ditch A Treatment System (SW-40)		Downstream of Ditch A Treatment System (SW-26A)		Notes
Analyte:	PFOS	PFOA	Sample Date	PFOS	PFOA	PFOS	PFOA	
Month-Year	ng/L	ng/L		ng/L	ng/L	ng/L	ng/L	
Jul-25	174.4	600.0	7/17/2025	30 J	41	40	160	--
Aug-25	NS	NS	NS	NS	NS	NS	NS	The system was offline from 8/2/25 - 8/31/25 due to dry/frozen conditions in Ditch A. No samples were collected from SW-40 or SW-26A.
Sep-25	NS	NS	NS	NS	NS	NS	NS	The system was offline from 9/1/25 - 9/30/25 due to dry/frozen conditions in Ditch A. No samples were collected from SW-40 or SW-26A.
Oct-25	NS	NS	NS	NS	NS	NS	NS	The system was offline from 10/1/25 - 10/31/25 due to dry/frozen conditions in Ditch A. No samples were collected from SW-40 or SW-26A.
Nov-25	NS	NS	NS	NS	NS	NS	NS	The system was offline from 11/1/25 - 11/30/25 due to dry/frozen conditions in Ditch A. No samples were collected from SW-40 or SW-26A.
Dec-25	NS	NS	NS	NS	NS	NS	NS	The system was offline from 12/1/25 - 12/31/25 due to dry/frozen conditions in Ditch A. No samples were collected from SW-40 or SW-26A.

Abbreviations:

B = The compound was detected in the blank

D = The sample was analyzed at dilution

ng/L = nanograms per liter

NS = Not Sampled

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonic acid

U = Result is less than the method detection limit (MDL)

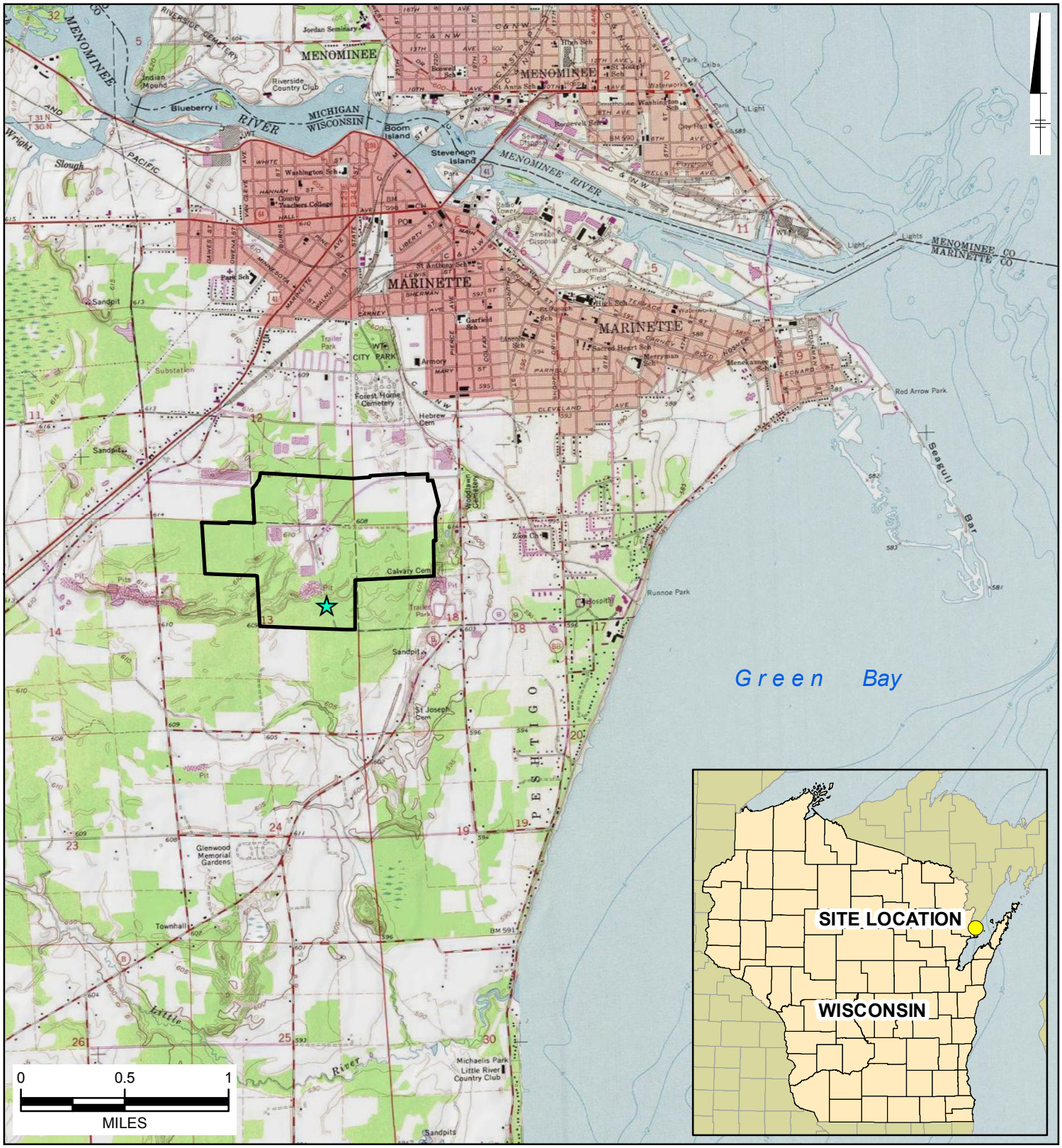
Notes:

Monthly upstream values are calculated as the average of the weekly permit-required Ditch A System influent samples during periods in which natural stream flow is present.

Downstream samples are collected monthly, when natural flow is observed in Ditch A, from SW-40 and SW-26A.

The higher value is shown when duplicate samples were collected.

Figures



LEGEND:

- APPROXIMATE SITE PROPERTY BOUNDARY
- APPROXIMATE LOCATION OF DITCH A SYSTEM

NOTES:

1. TOPOGRAPHIC MAP SOURCE: COPYRIGHT:© 2013 NATIONAL GEOGRAPHIC SOCIETY, I-CUBED, ACCESSED FEBRUARY, 2020.

TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN

SITE LOCATION

ARCADIS

FIGURE
1

City: Minneapolis/Citrix Div/Group: IMDVC Created By: Last Saved By: akens
TYCO Marinette, WI
Z:\GISProjects_ENV\TYCO_Marinette_WI\MXD\2018-03\Work_Plan\Fig1_SiteLocation_DitchA.mxd 2/10/2020 1:11:34 PM

NOTES:

1. AERIAL IMAGE, DITCH EXTENTS, AND EQUIPMENT ASSOCIATED WITH THE TREATMENT SYSTEM ARE IN APPROXIMATE LOCATIONS.

LEGEND:

- PROPERTY LINE
- RIGHT OF WAY
- CHECK DAM
- SW-40 SURFACE WATER SAMPLE LOCATION
- WELL LOCATION

1"=20' 20' 0 20' 40'

ARCADIS

LEGAL ENTITY:
ARCADIS U.S., Inc.
ARCHITECTURAL AND
ENGINEERING SERVICES, INC.

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CONSULTANTS

NO.	DATE	ISSUED FOR	BY
4	08/26/22	REMOVAL OF TEMPORARY DEWATERING SYSTEM	MW
3	02/03/22	TEMPORARY DEWATERING WATER TREATMENT ADDITION	MW
2	02/07/20	SITE PLAN UPDATE	DA
1	09/03/19	DITCH A SYSTEM AREA	DA
0	02/11/19	ISSUED FOR REVIEW - DRAFT	EE

SEALS

DATE: 05/30/19
PROJECT NO.: 30015296.00003
FILE NAME: DITCH_A F02 - SITE PLAN
DESIGNED BY: JY
DRAWN BY: EE
CHECKED BY: TK

2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN 54143
215-362-0700

ANSUL FTC SITE

DITCH INTERIM ACTION DESIGN DITCH A

ARCADIS PROJ. NO. 30015296.00003

SHEET TITLE

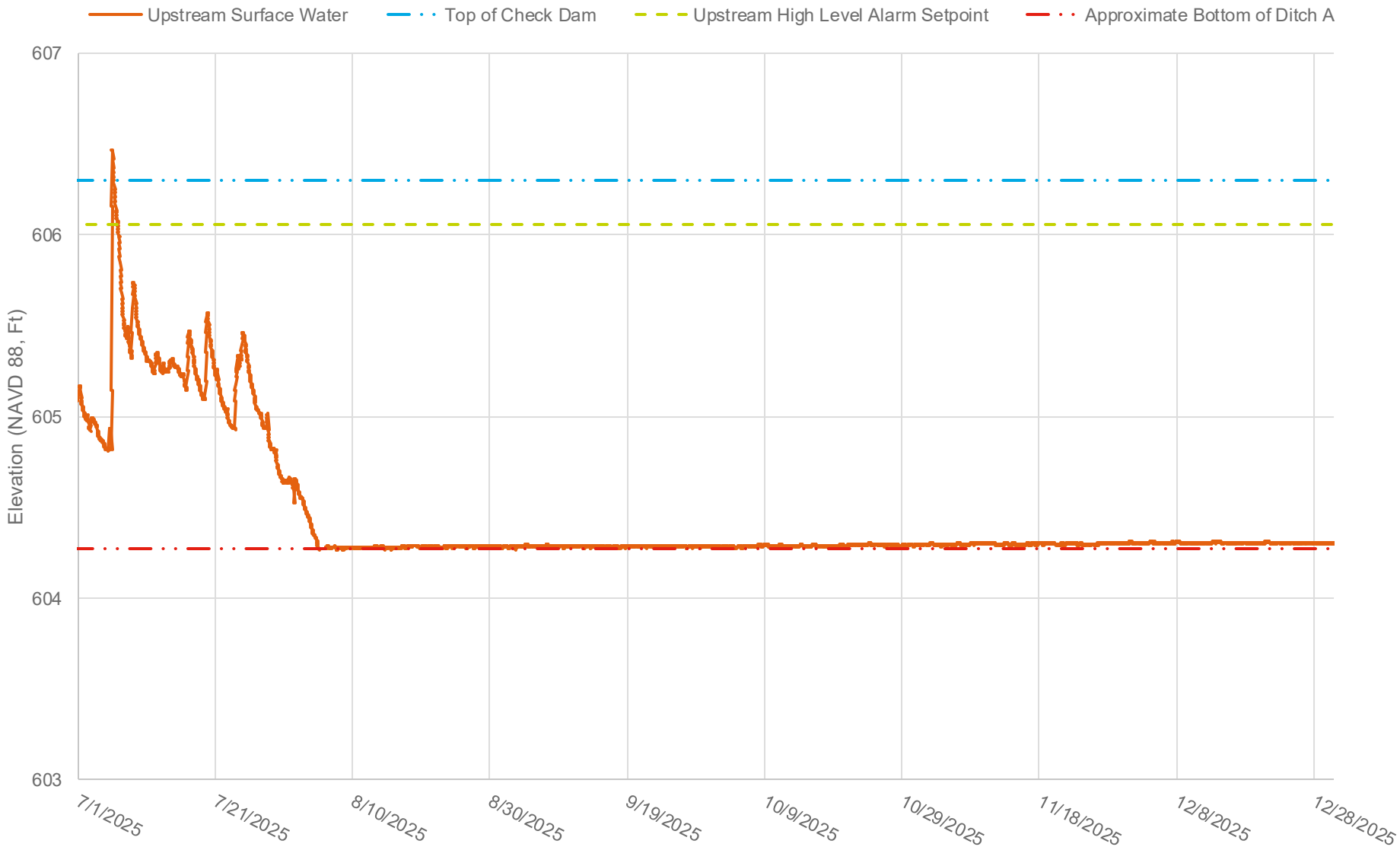
DITCH A SITE PLAN

SCALE: 0 20 FEET

FIGURE 2

SHEET 1 OF 1

User:MWASILEWSKI Spec:AUS-NCSMOD File:C:\USERS\MWASILEWSKI\ONEDRIVE - ARCADIS\BIM360 - ONEDRIVE SYNC LOCATION\AUS-TYCO-FIRE TECHNOLOGY CTR-MARINETTE WISCONSIN\PROJECT FILES\202201-IN PROGRESS\01-DWG\DITCH_A F02 - SITE PLAN.DWG Scale:1:1 SavedDate:2/8/2022 Time:17:10 Plot Date: Wasilewski, Matt; 8/26/2022; 17:00 Layout:C2



Abbreviations:
ft = Feet
NAVD = North American Vertical Datum

Ditch A Dry/Frozen:
8/2/25 – 12/31/25

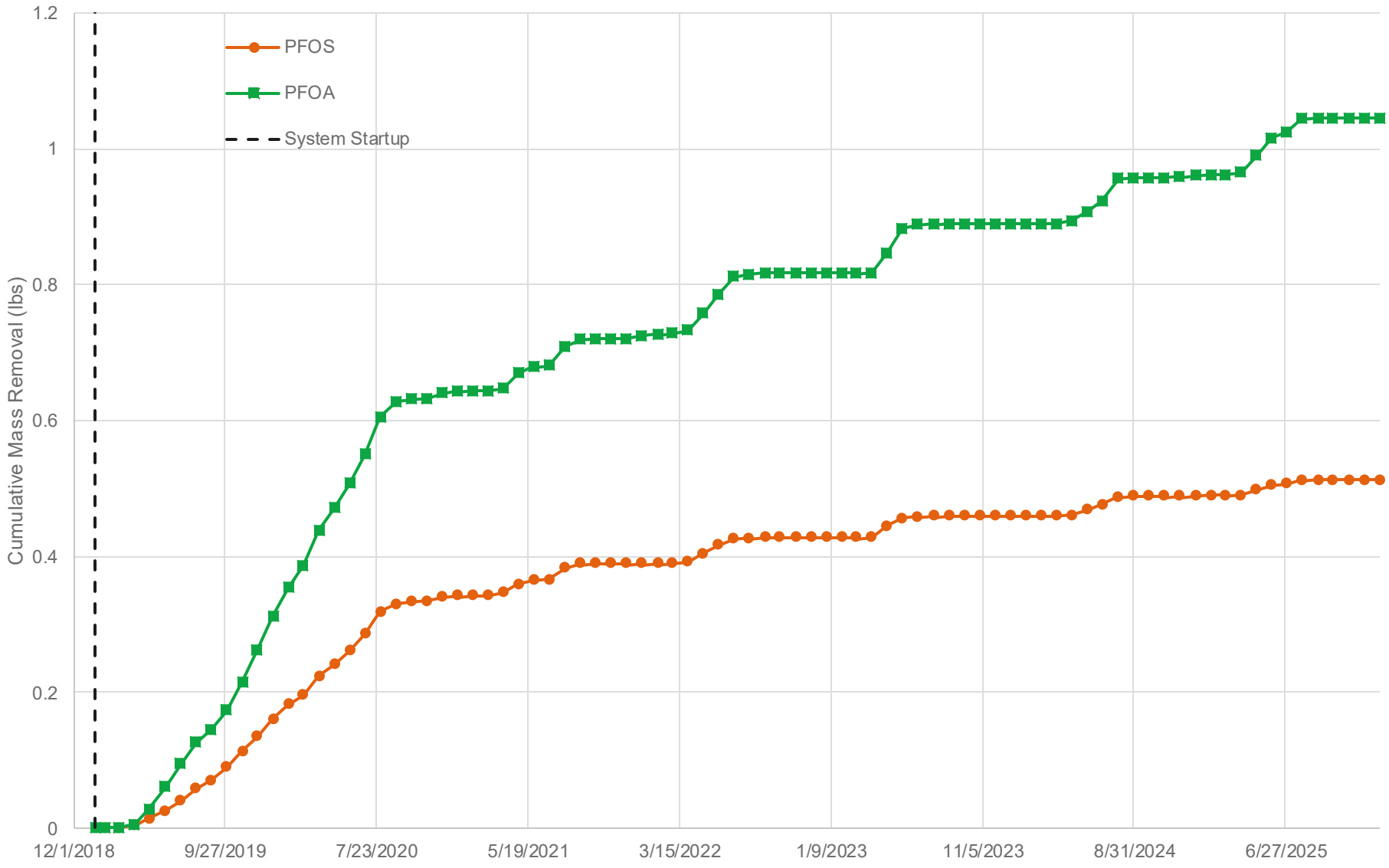
Notes:
1. Elevations based on survey conducted by Coleman Engineering on 10/20/22.
2. The Ditch A bottom elevation is variable. An approximate value upstream of the check dam is shown for reference.

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A SYSTEM UPSTREAM SURFACE WATER ELEVATION (7/1/25 – 12/31/25)

ARCADIS

FIGURE
3



Abbreviations:
PFOA = Perfluorooctanesulfonic Acid
PFOS = Perfluorooctanesulfonic Acid
lbs = Pounds

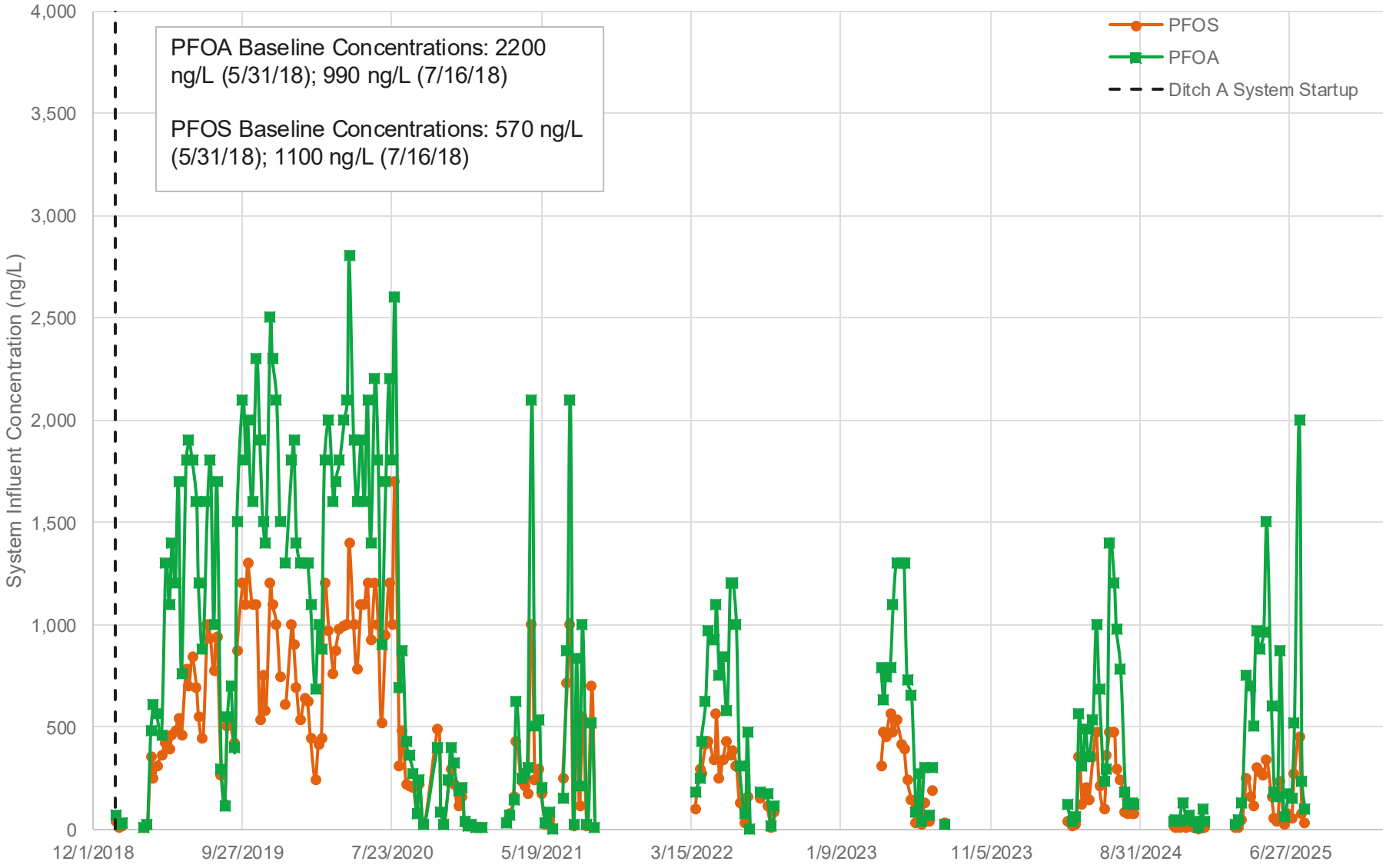
Note:
Data presented on a monthly basis

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A TREATMENT SYSTEM
CUMULATIVE PFAS MASS REMOVAL

ARCADIS

FIGURE
4



Abbreviations:
PFOA = Perfluorooctanesulfonic Acid
PFOS = Perfluorooctanoic Acid
ng/L = Nanograms per Liter

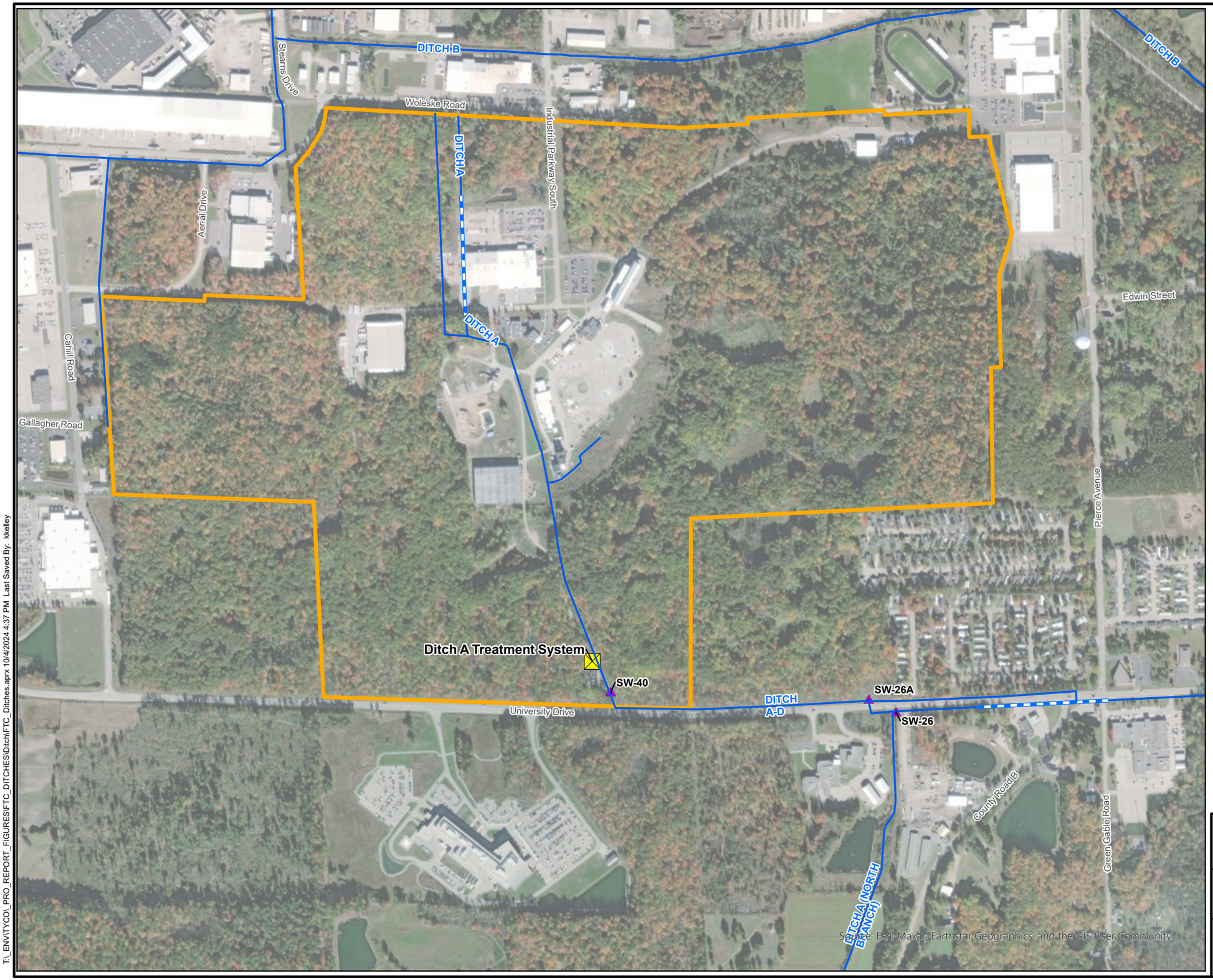
Note:
Baseline concentrations collected from sample location SW-27 on 5/31/18 and 7/16/18.

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A TREATMENT SYSTEM
INFLUENT CONCENTRATIONS

ARCADIS

FIGURE
5



Legend

- Surface Water Sample
- Ditches or Stream
- Culvert
- Approximate Site Property Boundary
- Surface Water Treatment System

0 500 1,000

GRAPHIC SCALE IN FEET

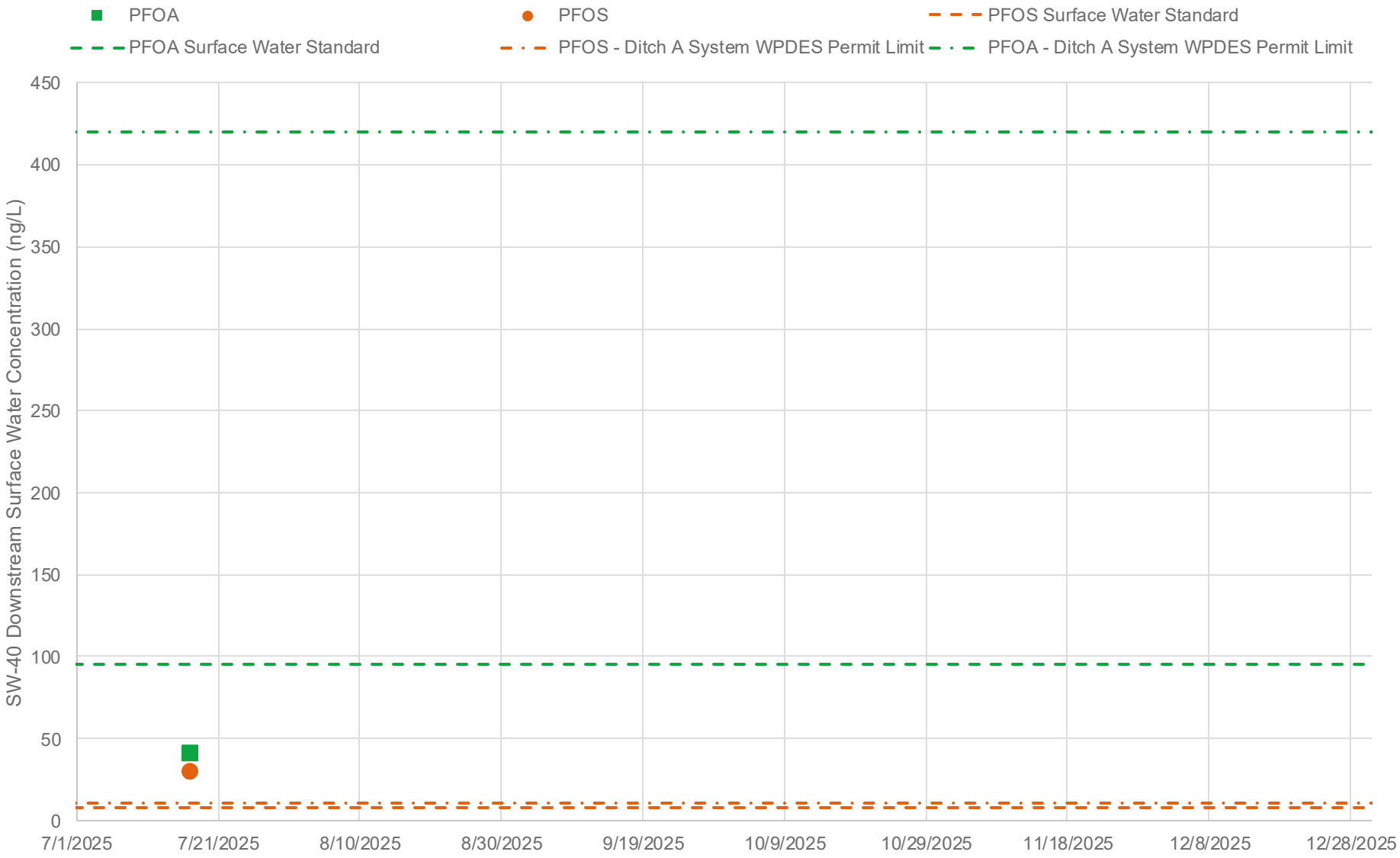
TYCO FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN

DITCH A DOWNSTREAM SURFACE WATER SAMPLING LOCATIONS

ARCADIS

FIGURE
6

T:_ENVITYCO_PRO_REPORT_FIGURES\FTC_DITCHES\Ditch\FTC_Ditches.aprx 10/4/2024 4:37 PM Last Saved By: kkelley



Abbreviations:
PFOA = Perfluorooctanesulfonic Acid
PFOS = Perfluorooctanoic Acid
ng/L = Nanograms per Liter

SW-40 Dry/Frozen (No Sample Collected):
8/2025 – 12/2025

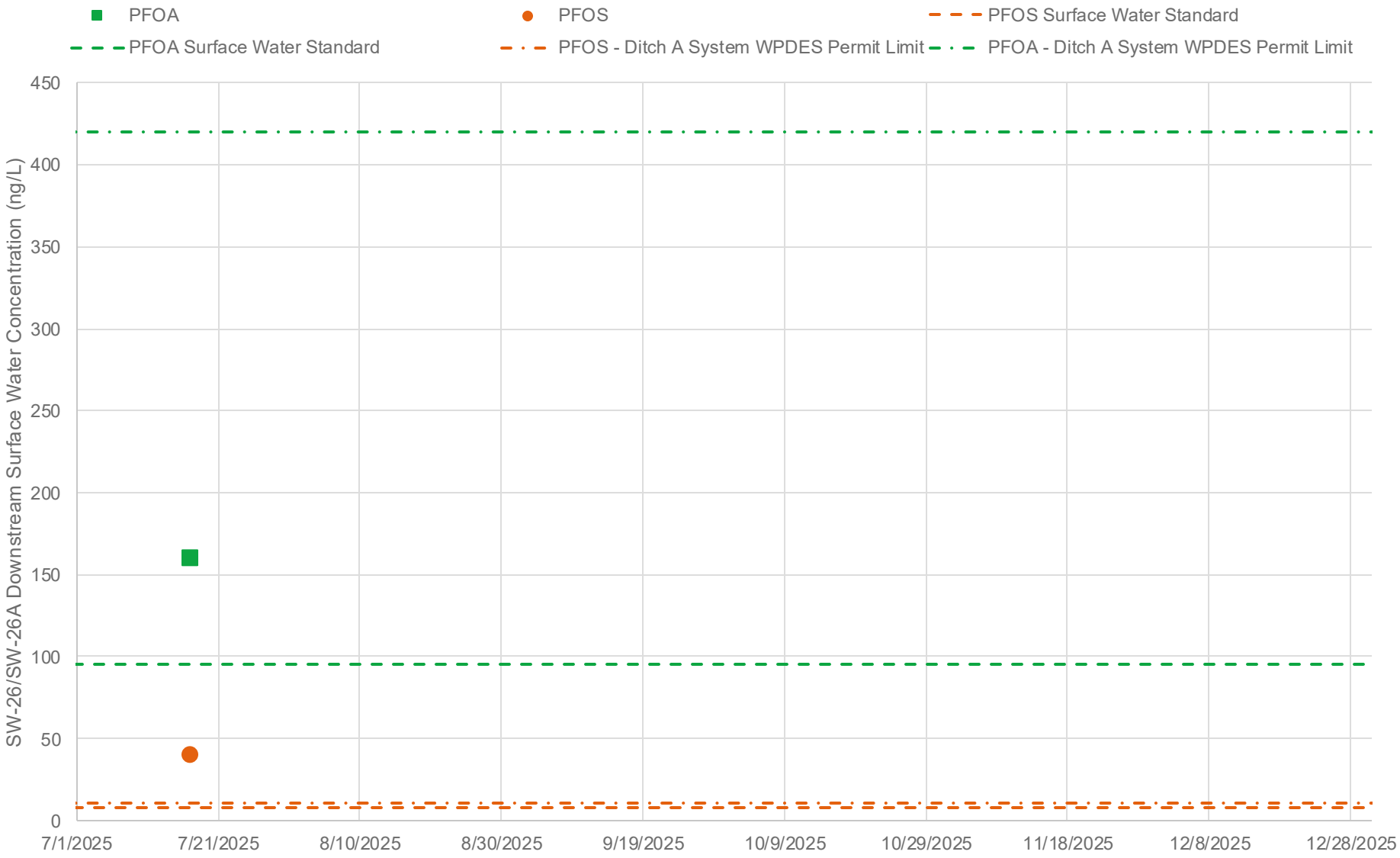
Notes:
1. Downstream surface water samples collected from SW-40 (downstream of Ditch A System) and SW-26A (downstream of SW-40).
2. When duplicate samples were collected, the higher result is shown.
3. Surface water standard for PFOS of 8 ng/L based on water except those that cannot naturally support fish and do not have downstream waters that support fish per NR 102.04 (8d).
4. Surface water standard for PFOA of 95 ng/L based on non-drinking water bodies per NR 102.04 (8d).

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A DOWNSTREAM SURFACE WATER CONCENTRATIONS (SW-40)

ARCADIS

FIGURE
7



Abbreviations:
PFOA = Perfluorooctanesulfonic Acid
PFOS = Perfluorooctanoic Acid
ng/L = Nanograms per Liter

SW-26 Dry/Frozen/Stagnant (No Sample Collected):
8/2025 – 12/2025

Notes:
1. Downstream surface water samples collected from SW-40 (downstream of Ditch A System) and SW-26A (downstream of SW-40).
2. When duplicate samples were collected, the higher result is shown.
3. Surface water standard for PFOS of 8 ng/L based on water except those that cannot naturally support fish and do not have downstream waters that support fish per NR 102.04 (8d).
4. Surface water standard for PFOA of 95 ng/L based on non-drinking water bodies per NR 102.04 (8d).

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A DOWNSTREAM SURFACE WATER CONCENTRATIONS (SW-26A)

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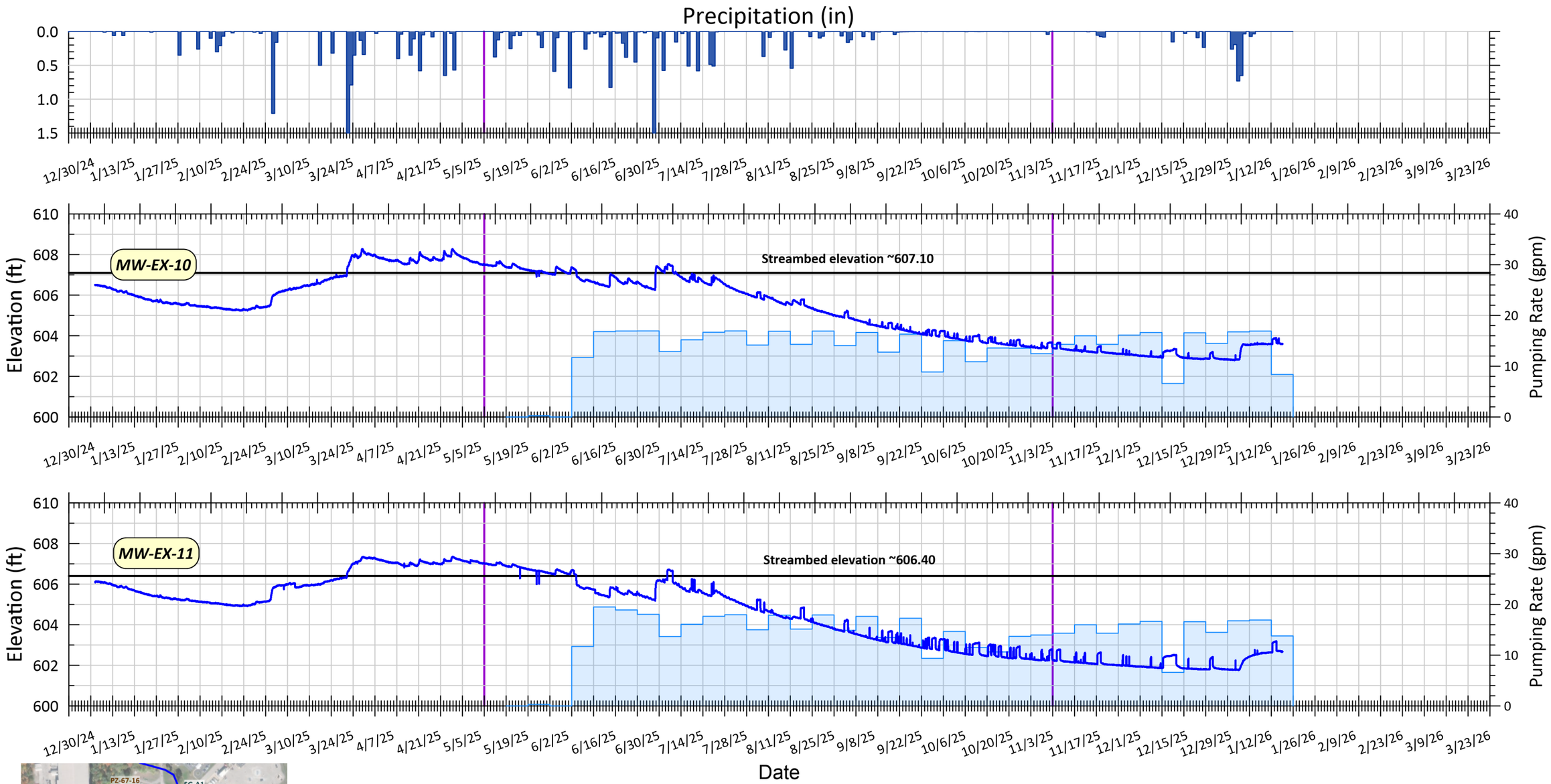
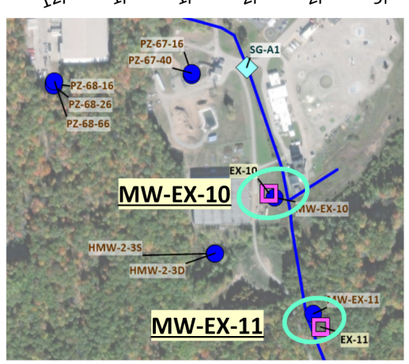
FIGURE
8





Well Locations

Notes:

Precipitation: NOAA, Station USC00475091 and on-site weather station; values are daily total, inches per day
Pumping Rates: Shaded bar chart of average weekly pumping rate (gpm)
Water Levels: Pressure transducer data
Ditch A: Treatment plant is located ~560 feet south of MW-EX-11
Date: Labeled ticks are day 1 of each week of GETS operation
GETS Operation: Week 1 began on Monday, November 14, 2022

TYCO FIRE PRODUCTS LP
MARINETTE WI
Ditch A Semi-Annual OM&O Progress Report #14

Summary of Groundwater Elevations Near Ditch A

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FIGURE
9

Appendix A

Ditch A System Piping and Instrumentation Diagram

LEGEND

- FLEXIBLE HOSE
- CONTROL PANEL OR EQUIPMENT
- SOFTWARE LINK, SYSTEM FUNCTION CONNECTION OR COMMUNICATION LINK
- FIBER OPTIC CONNECTION
- MAIN PROCESS LINE
- AUXILIARY SYSTEMS
- BUILDING/AREA EXTENTS V-155
- ELECTRIC (ELECTRONIC) SIGNAL
- BALL VALVE
- BUTTERFLY VALVE
- GATE VALVE
- NEEDLE VALVE
- GLOBE VALVE
- KNIFE GATE VALVE
- SWING CHECK VALVE
- BALL CHECK VALVE
- SOLENOID OPERATED VALVE
- MOTOR OPERATED VALVE
- SAMPLE PORT
- PRESSURE REGULATING VALVE
- FLANGED CONNECTION/PIPE TRANSITION
- NON-FLANGED PIPE TRANSITION
- UNION
- REDUCER
- Y STRAINER
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- CAMLOCK
- HOSE BARB CONNECTION
- CAP
- PARTICULATE FILTER
- COALESCING FILTER
- MOTOR
- VARIABLE FREQUENCY DRIVE
- SUBMERSIBLE WELL PUMP
- CENTRIFUGAL PUMP
- ROTARY-LOBE BLOWER
- CHEMICAL METERING PUMP
- SUMP PUMP
- MAGNETIC FLOW METER
- POSITIVE DISPLACEMENT FLOW METER
- AVERAGING PILOT TUBE FLOW METER
- ROTAMETER WITH VALVE
- STATIC MIXER
- SITE GLASS
- FILTER

INSTRUMENT SYMBOLS

	PRIMARY CONTROL PANEL NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY PANEL OR RACK NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS			
SHARED DISPLAY, SHARED CONTROL			
COMPUTER FUNCTION INCLUDING DISTRIB. CNTL. SYS.			
PROGRAMMABLE LOGIC CONTROLLER FUNCTION			

PIPELINE DESIGNATION

6"-S04P

- LINE TYPE
- MATERIAL
- SIZE

TYPE:

D = DUCT
H = HOSE
C = DOUBLE WALL CONTAINMENT PIPE
P = PIPE
T = TUBE

MATERIAL:

BRZ - BRASS/BRONZE
CIR - CAST IRON
CST - CARBON STEEL
CPR - COPPER
CPVC- CHLORINATED POLYVINYL CHLORIDE
DIR - DUCTILE IRON
FRP - FIBERGLASS
GCS - GALVANIZED CARBON STEEL
HDPE - HIGH DENSITY POLYETHYLENE
LCS - LINED CARBON STEEL
PET - POLYETHYLENE
POP - POLYPROPYLENE
PVC - POLYVINYL CHLORIDE
RUB - RUBBER
S04 - 304 STAINLESS STEEL
S4L - 304L STAINLESS STEEL
S16 - 316 STAINLESS STEEL
S6L - 316L STAINLESS STEEL
TEF - TEFLON
VIT - VITON
TYG - TYGON

ALARMS:

1. AN ALARM THAT DISABLES ALL OR ANY PART OF THE SYSTEM WILL SEND A NOTIFICATION TO THE OPERATOR VIA THE SCADA SYSTEM.

INTERLOCKS:

1 SYSTEM SHUTDOWN

INSTRUMENT IDENTIFICATION LETTERS

FIRST LETTER		SUCCEEDING LETTERS		
MEASURE OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A = ANALYSIS		ALARM		
B = BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C = USER'S CHOICE			CONTROL, CLOSED	
D = USER'S CHOICE	DIFFERENTIAL			
E = VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F = FLOW RATE	RATIO (FRACTION)			
G = USER'S CHOICE		GLASS, VIEWING DEVICE		
H = HAND				HIGH
I = CURRENT (ELECTRICAL)		INDICATE		
J = POWER	SCAN			
K = TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L = LEVEL		LIGHT		LOW
M = USER'S CHOICE	MOMENTARY			MIDDLE,INTERMEDIATE
N = USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O = USER'S CHOICE		ORIFICE, RESTRICTION	OPEN	
P = PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q = QUANTITY	INTEGRATE, TOTALIZE			
R = RADIATION		RECORD	RUN	
S = SPEED, FREQUENCY	SAFETY	SWITCH	STOP	
T = TEMPERATURE			TRANSMIT	
U = MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V = VIBRATION, MECH. ANALYSIS			VALVE, DAMPER, LOUVER	
W = WEIGHT, FORCE		WELL		
X = UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y = EVENT, STATUS OR PRESENCE	Y AXIS		RELAY,COMPUTE,CONVERT	
Z = POSITION, DIMENSION	Z AXIS	UNCLASSIFIED	DRIVE, ACTUATOR, FINAL CONTROL ELEMENT	

ABBREVIATIONS:

AC AIR COMPRESSOR
AD AIR DRYER
AI pH INDICATOR
AIT pH INDICATOR TRANSMITTER
AR AIR RECEIVER TANK
AS ANTI-SCALANT
C CENTER LINE
CAH CONDUCTIVITY ALARM HIGH
CFM CUBIC FEET PER MINUTE
CI CONDUCTIVITY INDICATOR
CIP CLEAN IN PLACE
CIT CONDUCTIVITY INDICATOR TRANSMITTER
CO CLEAN OUT
CTE CONDUCTIVITY TEMPERATURE ELEMENT
CY CUBIC YARDS
°C DEGREES CELSIUS
DPAL DIFFERENTIAL PRESSURE ALARM LOW
DPAH DIFFERENTIAL PRESSURE ALARM HIGH
DPIT DIFFERENTIAL PRESSURE INDICATOR TRANSMITTER
DPI DIFFERENTIAL PRESSURE INDICATOR
E ELECTRIC ACTUATOR
ECIP ELECTRODE CLEAN IN PLACE
EM ENVIRONMENTAL MEDIA
ELEV ELEVATION
F FILTER
FE FLOW ELEMENT
FI FLOW INDICATOR
FIT FLOW INDICATING TRANSMITTER
FMO FLOW MONITOR
FQ FLOW TOTALIZER
FT FOOT/ FEET
FT FLOW TRANSMITTER
FV FLOW VALVE
GAC GRANULATED ACTIVATED CARBON
GAL GALLONS
GPD GALLONS PER DAY
HAZ HAZARDOUS
HDPE HIGH DENSITY POLYETHYLENE
HOA HAND/ OFF/ AUTO
HR HOUR
HS HAND SWITCH
IN. INCHES
kg KILOGRAMS
KV TIMER VALVE
L LITER
LAH LEVEL ALARM HIGH
LAHH LEVEL ALARM HIGH HIGH
LAL LEVEL ALARM LOW
LE LEVEL ELEMENT
LP LIQUID PHASE
LS LEVEL SWITCH
LT LEVEL TRANSMITTER
M MOTOR
MAX MAXIMUM
uM MICROMETER
mg MILLIMETER
MIN MINIMUM
MMF MULTIMEDIA FILTER
NA NOT APPLICABLE
NC NORMALLY CLOSED
NO NORMALLY OPEN
NPT NATIONAL PIPE THREAD
% PERCENT
LB POUNDS
PAH PRESSURE ALARM HIGH
PAL PRESSURE ALARM LOW
PI PRESSURE INDICATOR
PIT PRESSURE INDICATOR TRANSMITTER
PSIG PRESSURE PER SQUARE FOOT GAUGE
PR PRESSURE RELIEF VALVE
PRV PRESSURE REGULATING VALVE
PSV PRESSURE SAFETY VALVE
PVR PRESSURE VACUUM RELIEF
QAPP QUALITY ASSURANCE PROJECTION PLAN
NaOH SODIUM HYDROXIDE
SP SAMPLE PORT
T TANK
TAH TEMPERATURE ALARM HIGH
TAHH TEMPERATURE ALARM HIGH HIGH
TI TEMPERATURE INDICATOR
TIT TEMPERATURE INDICATOR TRANSMITTER
TYP TYPICAL
TWV THREE WAY VALVE
V VALVE
VAH VACUUM ALARM HIGH
VAL VACUUM ALARM LOW
VE VACUUM ELEMENT
VIT VACUUM INDICATING TRANSMITTER
XLPE CROSS LINKED POLYETHYLENE
YI STATUS INDICATOR
ZX POSITION INDICATOR

NOTES:

1. ANY FIRST LETTER COMBINED WITH A MODIFIER REPRESENTS A NEW AND SEPARATE MEASURED VARIABLE. EXAMPLES: DP= DIFFERENTIAL PRESSURE; FQ= TOTALIZED OR INTEGRATED FLOW. EXCEPTION IS THE MODIFIER "J" FOR MULTIPOINT SCANNING.
2. FOR ANALYSIS NOT IDENTIFIED BY A SPECIFIC LETTER INTHE TABLE, USE FIRST LETTER "A" NEAR THE INSTRUMENT SYMBOL, SPECIFY THAT NATURE OF THE ANALYSIS. EXAMPLE: pH
3. MEANING OF A "USER'S CHOICE" LETTER SHALL BE CONSISTENT THROUGHOUT A PROJECT, AND SHALL BE SPECIFIED IN THE DRAWING LEGEND.

GENERAL NOTES:

1. ALL ANALOG SET POINTS SHALL BE FIELD ADJUSTED BY OPERATOR AT HMI INTERFACE.
2. ALARMS THAT SHUT DOWN TREATMENT EQUIPMENT MUST BE CLEARED BY OPERATOR BEFORE BEING RESTARTED.
3. THIS DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

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3	02/04/2020	ISSUED FOR CUSTOMER REVIEW	PAP	MPS
2	10/1/2019	ISSUED FOR CUSTOMER REVIEW	PAP	MPS

SEAL

Prepared for:
ARCADIS Design & Consultancy for natural and built assets
Arcadis U.S., Inc.
126 N Jefferson St., Suite 400
Milwaukee, WI 53202
Tel: (414)-276-7742
www.arcadis.com

Prepared by:
Presidio Systems, Inc.
Presidio Systems, Inc.
2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
www.presidiosystems.com

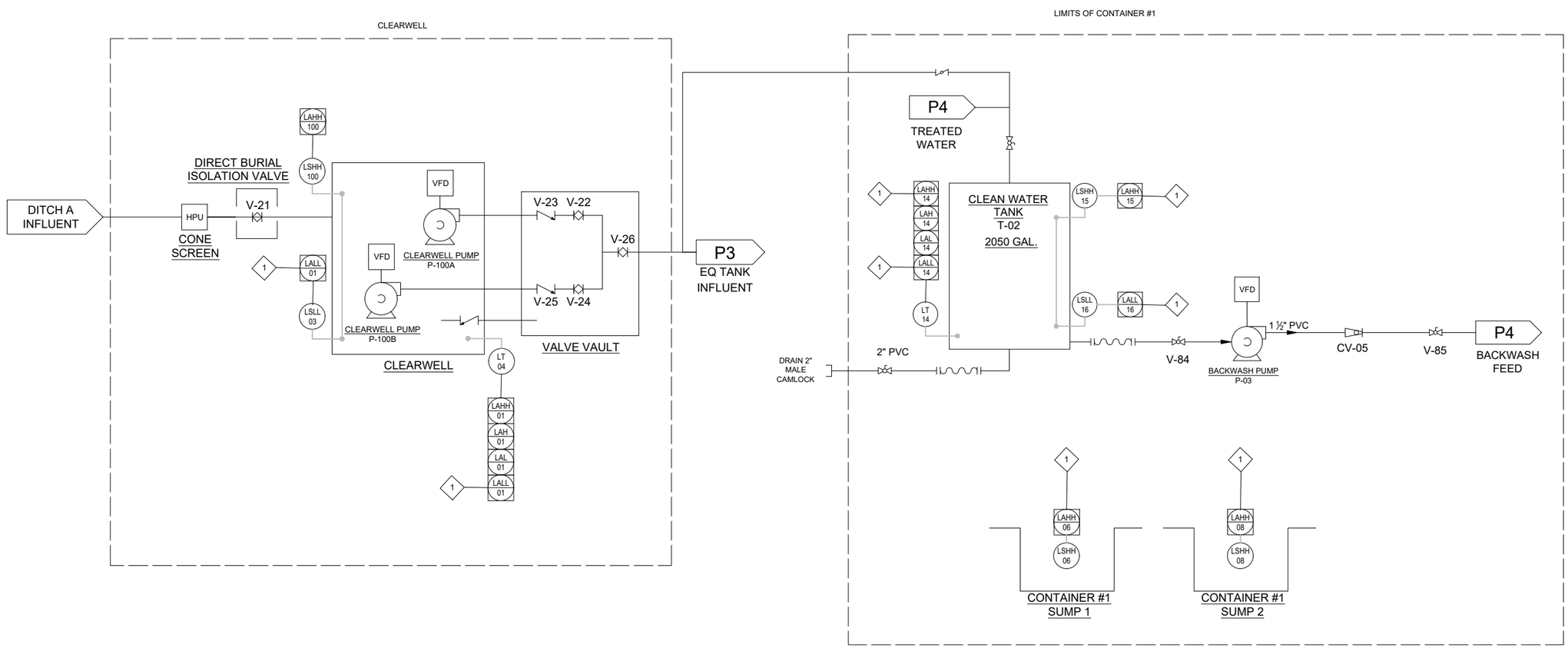
DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE
TYCO DITCH-A P&ID LEGEND SHEET

APPROVED BY MPS	CHECKED BY MPS
DESIGNED BY PAP	DRAWN BY PAP
PROJECT NUMBER Q14949	DRAWING NUMBER P-01
	SHEET 1 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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Prepared for:

Arcadis U.S., Inc.
126 N Jefferson St., Suite 400
Milwaukee, WI 53202
Tel: (414)-276-7742
www.arcadis.com

Prepared by:

Presidio Systems, Inc.
2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
www.presidiosystems.com

DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE
TYCO DITCH-A SYSTEM P&ID SHEET 1

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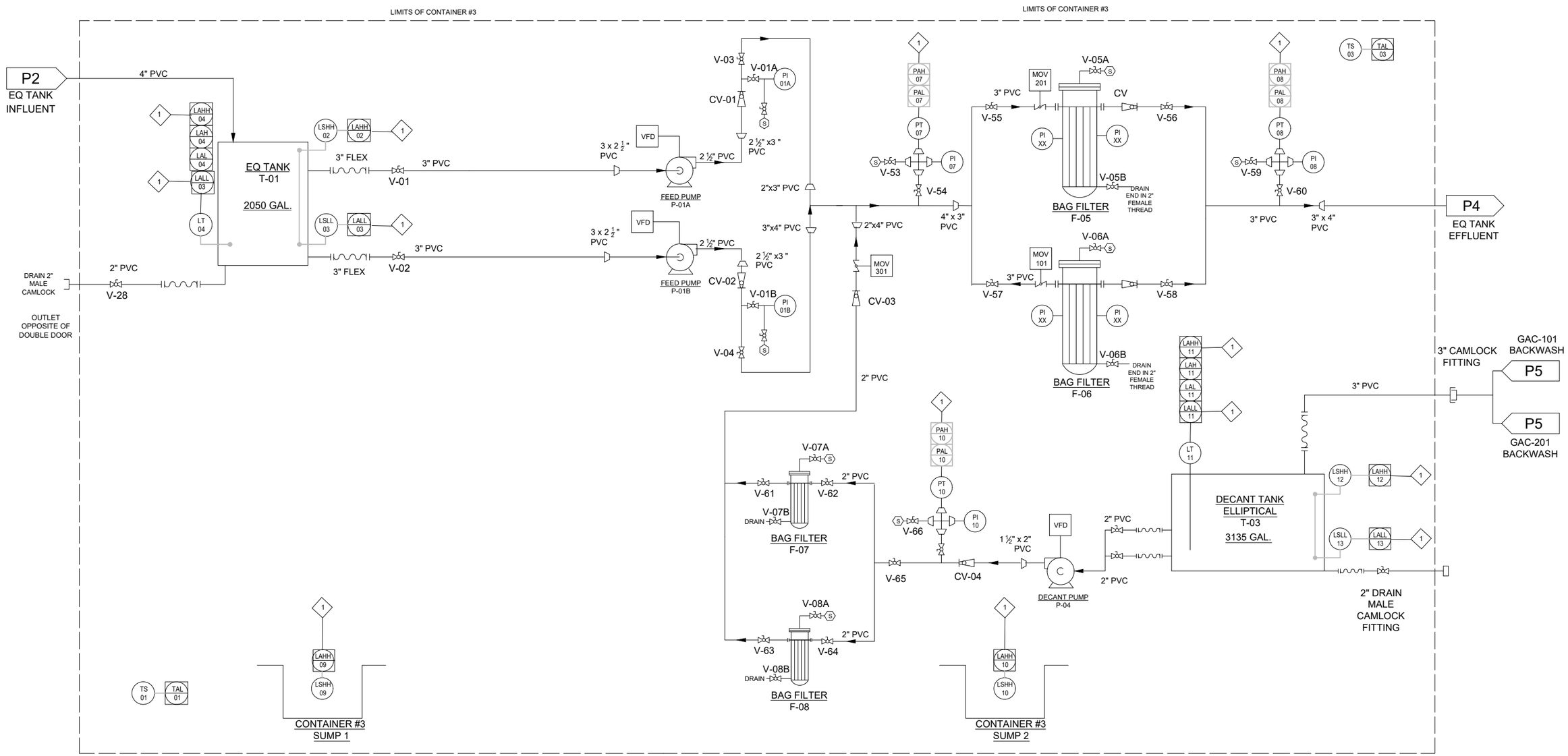
DESIGNED BY PAP	DRAWN BY PAP
PROJECT NUMBER Q14949	DRAWING NUMBER P-02
	SHEET 2 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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126 N Jefferson St., Suite 400
Milwaukee, WI 53202
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www.arcadis.com

Prepared by:

Presidio Systems, Inc.
2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
www.presidiosystems.com

DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE
TYCO DITCH-A SYSTEM P&ID SHEET 2

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INTERLOCK SCHEDULE

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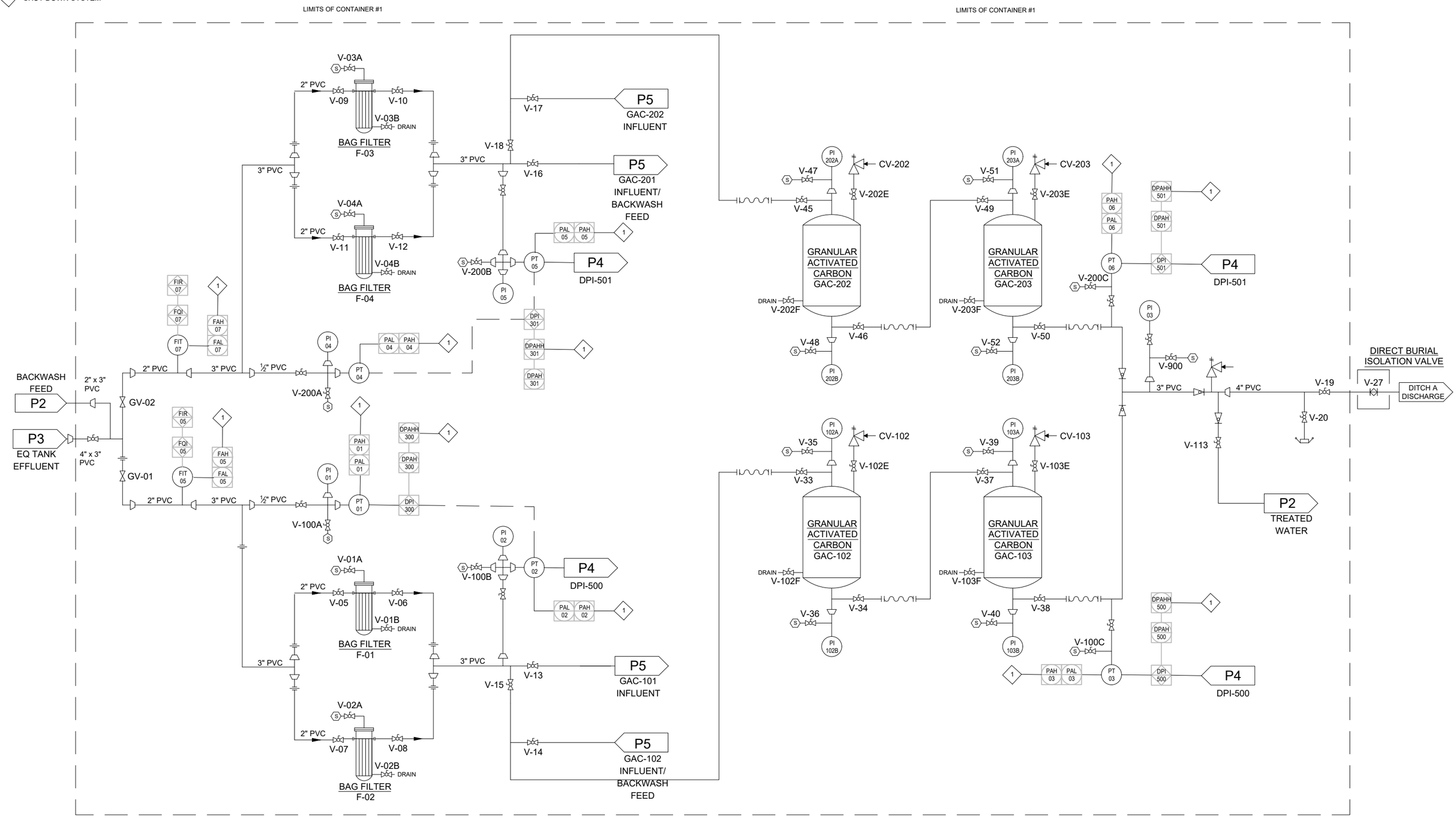

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Arcadis U.S., Inc.
126 N Jefferson St., Suite 400
Milwaukee, WI 53202
Tel: (414)-276-7742
www.arcadis.com

Prepared by:

Presidio Systems, Inc.
2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
www.presidiosystems.com

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SHEET TITLE
TYCO DITCH-A SYSTEM
P&ID SHEET 3

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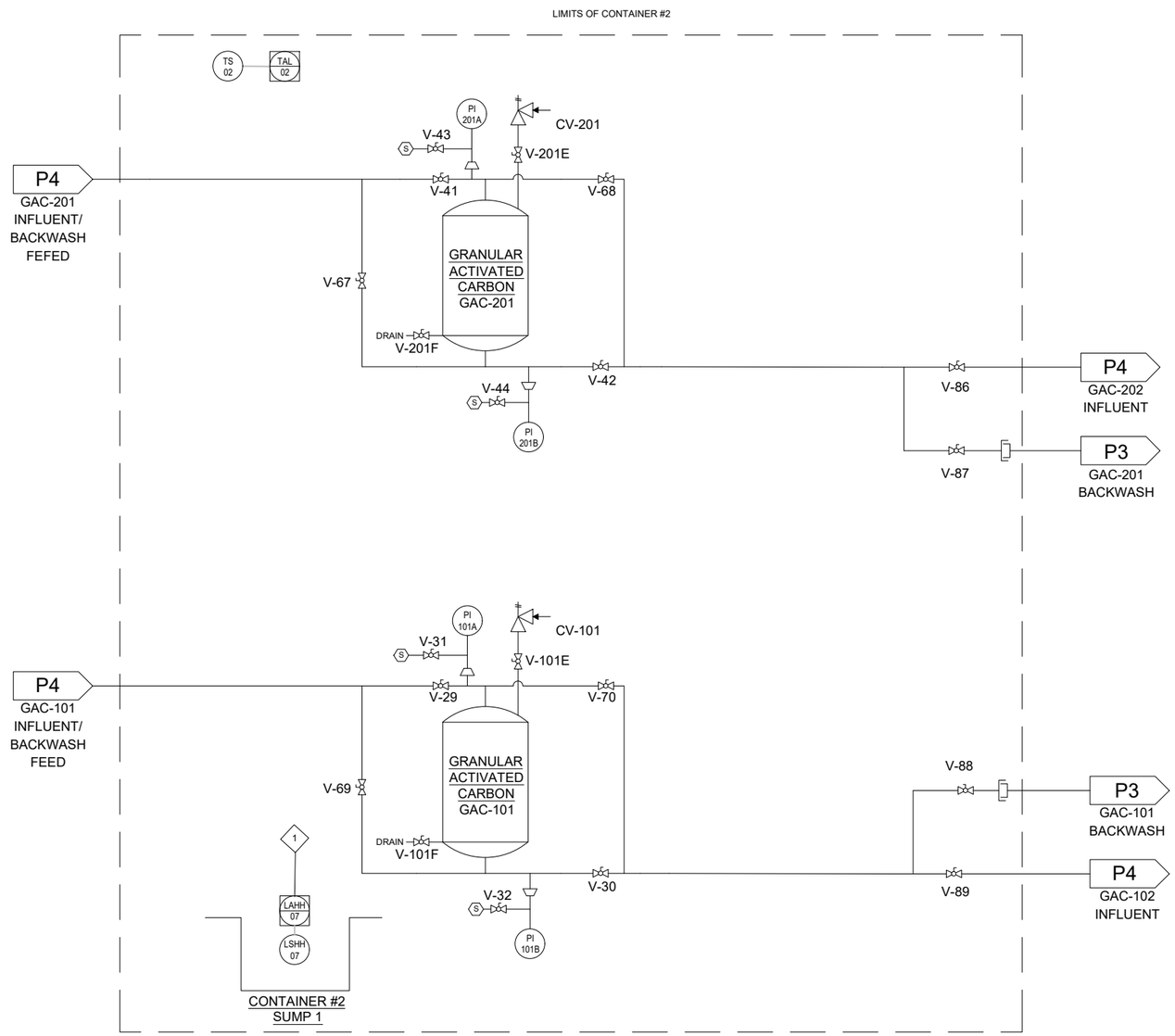
	SHEET 4 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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ARCADIS Design & Consultancy for natural and built assets

Arcadis U.S., Inc.
126 N Jefferson St., Suite 400
Milwaukee, WI 53202
Tel: (414)-276-7742
www.arcadis.com

Prepared by:

Presidio Systems, Inc.

Presidio Systems, Inc.
2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
www.presidiosystems.com

DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE

TYCO DITCH-A SYSTEM P&ID SHEET 4

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DESIGNED BY **PAP**	DRAWN BY **PAP**
PROJECT NUMBER **Q14949**	DRAWING NUMBER **P-05**
	SHEET **5** OF **5**

Appendix B

WPDES Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

Generated 7/11/2025 11:07:05 AM

JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-270980-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

Generated
7/11/2025 11:07:05 AM

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Client Sample Results 7
Definitions 15
QC Sample Results 16
Chronicle 24
Certification Summary 25
Chain of Custody 26
Receipt Checklists 27
Isotope Dilution Summary 28

Job Narrative
500-270980-1

Receipt
The samples were received on 7/2/2025 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6º C.

LCMS
Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-861758 recovered above the upper control limit for Perfluoropentanoic acid (PFPeA). The samples associated were re-analyzed with PFPeA within control limits. Both sets of data are reported.

Method 1633: Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: 500-270980-2, LLCS 320-861638/2-A and MB 320-861638/1-A. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 1633: The following samples were re-analyzed due to the continuing calibration verification low level (CCVL) AB861758 outside control limits for Perfluoropentanoic acid (PFPeA): 500-270980-1 and 500-270980-2.

Method 1633: The "C" 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. The associated analytes have been flagged: 500-270980-2.

Method 1633: Perfluorobutanesulfonic acid (PFBS) was detected above the method detection limit (MDL) in the method blank associated with preparation batch 320-861638 and analytical batch 320-861758 as well as in the following samples: 500-270980-1, 500-270980-2 and MB 320-861638/1-A. All affected samples were re-extracted outside of holding time. As the re-extraction also had 500-270980-1, 500-270980-2 and MB 320-861638/1-A above the MDL in the method blank the original data is reported. There is no sample volume available for another re-extraction.

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

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-270980-1	V-200-A	Water	07/01/25 09:30	07/02/25 09:30
500-270980-2	V-900-A	Water	07/01/25 09:35	07/02/25 09:30

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-200-A

Date Collected: 07/01/25 09:30
Date Received: 07/02/25 09:30

Lab Sample ID: 500-270980-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**44**		3.1	0.29	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoropentanoic acid (PFPeA)	**71**	^	1.6	0.18	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorohexanoic acid (PFHxA)	**37**		1.6	0.21	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoroheptanoic acid (PFHpA)	**30**		1.6	0.27	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorooctanoic acid (PFOA)	**150**		1.6	0.30	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorononanoic acid (PFNA)	**9.4**		1.6	0.35	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorodecanoic acid (PFDA)	**7.6**		1.6	0.34	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoroundecanoic acid (PFUnA)	**5.1**		1.6	0.18	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorododecanoic acid (PFDoA)	**0.72**	**J**	1.6	0.43	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.6	0.63	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorobutanesulfonic acid (PFBS)	**1.6**	**B**	1.6	0.22	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoropentanesulfonic acid (PFPeS)	**0.18**	**J**	1.6	0.17	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorohexanesulfonic acid (PFHxS)	**6.2**		1.6	0.19	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.42**	**J**	1.6	0.14	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorooctanesulfonic acid (PFOS)	**48**		1.6	0.22	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorododecanesulfonic acid (PFDoS)	<0.41		1.6	0.41	ng/L		07/07/25 19:22	07/08/25 19:51	1
4:2 FTS	**0.55**	**J**	3.1	0.34	ng/L		07/07/25 19:22	07/08/25 19:51	1
6:2 FTS	**130**		3.1	0.31	ng/L		07/07/25 19:22	07/08/25 19:51	1
8:2 FTS	**92**		3.1	0.70	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluorooctanesulfonamide (FOSA)	**3.9**		1.6	0.17	ng/L		07/07/25 19:22	07/08/25 19:51	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/07/25 19:22	07/08/25 19:51	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/08/25 19:51	1
NMeFOSAA	<0.27		1.6	0.27	ng/L		07/07/25 19:22	07/08/25 19:51	1
NEtFOSAA	**0.68**	**J**	1.6	0.34	ng/L		07/07/25 19:22	07/08/25 19:51	1
NMeFOSE	<1.8		7.8	1.8	ng/L		07/07/25 19:22	07/08/25 19:51	1
NEtFOSE	<1.9		7.8	1.9	ng/L		07/07/25 19:22	07/08/25 19:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.30		1.2	0.30	ng/L		07/07/25 19:22	07/08/25 19:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/08/25 19:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.56		1.6	0.56	ng/L		07/07/25 19:22	07/08/25 19:51	1
F-53B Major	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/08/25 19:51	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/07/25 19:22	07/08/25 19:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.19		1.6	0.19	ng/L		07/07/25 19:22	07/08/25 19:51	1

Client Sample ID: V-200-A
Lab Sample ID: 500-270980-1

Date Collected: 07/01/25 09:30
Date Received: 07/02/25 09:30
Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	**1.0**	**J**	3.1	0.56	ng/L		07/07/25 19:22	07/08/25 19:51	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**3.2**	**J**	7.8	1.3	ng/L		07/07/25 19:22	07/08/25 19:51	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.96		7.8	0.96	ng/L		07/07/25 19:22	07/08/25 19:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98.1*		*5 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C5 PFPeA	*94.3*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C5 PFHxA	*111*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C4 PFHpA	*100*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C8 PFOA	*91.3*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C9 PFNA	*88.1*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C6 PFDA	*104*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C7 PFUnA	*77.8*		*30 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C2 PFDoA	*62.8*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C2 PFTeDA	*51.1*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C3 PFBS	*86.9*		*40 - 135*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C3 PFHxS	*98.0*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C8 PFOS	*73.8*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C8 FOSA	*59.9*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d3-NMeFOSAA	*52.5*		*40 - 170*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d5-NEtFOSAA	*48.5*		*25 - 135*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
M2-4:2 FTS	*119*		*40 - 200*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
M2-6:2 FTS	*95.9*		*40 - 200*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
M2-8:2 FTS	*74.8*		*40 - 300*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
13C3 HFPO-DA	*89.4*		*40 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d7-N-MeFOSE-M	*43.1*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d9-N-EtFOSE-M	*38.9*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d5-NEtPFOSA	*41.2*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*
d3-NMePFOSA	*43.8*		*10 - 130*	*07/07/25 19:22*	*07/08/25 19:51*	*1*

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**44**		3.1	0.29	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoropentanoic acid (PFPeA)	**67**		1.6	0.18	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorohexanoic acid (PFHxA)	**37**		1.6	0.21	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoroheptanoic acid (PFHpA)	**32**		1.6	0.27	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorooctanoic acid (PFOA)	**140**		1.6	0.30	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorononanoic acid (PFNA)	**9.6**		1.6	0.35	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorodecanoic acid (PFDA)	**8.4**		1.6	0.34	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoroundecanoic acid (PFUnA)	**5.1**		1.6	0.18	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorododecanoic acid (PFDoA)	**0.81**	**J**	1.6	0.43	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.6	0.63	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorobutanesulfonic acid (PFBS)	**1.6**	**B**	1.6	0.22	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/07/25 19:22	07/09/25 14:33	1

Client Sample ID: V-200-A
Lab Sample ID: 500-270980-1

Date Collected: 07/01/25 09:30
Date Received: 07/02/25 09:30
Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**6.0**		1.6	0.19	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.38**	**J**	1.6	0.14	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorooctanesulfonic acid (PFOS)	**49**		1.6	0.22	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorododecanesulfonic acid (PFDoS)	<0.41		1.6	0.41	ng/L		07/07/25 19:22	07/09/25 14:33	1
4:2 FTS	**0.59**	**J**	3.1	0.34	ng/L		07/07/25 19:22	07/09/25 14:33	1
6:2 FTS	**130**		3.1	0.31	ng/L		07/07/25 19:22	07/09/25 14:33	1
8:2 FTS	**90**		3.1	0.70	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluorooctanesulfonamide (FOSA)	**4.1**		1.6	0.17	ng/L		07/07/25 19:22	07/09/25 14:33	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/07/25 19:22	07/09/25 14:33	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/09/25 14:33	1
NMeFOSAA	<0.27		1.6	0.27	ng/L		07/07/25 19:22	07/09/25 14:33	1
NEtFOSAA	**0.51**	**J**	1.6	0.34	ng/L		07/07/25 19:22	07/09/25 14:33	1
NMeFOSE	<1.8		7.8	1.8	ng/L		07/07/25 19:22	07/09/25 14:33	1
NEtFOSE	<1.9		7.8	1.9	ng/L		07/07/25 19:22	07/09/25 14:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.30		1.2	0.30	ng/L		07/07/25 19:22	07/09/25 14:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/09/25 14:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.56		1.6	0.56	ng/L		07/07/25 19:22	07/09/25 14:33	1
F-53B Major	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/09/25 14:33	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/07/25 19:22	07/09/25 14:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.19		1.6	0.19	ng/L		07/07/25 19:22	07/09/25 14:33	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	**1.2**	**J**	3.1	0.56	ng/L		07/07/25 19:22	07/09/25 14:33	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**3.4**	**J**	7.8	1.3	ng/L		07/07/25 19:22	07/09/25 14:33	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.96		7.8	0.96	ng/L		07/07/25 19:22	07/09/25 14:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95.6*		*5 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C5 PFPeA	*96.7*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C5 PFHxA	*109*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C4 PFHpA	*99.7*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C8 PFOA	*91.9*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C9 PFNA	*86.5*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C6 PFDA	*93.4*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C7 PFUnA	*75.1*		*30 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C2 PFDoA	*60.4*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C2 PFTeDA	*50.8*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:33*	*1*
13C3 PFBS	*86.1*		*40 - 135*	*07/07/25 19:22*	*07/09/25 14:33*	*1*

Client Sample ID: V-200-A
Lab Sample ID: 500-270980-1

Date Collected: 07/01/25 09:30
Matrix: Water
Date Received: 07/02/25 09:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	93.3		40 - 130	07/07/25 19:22	07/09/25 14:33	1
13C8 PFOS	73.9		40 - 130	07/07/25 19:22	07/09/25 14:33	1
13C8 FOSA	59.9		40 - 130	07/07/25 19:22	07/09/25 14:33	1
d3-NMeFOSAA	51.0		40 - 170	07/07/25 19:22	07/09/25 14:33	1
d5-NEtFOSAA	47.2		25 - 135	07/07/25 19:22	07/09/25 14:33	1
M2-4:2 FTS	112		40 - 200	07/07/25 19:22	07/09/25 14:33	1
M2-6:2 FTS	85.0		40 - 200	07/07/25 19:22	07/09/25 14:33	1
M2-8:2 FTS	68.1		40 - 300	07/07/25 19:22	07/09/25 14:33	1
13C3 HFPO-DA	87.3		40 - 130	07/07/25 19:22	07/09/25 14:33	1
d7-N-MeFOSE-M	39.5		10 - 130	07/07/25 19:22	07/09/25 14:33	1
d9-N-EtFOSE-M	34.7		10 - 130	07/07/25 19:22	07/09/25 14:33	1
d5-NEtPFOSA	40.5		10 - 130	07/07/25 19:22	07/09/25 14:33	1
d3-NMePFOSA	40.4		10 - 130	07/07/25 19:22	07/09/25 14:33	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-900-A

Date Collected: 07/01/25 09:35
Date Received: 07/02/25 09:30

Lab Sample ID: 500-270980-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**30**		3.1	0.29	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoropentanoic acid (PFPeA)	**18**	**^**	1.6	0.18	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorohexanoic acid (PFHxA)	**1.2**	**J**	1.6	0.21	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoroheptanoic acid (PFHpA)	<0.27		1.6	0.27	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorooctanoic acid (PFOA)	**0.50**	**J**	1.6	0.31	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorononanoic acid (PFNA)	<0.36		1.6	0.36	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorodecanoic acid (PFDA)	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoroundecanoic acid (PFUnA)	<0.18		1.6	0.18	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorododecanoic acid (PFDoA)	<0.44		1.6	0.44	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.6	0.64	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorobutanesulfonic acid (PFBS)	**0.42**	**J B**	1.6	0.22	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.6	0.19	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.14		1.6	0.14	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorooctanesulfonic acid (PFOS)	<0.22		1.6	0.22	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorododecanesulfonic acid (PFDoS)	<0.42		1.6	0.42	ng/L		07/07/25 19:22	07/08/25 20:07	1
4:2 FTS	<0.34		3.1	0.34	ng/L		07/07/25 19:22	07/08/25 20:07	1
6:2 FTS	<0.32		3.1	0.32	ng/L		07/07/25 19:22	07/08/25 20:07	1
8:2 FTS	<0.71		3.1	0.71	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluorooctanesulfonamide (FOSA)	<0.18		1.6	0.18	ng/L		07/07/25 19:22	07/08/25 20:07	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/07/25 19:22	07/08/25 20:07	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/08/25 20:07	1
NMeFOSAA	<0.28		1.6	0.28	ng/L		07/07/25 19:22	07/08/25 20:07	1
NEtFOSAA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/08/25 20:07	1
NMeFOSE	<1.8		7.9	1.8	ng/L		07/07/25 19:22	07/08/25 20:07	1
NEtFOSE	<1.9		7.9	1.9	ng/L		07/07/25 19:22	07/08/25 20:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/07/25 19:22	07/08/25 20:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/08/25 20:07	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.57		1.6	0.57	ng/L		07/07/25 19:22	07/08/25 20:07	1
F-53B Major	<0.46		1.6	0.46	ng/L		07/07/25 19:22	07/08/25 20:07	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/07/25 19:22	07/08/25 20:07	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/08/25 20:07	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.57		3.1	0.57	ng/L		07/07/25 19:22	07/08/25 20:07	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.4		7.9	1.4	ng/L		07/07/25 19:22	07/08/25 20:07	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.98		7.9	0.98	ng/L		07/07/25 19:22	07/08/25 20:07	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-900-A

Date Collected: 07/01/25 09:35
Date Received: 07/02/25 09:30

Lab Sample ID: 500-270980-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	101		5 - 130	07/07/25 19:22	07/08/25 20:07	1
13C5 PFPeA	114		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C5 PFHxA	136	*	40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C4 PFHpA	119		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C8 PFOA	97.3		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C9 PFNA	93.3		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C6 PFDA	102		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C7 PFUnA	82.6		30 - 130	07/07/25 19:22	07/08/25 20:07	1
13C2 PFDoA	60.3		10 - 130	07/07/25 19:22	07/08/25 20:07	1
13C2 PFTeDA	55.3		10 - 130	07/07/25 19:22	07/08/25 20:07	1
13C3 PFBS	91.0		40 - 135	07/07/25 19:22	07/08/25 20:07	1
13C3 PFHxS	96.9		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C8 PFOS	74.8		40 - 130	07/07/25 19:22	07/08/25 20:07	1
13C8 FOSA	61.4		40 - 130	07/07/25 19:22	07/08/25 20:07	1
d3-NMeFOSAA	56.2		40 - 170	07/07/25 19:22	07/08/25 20:07	1
d5-NEtFOSAA	50.1		25 - 135	07/07/25 19:22	07/08/25 20:07	1
M2-4:2 FTS	110		40 - 200	07/07/25 19:22	07/08/25 20:07	1
M2-6:2 FTS	95.9		40 - 200	07/07/25 19:22	07/08/25 20:07	1
M2-8:2 FTS	77.4		40 - 300	07/07/25 19:22	07/08/25 20:07	1
13C3 HFPO-DA	105		40 - 130	07/07/25 19:22	07/08/25 20:07	1
d7-N-MeFOSE-M	41.0		10 - 130	07/07/25 19:22	07/08/25 20:07	1
d9-N-EtFOSE-M	38.4		10 - 130	07/07/25 19:22	07/08/25 20:07	1
d5-NEtPFOSA	42.2		10 - 130	07/07/25 19:22	07/08/25 20:07	1
d3-NMePFOSA	42.5		10 - 130	07/07/25 19:22	07/08/25 20:07	1

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**32**		3.1	0.29	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoropentanoic acid (PFPeA)	**18**		1.6	0.18	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J C**	1.6	0.21	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoroheptanoic acid (PFHpA)	<0.27		1.6	0.27	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorooctanoic acid (PFOA)	**0.63**	**J**	1.6	0.31	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorononanoic acid (PFNA)	<0.36		1.6	0.36	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorodecanoic acid (PFDA)	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoroundecanoic acid (PFUnA)	<0.18		1.6	0.18	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorododecanoic acid (PFDoA)	<0.44		1.6	0.44	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.6	0.64	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorobutanesulfonic acid (PFBS)	**0.46**	**J B**	1.6	0.22	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.6	0.19	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.14		1.6	0.14	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorooctanesulfonic acid (PFOS)	<0.22		1.6	0.22	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorododecanesulfonic acid (PFDoS)	<0.42		1.6	0.42	ng/L		07/07/25 19:22	07/09/25 14:49	1
4:2 FTS	<0.34		3.1	0.34	ng/L		07/07/25 19:22	07/09/25 14:49	1
6:2 FTS	<0.32		3.1	0.32	ng/L		07/07/25 19:22	07/09/25 14:49	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-900-A

Date Collected: 07/01/25 09:35
Date Received: 07/02/25 09:30

Lab Sample ID: 500-270980-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	<0.71		3.1	0.71	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluorooctanesulfonamide (FOSA)	<0.18		1.6	0.18	ng/L		07/07/25 19:22	07/09/25 14:49	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/07/25 19:22	07/09/25 14:49	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/09/25 14:49	1
NMeFOSAA	<0.28		1.6	0.28	ng/L		07/07/25 19:22	07/09/25 14:49	1
NEtFOSAA	<0.35		1.6	0.35	ng/L		07/07/25 19:22	07/09/25 14:49	1
NMeFOSE	<1.8		7.9	1.8	ng/L		07/07/25 19:22	07/09/25 14:49	1
NEtFOSE	<1.9		7.9	1.9	ng/L		07/07/25 19:22	07/09/25 14:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/07/25 19:22	07/09/25 14:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/09/25 14:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.57		1.6	0.57	ng/L		07/07/25 19:22	07/09/25 14:49	1
F-53B Major	<0.46		1.6	0.46	ng/L		07/07/25 19:22	07/09/25 14:49	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/07/25 19:22	07/09/25 14:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/07/25 19:22	07/09/25 14:49	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.57		3.1	0.57	ng/L		07/07/25 19:22	07/09/25 14:49	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.4		7.9	1.4	ng/L		07/07/25 19:22	07/09/25 14:49	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.98		7.9	0.98	ng/L		07/07/25 19:22	07/09/25 14:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.0*		*5 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C5 PFPeA	*105*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C5 PFHxA	*113*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C4 PFHpA	*103*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C8 PFOA	*97.0*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C9 PFNA	*88.1*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C6 PFDA	*95.8*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C7 PFUnA	*79.7*		*30 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C2 PFDoA	*58.0*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C2 PFTeDA	*53.7*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C3 PFBS	*92.9*		*40 - 135*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C3 PFHxS	*97.8*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C8 PFOS	*76.7*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C8 FOSA	*63.6*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
d3-NMeFOSAA	*55.4*		*40 - 170*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
d5-NEtFOSAA	*48.6*		*25 - 135*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
M2-4:2 FTS	*107*		*40 - 200*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
M2-6:2 FTS	*95.8*		*40 - 200*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
M2-8:2 FTS	*75.4*		*40 - 300*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
13C3 HFPO-DA	*95.6*		*40 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
d7-N-MeFOSE-M	*41.7*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*
d9-N-EtFOSE-M	*39.2*		*10 - 130*	*07/07/25 19:22*	*07/09/25 14:49*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-900-A

Date Collected: 07/01/25 09:35
Date Received: 07/02/25 09:30

Lab Sample ID: 500-270980-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtPFOSA	42.0		10 - 130	07/07/25 19:22	07/09/25 14:49	1
d3-NMePFOSA	43.3		10 - 130	07/07/25 19:22	07/09/25 14:49	1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
B	Compound was found in the blank and sample.
C	See Case Narrative
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-861638/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorobutanesulfonic acid (PFBS)	0.455	J	2.0	0.28	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/07/25 19:22	07/08/25 15:59	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/07/25 19:22	07/08/25 15:59	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/07/25 19:22	07/08/25 15:59	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/07/25 19:22	07/08/25 15:59	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/07/25 19:22	07/08/25 15:59	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/07/25 19:22	07/08/25 15:59	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/07/25 19:22	07/08/25 15:59	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/07/25 19:22	07/08/25 15:59	1
NMeFOSE	<2.3		10	2.3	ng/L		07/07/25 19:22	07/08/25 15:59	1
NEtFOSE	<2.4		10	2.4	ng/L		07/07/25 19:22	07/08/25 15:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/07/25 19:22	07/08/25 15:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/07/25 19:22	07/08/25 15:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/07/25 19:22	07/08/25 15:59	1
F-53B Major	<0.58		2.0	0.58	ng/L		07/07/25 19:22	07/08/25 15:59	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/07/25 19:22	07/08/25 15:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/07/25 19:22	07/08/25 15:59	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/07/25 19:22	07/08/25 15:59	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/07/25 19:22	07/08/25 15:59	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/07/25 19:22	07/08/25 15:59	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	103		5 - 130	07/07/25 19:22	07/08/25 15:59	1
13C5 PFPeA	113		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C5 PFHxA	132	*	40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C4 PFHpA	124		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C8 PFOA	102		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C9 PFNA	104		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C6 PFDA	111		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C7 PFUnA	102		30 - 130	07/07/25 19:22	07/08/25 15:59	1
13C2 PFDoA	86.2		10 - 130	07/07/25 19:22	07/08/25 15:59	1
13C2 PFTeDA	94.6		10 - 130	07/07/25 19:22	07/08/25 15:59	1
13C3 PFBS	89.4		40 - 135	07/07/25 19:22	07/08/25 15:59	1
13C3 PFHxS	101		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C8 PFOS	88.1		40 - 130	07/07/25 19:22	07/08/25 15:59	1
13C8 FOSA	70.1		40 - 130	07/07/25 19:22	07/08/25 15:59	1
d3-NMeFOSAA	72.1		40 - 170	07/07/25 19:22	07/08/25 15:59	1
d5-NEtFOSAA	67.9		25 - 135	07/07/25 19:22	07/08/25 15:59	1
M2-4:2 FTS	114		40 - 200	07/07/25 19:22	07/08/25 15:59	1
M2-6:2 FTS	107		40 - 200	07/07/25 19:22	07/08/25 15:59	1
M2-8:2 FTS	98.5		40 - 300	07/07/25 19:22	07/08/25 15:59	1
13C3 HFPO-DA	100		40 - 130	07/07/25 19:22	07/08/25 15:59	1
d7-N-MeFOSE-M	69.0		10 - 130	07/07/25 19:22	07/08/25 15:59	1
d9-N-EtFOSE-M	67.3		10 - 130	07/07/25 19:22	07/08/25 15:59	1
d5-NEtPFOSA	66.7		10 - 130	07/07/25 19:22	07/08/25 15:59	1
d3-NMePFOSA	60.3		10 - 130	07/07/25 19:22	07/08/25 15:59	1

Lab Sample ID: LCS 320-861638/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	71.2		ng/L		89	70 - 140
Perfluorohexanoic acid (PFHxA)	40.0	30.5		ng/L		76	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	35.9		ng/L		90	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.2		ng/L		95	70 - 150
Perfluorononanoic acid (PFNA)	40.0	40.0		ng/L		100	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	33.3		ng/L		83	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	35.1		ng/L		88	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	42.7		ng/L		107	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	37.7		ng/L		94	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	40.6		ng/L		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	33.9		ng/L		95	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	31.6		ng/L		84	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	28.6		ng/L		78	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.6		ng/L		96	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	34.9		ng/L		94	55 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-861638/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	38.5	32.9		ng/L		86	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	29.2		ng/L		76	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	30.6		ng/L		79	50 - 145
4:2 FTS	75.0	73.1		ng/L		97	70 - 145
6:2 FTS	76.2	65.9		ng/L		87	65 - 155
8:2 FTS	76.8	74.0		ng/L		96	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	39.1		ng/L		98	70 - 145
NMeFOSA	40.0	41.1		ng/L		103	60 - 150
NEtFOSA	40.0	37.4		ng/L		94	65 - 145
NMeFOSAA	40.0	37.1		ng/L		93	50 - 140
NEtFOSAA	40.0	36.8		ng/L		92	70 - 145
NMeFOSE	200	187		ng/L		93	70 - 145
NEtFOSE	200	194		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	24.1		ng/L		80	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	40.5		ng/L		107	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	35.3		ng/L		88	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	35.7		ng/L		89	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	25.2		ng/L		63	50 - 150
F-53B Major	37.4	36.5		ng/L		98	70 - 155
F-53B Minor	37.8	30.0		ng/L		79	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	32.8		ng/L		92	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	70.7		ng/L		88	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	145		ng/L		73	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	120		ng/L		60	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*100*		*5 - 130*
13C5 PFPeA	*107*		*40 - 130*
13C5 PFHxA	*122*		*40 - 130*
13C4 PFHpA	*112*		*40 - 130*
13C8 PFOA	*105*		*40 - 130*
13C9 PFNA	*90.9*		*40 - 130*
13C6 PFDA	*109*		*40 - 130*
13C7 PFUnA	*89.8*		*30 - 130*
13C2 PFDoA	*68.6*		*10 - 130*
13C2 PFTeDA	*70.7*		*10 - 130*
13C3 PFBS	*89.5*		*40 - 135*
13C3 PFHxS	*99.6*		*40 - 130*
13C8 PFOS	*86.0*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-861638/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*59.2*		*40 - 130*
d3-NMeFOSAA	*63.5*		*40 - 170*
d5-NEtFOSAA	*56.7*		*25 - 135*
M2-4:2 FTS	*109*		*40 - 200*
M2-6:2 FTS	*109*		*40 - 200*
M2-8:2 FTS	*93.0*		*40 - 300*
13C3 HFPO-DA	*97.6*		*40 - 130*
d7-N-MeFOSE-M	*57.3*		*10 - 130*
d9-N-EtFOSE-M	*55.2*		*10 - 130*
d5-NEtPFOSA	*61.2*		*10 - 130*
d3-NMePFOSA	*57.3*		*10 - 130*

Lab Sample ID: LCSD 320-861638/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	68.8		ng/L		86	70 - 140	3	30
Perfluorohexanoic acid (PFHxA)	40.0	32.0		ng/L		80	70 - 145	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	32.5		ng/L		81	70 - 150	10	30
Perfluorooctanoic acid (PFOA)	40.0	39.9		ng/L		100	70 - 150	4	30
Perfluorononanoic acid (PFNA)	40.0	38.0		ng/L		95	70 - 150	5	30
Perfluorodecanoic acid (PFDA)	40.0	34.6		ng/L		86	70 - 140	4	30
Perfluoroundecanoic acid (PFUnA)	40.0	34.6		ng/L		87	70 - 145	1	30
Perfluorododecanoic acid (PFDoA)	40.0	39.0		ng/L		98	70 - 140	9	30
Perfluorotridecanoic acid (PFTriA)	40.0	35.2		ng/L		88	65 - 140	7	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.6		ng/L		99	60 - 140	2	30
Perfluorobutanesulfonic acid (PFBS)	35.5	31.7		ng/L		89	60 - 145	7	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	31.4		ng/L		84	65 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	26.8		ng/L		73	65 - 145	7	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.7		ng/L		99	70 - 150	3	30
Perfluorooctanesulfonic acid (PFOS)	37.2	34.6		ng/L		93	55 - 150	1	30
Perfluorononanesulfonic acid (PFNS)	38.5	35.2		ng/L		91	65 - 145	7	30
Perfluorodecanesulfonic acid (PFDS)	38.6	32.0		ng/L		83	60 - 145	9	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	32.0		ng/L		83	50 - 145	5	30
4:2 FTS	75.0	69.9		ng/L		93	70 - 145	4	30
6:2 FTS	76.2	68.7		ng/L		90	65 - 155	4	30
8:2 FTS	76.8	72.8		ng/L		95	60 - 150	2	30
Perfluorooctanesulfonamide (FOSA)	40.0	37.8		ng/L		94	70 - 145	3	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-861638/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NMeFOSA			40.0	42.0		ng/L		105	60 - 150	2	30
NEtFOSA			40.0	35.9		ng/L		90	65 - 145	4	30
NMeFOSAA			40.0	38.0		ng/L		95	50 - 140	2	30
NEtFOSAA			40.0	35.9		ng/L		90	70 - 145	2	30
NMeFOSE			200	194		ng/L		97	70 - 145	4	30
NEtFOSE			200	184		ng/L		92	70 - 135	5	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	23.4		ng/L		78	70 - 140	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	37.1		ng/L		98	65 - 145	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	33.1		ng/L		83	55 - 140	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	35.6		ng/L		89	60 - 150	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	29.2		ng/L		73	50 - 150	15	30
F-53B Major			37.4	34.1		ng/L		91	70 - 155	7	30
F-53B Minor			37.8	31.8		ng/L		84	55 - 160	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	31.0		ng/L		87	70 - 140	6	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	68.5		ng/L		86	65 - 130	3	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	143		ng/L		71	70 - 135	2	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	136		ng/L		68	50 - 145	13	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*101*		*5 - 130*
13C5 PFPeA	*110*		*40 - 130*
13C5 PFHxA	*123*		*40 - 130*
13C4 PFHpA	*123*		*40 - 130*
13C8 PFOA	*102*		*40 - 130*
13C9 PFNA	*99.0*		*40 - 130*
13C6 PFDA	*115*		*40 - 130*
13C7 PFUnA	*98.9*		*30 - 130*
13C2 PFDoA	*84.4*		*10 - 130*
13C2 PFTeDA	*82.0*		*10 - 130*
13C3 PFBS	*92.7*		*40 - 135*
13C3 PFHxS	*105*		*40 - 130*
13C8 PFOS	*84.9*		*40 - 130*
13C8 FOSA	*65.9*		*40 - 130*
d3-NMeFOSAA	*65.9*		*40 - 170*
d5-NEtFOSAA	*60.4*		*25 - 135*
M2-4:2 FTS	*113*		*40 - 200*
M2-6:2 FTS	*111*		*40 - 200*
M2-8:2 FTS	*96.8*		*40 - 300*
13C3 HFPO-DA	*106*		*40 - 130*
d7-N-MeFOSE-M	*61.8*		*10 - 130*
d9-N-EtFOSE-M	*64.7*		*10 - 130*
d5-NEtPFOSA	*65.5*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-861638/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
d3-NMePFOSA	*58.2*		*10 - 130*

Lab Sample ID: LLCS 320-861638/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	7.67		ng/L		96	70 - 140
Perfluorohexanoic acid (PFHxA)	4.00	3.21		ng/L		80	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.57		ng/L		89	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.22		ng/L		106	70 - 150
Perfluorononanoic acid (PFNA)	4.00	4.02		ng/L		101	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.74		ng/L		93	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	3.73		ng/L		93	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	3.98		ng/L		100	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.78		ng/L		95	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.18		ng/L		104	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.69		ng/L		104	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.29		ng/L		87	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.19		ng/L		88	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.54		ng/L		93	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.89		ng/L		105	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.95		ng/L		103	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.16		ng/L		82	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.60		ng/L		93	50 - 145
4:2 FTS	7.50	7.66		ng/L		102	70 - 145
6:2 FTS	7.62	7.47		ng/L		98	65 - 155
8:2 FTS	7.68	7.44		ng/L		97	60 - 150
Perfluorooctanesulfonamide (FOSA)	4.00	4.14		ng/L		104	70 - 145
NMeFOSA	4.00	4.50		ng/L		113	60 - 150
NEtFOSA	4.00	4.05		ng/L		101	65 - 145
NMeFOSAA	4.00	3.75		ng/L		94	50 - 140
NEtFOSAA	4.00	3.73		ng/L		93	70 - 145
NMeFOSE	20.0	22.0		ng/L		110	70 - 145
NEtFOSE	20.0	19.5		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.32		ng/L		77	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	4.07		ng/L		108	65 - 145

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-861638/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861758 **Prep Batch: 861638**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.58		ng/L		90	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	3.71		ng/L		93	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	3.11		ng/L		78	50 - 150
F-53B Major	3.74	3.81		ng/L		102	70 - 155
F-53B Minor	3.78	3.62		ng/L		96	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.07		ng/L		86	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	7.30		ng/L		91	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	13.9		ng/L		70	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	13.9		ng/L		70	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*103*		*5 - 130*
13C5 PFPeA	*110*		*40 - 130*
13C5 PFHxA	*135*	*	*40 - 130*
13C4 PFHpA	*122*		*40 - 130*
13C8 PFOA	*101*		*40 - 130*
13C9 PFNA	*92.8*		*40 - 130*
13C6 PFDA	*104*		*40 - 130*
13C7 PFUnA	*98.7*		*30 - 130*
13C2 PFDoA	*83.8*		*10 - 130*
13C2 PFTeDA	*81.3*		*10 - 130*
13C3 PFBS	*88.6*		*40 - 135*
13C3 PFHxS	*96.8*		*40 - 130*
13C8 PFOS	*85.5*		*40 - 130*
13C8 FOSA	*65.2*		*40 - 130*
d3-NMeFOSAA	*72.2*		*40 - 170*
d5-NEtFOSAA	*67.3*		*25 - 135*
M2-4:2 FTS	*115*		*40 - 200*
M2-6:2 FTS	*110*		*40 - 200*
M2-8:2 FTS	*98.4*		*40 - 300*
13C3 HFPO-DA	*104*		*40 - 130*
d7-N-MeFOSE-M	*62.5*		*10 - 130*
d9-N-EtFOSE-M	*68.2*		*10 - 130*
d5-NEtPFOSA	*64.3*		*10 - 130*
d3-NMePFOSA	*59.7*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-861638/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 861872 **Prep Batch: 861638**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA) - RA	<0.23		2.0	0.23	ng/L		07/07/25 19:22	07/09/25 10:42	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA - RA	112		40 - 130	07/07/25 19:22	07/09/25 10:42	1

Lab Sample ID: LCS 320-861638/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861872 — **Prep Batch: 861638**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanoic acid (PFPeA) - RA			40.0	42.7		ng/L		107	65 - 135		

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C5 PFPeA - RA	108		40 - 130

Lab Sample ID: LCSD 320-861638/4-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861872 — **Prep Batch: 861638**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA) - RA			40.0	43.0		ng/L		108	65 - 135	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C5 PFPeA - RA	113		40 - 130

Lab Sample ID: LLCS 320-861638/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 861872 — **Prep Batch: 861638**

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanoic acid (PFPeA) - RA			4.00	4.89		ng/L		122	65 - 135		

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C5 PFPeA - RA	106		40 - 130

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Client Sample ID: V-200-A

Lab Sample ID: 500-270980-1

Date Collected: 07/01/25 09:30
Date Received: 07/02/25 09:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			861638	CJS	EET SAC	07/07/25 19:22
Total/NA	Analysis	1633A		1	861758	RS1	EET SAC	07/08/25 19:51
Total/NA	Prep	1633	RA		861638	CJS	EET SAC	07/07/25 19:22
Total/NA	Analysis	1633A	RA	1	861872	EYY	EET SAC	07/09/25 14:33

Client Sample ID: V-900-A

Lab Sample ID: 500-270980-2

Date Collected: 07/01/25 09:35
Date Received: 07/02/25 09:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			861638	CJS	EET SAC	07/07/25 19:22
Total/NA	Analysis	1633A		1	861758	RS1	EET SAC	07/08/25 20:07
Total/NA	Prep	1633	RA		861638	CJS	EET SAC	07/07/25 19:22
Total/NA	Analysis	1633A	RA	1	861872	EYY	EET SAC	07/09/25 14:49

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-270980-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins TestAmerica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

eurofins

Regulatory Program: | DW | NPDES ☐ RCRA | Other:

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-1-25	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time			
Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
FAX	TAT if different from Below _____			Walk-in Client:
Project Name: Marinette, WI	☐ 2 weeks			Lab Sampling:
Site. Marinette, WI	☑ 1 week			
P O # 30284780.4.1.1 (WPDES)	☐ 2 days			Lab Project Number
	☐ 1 day			50015522

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	PFAS EPA 1633 (40 Compounds)	Sample Specific Notes:
V-200-A	7-1-25	9:30	G	W	2	N	N	X	System Influent
V-900-A	↓	9:35	G	W	2	N	N	X	System Effluent

500-270980 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
7-Day TAT Max or Prelim Report by Day 7
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C). Obs'd: 2.6 Corr'd: 2.6		Therm ID No.: 6d
Relinquished by: Jacob Raminger	Company: Barley Excavating	Date/Time: 7-1-25/1500	Received by: Fed Ex	Company	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time: 7/2/25 930
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company	Date/Time:

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-270980-1

Login Number: 270980
List Number: 1
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 07/02/25 04:00 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	9730395
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	2.6c
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.	N/A	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-270980-1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
500-270980-1	V-200-A	98.1	94.3	111	100	91.3	88.1	104	77.8
500-270980-1 - RA	V-200-A	95.6	96.7	109	99.7	91.9	86.5	93.4	75.1
500-270980-2	V-900-A	101	114	136 *	119	97.3	93.3	102	82.6
500-270980-2 - RA	V-900-A	94.0	105	113	103	97.0	88.1	95.8	79.7
LCS 320-861638/3-A	Lab Control Sample	100	107	122	112	105	90.9	109	89.8
LCS 320-861638/3-A - RA	Lab Control Sample		108						
LCSD 320-861638/4-A	Lab Control Sample Dup	101	110	123	123	102	99.0	115	98.9
LCSD 320-861638/4-A - RA	Lab Control Sample Dup		113						
LLCS 320-861638/2-A	Lab Control Sample	103	110	135 *	122	101	92.8	104	98.7
LLCS 320-861638/2-A - RA	Lab Control Sample		106						
MB 320-861638/1-A	Method Blank	103	113	132 *	124	102	104	111	102
MB 320-861638/1-A - RA	Method Blank		112						

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
500-270980-1	V-200-A	62.8	51.1	86.9	98.0	73.8	59.9	52.5	48.5
500-270980-1 - RA	V-200-A	60.4	50.8	86.1	93.3	73.9	59.9	51.0	47.2
500-270980-2	V-900-A	60.3	55.3	91.0	96.9	74.8	61.4	56.2	50.1
500-270980-2 - RA	V-900-A	58.0	53.7	92.9	97.8	76.7	63.6	55.4	48.6
LCS 320-861638/3-A	Lab Control Sample	68.6	70.7	89.5	99.6	86.0	59.2	63.5	56.7
LCS 320-861638/3-A - RA	Lab Control Sample								
LCSD 320-861638/4-A	Lab Control Sample Dup	84.4	82.0	92.7	105	84.9	65.9	65.9	60.4
LCSD 320-861638/4-A - RA	Lab Control Sample Dup								
LLCS 320-861638/2-A	Lab Control Sample	83.8	81.3	88.6	96.8	85.5	65.2	72.2	67.3
LLCS 320-861638/2-A - RA	Lab Control Sample								
MB 320-861638/1-A	Method Blank	86.2	94.6	89.4	101	88.1	70.1	72.1	67.9
MB 320-861638/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA
Lab Sample ID	Client Sample ID	(40-200)	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)
500-270980-1	V-200-A	119	95.9	74.8	89.4	43.1	38.9	41.2	43.8
500-270980-1 - RA	V-200-A	112	85.0	68.1	87.3	39.5	34.7	40.5	40.4
500-270980-2	V-900-A	110	95.9	77.4	105	41.0	38.4	42.2	42.5
500-270980-2 - RA	V-900-A	107	95.8	75.4	95.6	41.7	39.2	42.0	43.3
LCS 320-861638/3-A	Lab Control Sample	109	109	93.0	97.6	57.3	55.2	61.2	57.3
LCS 320-861638/3-A - RA	Lab Control Sample								
LCSD 320-861638/4-A	Lab Control Sample Dup	113	111	96.8	106	61.8	64.7	65.5	58.2
LCSD 320-861638/4-A - RA	Lab Control Sample Dup								
LLCS 320-861638/2-A	Lab Control Sample	115	110	98.4	104	62.5	68.2	64.3	59.7
LLCS 320-861638/2-A - RA	Lab Control Sample								
MB 320-861638/1-A	Method Blank	114	107	98.5	100	69.0	67.3	66.7	60.3
MB 320-861638/1-A - RA	Method Blank								

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-270980-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

Generated 7/23/2025 11:55:21 AM

JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-271286-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

Generated
7/23/2025 11:55:21 AM

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Client Sample Results 7
Definitions 13
QC Sample Results 14
Chronicle 20
Certification Summary 21
Chain of Custody 22
Receipt Checklists 23
Isotope Dilution Summary 24

Job Narrative
500-271286-1

Receipt
The samples were received on 7/9/2025 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.3º C.

LCMS
Method 1633: The transition mass ratio was outside of the established ratio limit for Perfluorooctanesulfonamide (FOSA) in CCVL 320-863078/2 associated to this data set. This is indicated by the "R" flag in the raw data. As the flagged data is in control in the low level continuing calibration verification (CCVL), there is no adverse impact to the data.

Method 1633: The concentration of one or more analytes associated with the following sample exceeded the instrument calibration range: 500-271286-1. 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 1633: One or more sample extract(s) was diluted (as indicated in the report) due to high target analyte concentration(s). Elevated reporting limits (RLs) are provided:

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

Organic Prep
Method 1633: The following samples in preparation batch 320-862523 were discolored prior to extraction: 500-271286-1 and 500-271286-2.

Method 1633: The following samples in preparation batch 320-862523 were observed to have some particulates present in the sample bottle: 500-271286-1.

Method 1633: The following samples in preparation batch 320-862523 were discolored following extraction:500-271286-1.

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-271286-1	V-200-A	Water	07/07/25 05:15	07/09/25 09:40
500-271286-2	V-900-A	Water	07/07/25 05:20	07/09/25 09:40

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Client Sample ID: V-200-A

Date Collected: 07/07/25 05:15
Date Received: 07/09/25 09:40

Lab Sample ID: 500-271286-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**100**		3.1	0.29	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoropentanoic acid (PFPeA)	**190**		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorohexanoic acid (PFHxA)	**190**		1.6	0.21	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoroheptanoic acid (PFHpA)	**200**		1.6	0.27	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorooctanoic acid (PFOA)	**520**	**E**	1.6	0.30	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorononanoic acid (PFNA)	**62**		1.6	0.35	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorodecanoic acid (PFDA)	**42**		1.6	0.34	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoroundecanoic acid (PFUnA)	**24**		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorododecanoic acid (PFDoA)	**2.8**		1.6	0.43	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorotridecanoic acid (PFTriA)	**1.1**	**J**	1.6	0.45	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.6	0.63	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorobutanesulfonic acid (PFBS)	**5.5**		1.6	0.42	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoropentanesulfonic acid (PFPeS)	**2.1**		1.6	0.17	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorohexanesulfonic acid (PFHxS)	**60**		1.6	0.19	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoroheptanesulfonic acid (PFHpS)	**2.8**		1.6	0.14	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorooctanesulfonic acid (PFOS)	**270**		1.6	0.22	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorododecanesulfonic acid (PFDoS)	<0.41		1.6	0.41	ng/L		07/11/25 12:25	07/14/25 23:39	1
4:2 FTS	**2.2**	**J**	3.1	0.34	ng/L		07/11/25 12:25	07/14/25 23:39	1
6:2 FTS	**390**		3.1	0.32	ng/L		07/11/25 12:25	07/14/25 23:39	1
8:2 FTS	**480**		3.1	0.70	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluorooctanesulfonamide (FOSA)	**12**		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:39	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/11/25 12:25	07/14/25 23:39	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/11/25 12:25	07/14/25 23:39	1
NMeFOSAA	<0.27		1.6	0.27	ng/L		07/11/25 12:25	07/14/25 23:39	1
NEtFOSAA	**3.5**		1.6	0.34	ng/L		07/11/25 12:25	07/14/25 23:39	1
NMeFOSE	<1.8		7.8	1.8	ng/L		07/11/25 12:25	07/14/25 23:39	1
NEtFOSE	<1.9		7.8	1.9	ng/L		07/11/25 12:25	07/14/25 23:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.30		1.2	0.30	ng/L		07/11/25 12:25	07/14/25 23:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/11/25 12:25	07/14/25 23:39	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.56		1.6	0.56	ng/L		07/11/25 12:25	07/14/25 23:39	1
F-53B Major	<0.45		1.6	0.45	ng/L		07/11/25 12:25	07/14/25 23:39	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/11/25 12:25	07/14/25 23:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.19		1.6	0.19	ng/L		07/11/25 12:25	07/14/25 23:39	1

Client Sample ID: V-200-A
Lab Sample ID: 500-271286-1

Date Collected: 07/07/25 05:15
Date Received: 07/09/25 09:40
Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	**3.5**		3.1	0.56	ng/L		07/11/25 12:25	07/14/25 23:39	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**19**		7.8	1.3	ng/L		07/11/25 12:25	07/14/25 23:39	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	**2.1**	**J**	7.8	0.97	ng/L		07/11/25 12:25	07/14/25 23:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91.0*		*5 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C5 PFPeA	*64.8*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C5 PFHxA	*76.8*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C4 PFHpA	*77.5*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C8 PFOA	*86.4*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C9 PFNA	*86.6*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C6 PFDA	*85.0*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C7 PFUnA	*83.7*		*30 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C2 PFDoA	*72.3*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C2 PFTeDA	*56.2*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C3 PFBS	*89.1*		*40 - 135*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C3 PFHxS	*82.5*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C8 PFOS	*83.2*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C8 FOSA	*79.2*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d3-NMeFOSAA	*78.5*		*40 - 170*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d5-NEtFOSAA	*73.4*		*25 - 135*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
M2-4:2 FTS	*157*		*40 - 200*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
M2-6:2 FTS	*103*		*40 - 200*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
M2-8:2 FTS	*77.5*		*40 - 300*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
13C3 HFPO-DA	*71.4*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d7-N-MeFOSE-M	*73.9*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d9-N-EtFOSE-M	*73.8*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d5-NEtPFOSA	*65.9*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*
d3-NMePFOSA	*66.1*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:39*	*1*

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**96**		31	2.9	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoropentanoic acid (PFPeA)	**270**		16	1.8	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorohexanoic acid (PFHxA)	**180**		16	2.1	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoroheptanoic acid (PFHpA)	**210**		16	2.7	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorooctanoic acid (PFOA)	**520**		16	3.0	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorononanoic acid (PFNA)	**64**		16	3.5	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorodecanoic acid (PFDA)	**45**		16	3.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoroundecanoic acid (PFUnA)	**25**		16	1.8	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorododecanoic acid (PFDoA)	<4.3		16	4.3	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorotridecanoic acid (PFTriA)	<4.5		16	4.5	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorotetradecanoic acid (PFTeA)	<6.3		16	6.3	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorobutanesulfonic acid (PFBS)	**5.4**	**J**	16	4.2	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoropentanesulfonic acid (PFPeS)	<1.7		16	1.7	ng/L		07/11/25 12:25	07/15/25 18:22	10

Client Sample ID: V-200-A
Lab Sample ID: 500-271286-1

Date Collected: 07/07/25 05:15
Matrix: Water
Date Received: 07/09/25 09:40

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**67**		16	1.9	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoroheptanesulfonic acid (PFHpS)	**2.9**	**J**	16	1.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorooctanesulfonic acid (PFOS)	**270**		16	2.2	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorononanesulfonic acid (PFNS)	<2.4		16	2.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorodecanesulfonic acid (PFDS)	<2.4		16	2.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorododecanesulfonic acid (PFDoS)	<4.1		16	4.1	ng/L		07/11/25 12:25	07/15/25 18:22	10
4:2 FTS	<3.4		31	3.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
6:2 FTS	**390**		31	3.2	ng/L		07/11/25 12:25	07/15/25 18:22	10
8:2 FTS	**450**		31	7.0	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluorooctanesulfonamide (FOSA)	**10**	**J**	16	1.8	ng/L		07/11/25 12:25	07/15/25 18:22	10
NMeFOSA	<3.0		16	3.0	ng/L		07/11/25 12:25	07/15/25 18:22	10
NEtFOSA	<3.5		16	3.5	ng/L		07/11/25 12:25	07/15/25 18:22	10
NMeFOSAA	<2.7		16	2.7	ng/L		07/11/25 12:25	07/15/25 18:22	10
NEtFOSAA	<3.4		16	3.4	ng/L		07/11/25 12:25	07/15/25 18:22	10
NMeFOSE	<18		78	18	ng/L		07/11/25 12:25	07/15/25 18:22	10
NEtFOSE	<19		78	19	ng/L		07/11/25 12:25	07/15/25 18:22	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.0		12	3.0	ng/L		07/11/25 12:25	07/15/25 18:22	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<3.1		16	3.1	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.5		16	1.5	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		16	2.0	ng/L		07/11/25 12:25	07/15/25 18:22	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<5.6		16	5.6	ng/L		07/11/25 12:25	07/15/25 18:22	10
F-53B Major	<4.5		16	4.5	ng/L		07/11/25 12:25	07/15/25 18:22	10
F-53B Minor	<2.3		16	2.3	ng/L		07/11/25 12:25	07/15/25 18:22	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.9		16	1.9	ng/L		07/11/25 12:25	07/15/25 18:22	10
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<5.6		31	5.6	ng/L		07/11/25 12:25	07/15/25 18:22	10
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**14**	**J**	78	13	ng/L		07/11/25 12:25	07/15/25 18:22	10
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.7		78	9.7	ng/L		07/11/25 12:25	07/15/25 18:22	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90.9*	*	*5 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C5 PFPeA	*107*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C5 PFHxA	*107*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C4 PFHpA	*91.5*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C8 PFOA	*83.5*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C9 PFNA	*88.1*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C6 PFDA	*86.5*	*	*40 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C7 PFUnA	*90.5*	*	*30 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C2 PFDoA	*77.5*	*	*10 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C2 PFTeDA	*63.3*	*	*10 - 130*	*07/11/25 12:25*	*07/15/25 18:22*	*10*
13C3 PFBS	*82.5*	*	*40 - 135*	*07/11/25 12:25*	*07/15/25 18:22*	*10*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Client Sample ID: V-200-A

Date Collected: 07/07/25 05:15
Date Received: 07/09/25 09:40

Lab Sample ID: 500-271286-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	76.7	*	40 - 130	07/11/25 12:25	07/15/25 18:22	10
13C8 PFOS	76.4	*	40 - 130	07/11/25 12:25	07/15/25 18:22	10
13C8 FOSA	76.6	*	40 - 130	07/11/25 12:25	07/15/25 18:22	10
d3-NMeFOSAA	81.3	*	40 - 170	07/11/25 12:25	07/15/25 18:22	10
d5-NEtFOSAA	79.9	*	25 - 135	07/11/25 12:25	07/15/25 18:22	10
M2-4:2 FTS	137	*	40 - 200	07/11/25 12:25	07/15/25 18:22	10
M2-6:2 FTS	96.4	*	40 - 200	07/11/25 12:25	07/15/25 18:22	10
M2-8:2 FTS	82.5	*	40 - 300	07/11/25 12:25	07/15/25 18:22	10
13C3 HFPO-DA	94.6	*	40 - 130	07/11/25 12:25	07/15/25 18:22	10
d7-N-MeFOSE-M	72.9	*	10 - 130	07/11/25 12:25	07/15/25 18:22	10
d9-N-EtFOSE-M	75.5	*	10 - 130	07/11/25 12:25	07/15/25 18:22	10
d5-NEtPFOSA	63.3	*	10 - 130	07/11/25 12:25	07/15/25 18:22	10
d3-NMePFOSA	63.8	*	10 - 130	07/11/25 12:25	07/15/25 18:22	10

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Client Sample ID: V-900-A

Date Collected: 07/07/25 05:20
Date Received: 07/09/25 09:40

Lab Sample ID: 500-271286-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**38**		3.1	0.29	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoropentanoic acid (PFPeA)	**24**		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorohexanoic acid (PFHxA)	**2.9**		1.6	0.21	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoroheptanoic acid (PFHpA)	**0.59**	**J**	1.6	0.27	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorooctanoic acid (PFOA)	**1.0**	**J**	1.6	0.31	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorononanoic acid (PFNA)	<0.36		1.6	0.36	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorodecanoic acid (PFDA)	<0.35		1.6	0.35	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoroundecanoic acid (PFUnA)	<0.18		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorododecanoic acid (PFDoA)	<0.43		1.6	0.43	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.6	0.63	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorobutanesulfonic acid (PFBS)	**0.51**	**J**	1.6	0.42	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.6	0.19	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.14		1.6	0.14	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorooctanesulfonic acid (PFOS)	**0.42**	**J**	1.6	0.22	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorododecanesulfonic acid (PFDoS)	<0.41		1.6	0.41	ng/L		07/11/25 12:25	07/14/25 23:55	1
4:2 FTS	<0.34		3.1	0.34	ng/L		07/11/25 12:25	07/14/25 23:55	1
6:2 FTS	**0.50**	**J**	3.1	0.32	ng/L		07/11/25 12:25	07/14/25 23:55	1
8:2 FTS	**1.8**	**J**	3.1	0.70	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluorooctanesulfonamide (FOSA)	<0.18		1.6	0.18	ng/L		07/11/25 12:25	07/14/25 23:55	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/11/25 12:25	07/14/25 23:55	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/11/25 12:25	07/14/25 23:55	1
NMeFOSAA	<0.27		1.6	0.27	ng/L		07/11/25 12:25	07/14/25 23:55	1
NEtFOSAA	<0.34		1.6	0.34	ng/L		07/11/25 12:25	07/14/25 23:55	1
NMeFOSE	<1.8		7.8	1.8	ng/L		07/11/25 12:25	07/14/25 23:55	1
NEtFOSE	<1.9		7.8	1.9	ng/L		07/11/25 12:25	07/14/25 23:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/11/25 12:25	07/14/25 23:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/11/25 12:25	07/14/25 23:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.56		1.6	0.56	ng/L		07/11/25 12:25	07/14/25 23:55	1
F-53B Major	<0.45		1.6	0.45	ng/L		07/11/25 12:25	07/14/25 23:55	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/11/25 12:25	07/14/25 23:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/11/25 12:25	07/14/25 23:55	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.56		3.1	0.56	ng/L		07/11/25 12:25	07/14/25 23:55	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.3		7.8	1.3	ng/L		07/11/25 12:25	07/14/25 23:55	1

Client Sample ID: V-900-A
Lab Sample ID: 500-271286-2

Date Collected: 07/07/25 05:20
Matrix: Water
Date Received: 07/09/25 09:40

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.97		7.8	0.97	ng/L		07/11/25 12:25	07/14/25 23:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93.8*		*5 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C5 PFPeA	*98.8*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C5 PFHxA	*97.9*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C4 PFHpA	*89.6*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C8 PFOA	*85.5*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C9 PFNA	*85.9*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C6 PFDA	*89.1*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C7 PFUnA	*80.4*		*30 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C2 PFDoA	*76.6*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C2 PFTeDA	*63.3*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C3 PFBS	*83.9*		*40 - 135*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C3 PFHxS	*76.9*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C8 PFOS	*79.9*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C8 FOSA	*78.3*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d3-NMeFOSAA	*83.7*		*40 - 170*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d5-NEtFOSAA	*77.8*		*25 - 135*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
M2-4:2 FTS	*105*		*40 - 200*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
M2-6:2 FTS	*86.3*		*40 - 200*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
M2-8:2 FTS	*76.5*		*40 - 300*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
13C3 HFPO-DA	*96.0*		*40 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d7-N-MeFOSE-M	*76.2*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d9-N-EtFOSE-M	*73.8*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d5-NEtPFOSA	*63.8*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*
d3-NMePFOSA	*64.2*		*10 - 130*	*07/11/25 12:25*	*07/14/25 23:55*	*1*

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-271286-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
E	Result exceeded calibration range.
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-862523/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoropentanoic acid (PFPeA)	<0.23		2.0	0.23	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorobutanesulfonic acid (PFBS)	<0.54		2.0	0.54	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/11/25 12:25	07/14/25 22:16	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/11/25 12:25	07/14/25 22:16	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/11/25 12:25	07/14/25 22:16	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/11/25 12:25	07/14/25 22:16	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/11/25 12:25	07/14/25 22:16	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/11/25 12:25	07/14/25 22:16	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/11/25 12:25	07/14/25 22:16	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/11/25 12:25	07/14/25 22:16	1
NMeFOSE	<2.3		10	2.3	ng/L		07/11/25 12:25	07/14/25 22:16	1
NEtFOSE	<2.4		10	2.4	ng/L		07/11/25 12:25	07/14/25 22:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/11/25 12:25	07/14/25 22:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/11/25 12:25	07/14/25 22:16	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/11/25 12:25	07/14/25 22:16	1
F-53B Major	<0.58		2.0	0.58	ng/L		07/11/25 12:25	07/14/25 22:16	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/11/25 12:25	07/14/25 22:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/11/25 12:25	07/14/25 22:16	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/11/25 12:25	07/14/25 22:16	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/11/25 12:25	07/14/25 22:16	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-862523/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/11/25 12:25	07/14/25 22:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93.5*		*5 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C5 PFPeA	*103*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C5 PFHxA	*106*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C4 PFHpA	*101*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C8 PFOA	*88.6*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C9 PFNA	*87.8*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C6 PFDA	*91.4*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C7 PFUnA	*89.1*		*30 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C2 PFDoA	*90.9*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C2 PFTeDA	*91.6*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C3 PFBS	*92.5*		*40 - 135*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C3 PFHxS	*90.3*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C8 PFOS	*92.9*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C8 FOSA	*84.2*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d3-NMeFOSAA	*101*		*40 - 170*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d5-NEtFOSAA	*103*		*25 - 135*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
M2-4:2 FTS	*103*		*40 - 200*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
M2-6:2 FTS	*89.9*		*40 - 200*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
M2-8:2 FTS	*100*		*40 - 300*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
13C3 HFPO-DA	*103*		*40 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d7-N-MeFOSE-M	*89.6*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d9-N-EtFOSE-M	*89.9*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d5-NEtPFOSA	*67.7*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*
d3-NMePFOSA	*65.6*		*10 - 130*	*07/11/25 12:25*	*07/14/25 22:16*	*1*

Lab Sample ID: LCS 320-862523/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	80.5		ng/L		101	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	42.9		ng/L		107	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	42.3		ng/L		106	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	43.2		ng/L		108	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	70 - 150
Perfluorononanoic acid (PFNA)	40.0	39.8		ng/L		100	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.9		ng/L		97	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	41.5		ng/L		104	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	40.6		ng/L		102	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	38.9		ng/L		97	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	43.2		ng/L		108	60 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-862523/3-A
Matrix: Water
Analysis Batch: 863078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 862523

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	37.4		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	39.8		ng/L		106	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	36.4		ng/L		100	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.4		ng/L		101	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	37.4		ng/L		101	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	41.8		ng/L		109	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	39.9		ng/L		104	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	36.5		ng/L		94	50 - 145
4:2 FTS	75.0	82.1		ng/L		109	70 - 145
6:2 FTS	76.2	79.1		ng/L		104	65 - 155
8:2 FTS	76.8	83.2		ng/L		108	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	39.8		ng/L		99	70 - 145
NMeFOSA	40.0	43.5		ng/L		109	60 - 150
NEtFOSA	40.0	41.9		ng/L		105	65 - 145
NMeFOSAA	40.0	39.9		ng/L		100	50 - 140
NEtFOSAA	40.0	41.4		ng/L		103	70 - 145
NMeFOSE	200	210		ng/L		105	70 - 145
NEtFOSE	200	205		ng/L		103	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	31.3		ng/L		104	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.8		ng/L		105	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	41.6		ng/L		104	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	40.4		ng/L		101	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	39.9		ng/L		100	50 - 150
F-53B Major	37.4	36.2		ng/L		97	70 - 155
F-53B Minor	37.8	36.1		ng/L		96	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	35.9		ng/L		101	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	84.5		ng/L		106	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	200		ng/L		100	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	190		ng/L		95	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*97.4*		*5 - 130*
13C5 PFPeA	*99.6*		*40 - 130*
13C5 PFHxA	*98.4*		*40 - 130*
13C4 PFHpA	*95.7*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-862523/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*95.2*		*40 - 130*
13C9 PFNA	*89.0*		*40 - 130*
13C6 PFDA	*94.8*		*40 - 130*
13C7 PFUnA	*94.1*		*30 - 130*
13C2 PFDoA	*89.0*		*10 - 130*
13C2 PFTeDA	*80.7*		*10 - 130*
13C3 PFBS	*89.2*		*40 - 135*
13C3 PFHxS	*86.2*		*40 - 130*
13C8 PFOS	*88.3*		*40 - 130*
13C8 FOSA	*77.6*		*40 - 130*
d3-NMeFOSAA	*98.8*		*40 - 170*
d5-NEtFOSAA	*91.7*		*25 - 135*
M2-4:2 FTS	*99.8*		*40 - 200*
M2-6:2 FTS	*90.0*		*40 - 200*
M2-8:2 FTS	*92.1*		*40 - 300*
13C3 HFPO-DA	*94.7*		*40 - 130*
d7-N-MeFOSE-M	*83.2*		*10 - 130*
d9-N-EtFOSE-M	*80.5*		*10 - 130*
d5-NEtPFOSA	*63.4*		*10 - 130*
d3-NMePFOSA	*61.6*		*10 - 130*

Lab Sample ID: LLCS 320-862523/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.59		ng/L		107	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.30		ng/L		107	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.48		ng/L		112	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	4.26		ng/L		107	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.43		ng/L		111	70 - 150
Perfluorononanoic acid (PFNA)	4.00	4.17		ng/L		104	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.70		ng/L		93	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.26		ng/L		106	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.43		ng/L		111	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	4.03		ng/L		101	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.49		ng/L		112	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	4.08		ng/L		115	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	4.19		ng/L		111	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	4.03		ng/L		110	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.61		ng/L		95	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.88		ng/L		104	55 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-862523/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 863078 **Prep Batch: 862523**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	3.85	4.00		ng/L		104	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	4.18		ng/L		108	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.89		ng/L		100	50 - 145
4:2 FTS	7.50	8.33		ng/L		111	70 - 145
6:2 FTS	7.62	8.67		ng/L		114	65 - 155
8:2 FTS	7.68	8.15		ng/L		106	60 - 150
Perfluorooctanesulfonamide (FOSA)	4.00	4.26		ng/L		107	70 - 145
NMeFOSA	4.00	4.00		ng/L		100	60 - 150
NEtFOSA	4.00	3.94		ng/L		98	65 - 145
NMeFOSAA	4.00	4.23		ng/L		106	50 - 140
NEtFOSAA	4.00	4.28		ng/L		107	70 - 145
NMeFOSE	20.0	19.5		ng/L		97	70 - 145
NEtFOSE	20.0	21.1		ng/L		105	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	3.04		ng/L		101	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	4.08		ng/L		108	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.12		ng/L		103	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.25		ng/L		106	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.31		ng/L		108	50 - 150
F-53B Major	3.74	3.99		ng/L		107	70 - 155
F-53B Minor	3.78	3.99		ng/L		106	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.76		ng/L		105	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	8.21		ng/L		103	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	21.7		ng/L		108	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	19.3		ng/L		96	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*91.2*		*5 - 130*
13C5 PFPeA	*103*		*40 - 130*
13C5 PFHxA	*99.8*		*40 - 130*
13C4 PFHpA	*103*		*40 - 130*
13C8 PFOA	*89.3*		*40 - 130*
13C9 PFNA	*89.8*		*40 - 130*
13C6 PFDA	*94.6*		*40 - 130*
13C7 PFUnA	*96.0*		*30 - 130*
13C2 PFDoA	*92.5*		*10 - 130*
13C2 PFTeDA	*84.8*		*10 - 130*
13C3 PFBS	*94.5*		*40 - 135*
13C3 PFHxS	*89.1*		*40 - 130*
13C8 PFOS	*95.8*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-862523/2-A
Matrix: Water
Analysis Batch: 863078

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 862523

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C8 FOSA	84.8		40 - 130
d3-NMeFOSAA	106		40 - 170
d5-NEtFOSAA	99.6		25 - 135
M2-4:2 FTS	102		40 - 200
M2-6:2 FTS	93.2		40 - 200
M2-8:2 FTS	102		40 - 300
13C3 HFPO-DA	92.9		40 - 130
d7-N-MeFOSE-M	93.3		10 - 130
d9-N-EtFOSE-M	89.8		10 - 130
d5-NEtPFOSA	69.9		10 - 130
d3-NMePFOSA	65.7		10 - 130

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Client Sample ID: V-200-A

Lab Sample ID: 500-271286-1
Matrix: Water
Date Collected: 07/07/25 05:15
Date Received: 07/09/25 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			862523	WVD	EET SAC	07/11/25 12:25
Total/NA	Analysis	1633A		1	863078	N1K	EET SAC	07/14/25 23:39
Total/NA	Prep	1633	DL		862523	WVD	EET SAC	07/11/25 12:25
Total/NA	Analysis	1633A	DL	10	863142	C1P	EET SAC	07/15/25 18:22

Client Sample ID: V-900-A

Lab Sample ID: 500-271286-2
Matrix: Water
Date Collected: 07/07/25 05:20
Date Received: 07/09/25 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			862523	WVD	EET SAC	07/11/25 12:25
Total/NA	Analysis	1633A		1	863078	N1K	EET SAC	07/14/25 23:55

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-271286-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins TestAmerica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916 373.5600 fax 303 467 7248

Chain of Custody Record

eurofins

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-7-25	COC No 1
Arcadis U S , Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time: ☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only: Walk-in Client: Lab Sampling:
Phone	TAT if different from Below ____			
FAX	☐ 2 weeks			
Project Name Marinette, WI	☑ 1 week			Lab Project Number
Site Marinette, WI	☐ 2 days			50015522
P O # 30284780.4 1 1 (WPDES)	☐ 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)	PFAS EPA 1633 (40 Compounds)	Sample Specific Notes
V-200-A	7-7-25	5:15	G	W	2	N	N	X	System Influent
V-900-A	↓	5:20	G	W	2	N	N	X	System Effluent

500-271286 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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:
7-Day TAT Max or Prelim Report by Day 7
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact: ☑ Yes ☐ No | Custody Seal No : 1749591 | Cooler Temp (°C): Obs'd 4.3 Corr'd 4.3 | Therm ID No. ____

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Jacob Reminger	Barley Excavating	7-7-25 10:45	FedEx		
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
				CESAC	7/9/25 940
Relinquished by	Company	Date/Time	Received in Laboratory by	Company	Date/Time

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-271286-1

Login Number: 271286
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 07/09/25 03:17 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	1749591
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	4.3C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271286-1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
500-271286-1	V-200-A	91.0	64.8	76.8	77.5	86.4	86.6	85.0	83.7
500-271286-1 - DL	V-200-A	90.9 *	107 *	107 *	91.5 *	83.5 *	88.1 *	86.5 *	90.5 *
500-271286-2	V-900-A	93.8	98.8	97.9	89.6	85.5	85.9	89.1	80.4
LCS 320-862523/3-A	Lab Control Sample	97.4	99.6	98.4	95.7	95.2	89.0	94.8	94.1
LLCS 320-862523/2-A	Lab Control Sample	91.2	103	99.8	103	89.3	89.8	94.6	96.0
MB 320-862523/1-A	Method Blank	93.5	103	106	101	88.6	87.8	91.4	89.1

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
500-271286-1	V-200-A	72.3	56.2	89.1	82.5	83.2	79.2	78.5	73.4
500-271286-1 - DL	V-200-A	77.5 *	63.3 *	82.5 *	76.7 *	76.4 *	76.6 *	81.3 *	79.9 *
500-271286-2	V-900-A	76.6	63.3	83.9	76.9	79.9	78.3	83.7	77.8
LCS 320-862523/3-A	Lab Control Sample	89.0	80.7	89.2	86.2	88.3	77.6	98.8	91.7
LLCS 320-862523/2-A	Lab Control Sample	92.5	84.8	94.5	89.1	95.8	84.8	106	99.6
MB 320-862523/1-A	Method Blank	90.9	91.6	92.5	90.3	92.9	84.2	101	103

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
500-271286-1	V-200-A	157	103	77.5	71.4	73.9	73.8	65.9	66.1
500-271286-1 - DL	V-200-A	137 *	96.4 *	82.5 *	94.6 *	72.9 *	75.5 *	63.3 *	63.8 *
500-271286-2	V-900-A	105	86.3	76.5	96.0	76.2	73.8	63.8	64.2
LCS 320-862523/3-A	Lab Control Sample	99.8	90.0	92.1	94.7	83.2	80.5	63.4	61.6
LLCS 320-862523/2-A	Lab Control Sample	102	93.2	102	92.9	93.3	89.8	69.9	65.7
MB 320-862523/1-A	Method Blank	103	89.9	100	103	89.6	89.9	67.7	65.6

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-271286-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

d3NMFSA = d3-NMePFOSA

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

Generated 7/24/2025 6:25:19 PM

JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-271835-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 6
Sample Summary 7
Client Sample Results 8
Definitions 17
QC Sample Results 18
Chronicle 33
Certification Summary 34
Chain of Custody 35
Receipt Checklists 36
Isotope Dilution Summary 37

Job Narrative
500-271835-1

Receipt
The samples were received on 7/18/2025 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0º C.

LCMS
Method 1633: Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: MB 320-864429/1-A. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-864580 recovered above the upper control limit for Perfluoropentanoic acid (PFPeA). The samples and method blank (MB) associated with this CCV were non-detects, the low level laboratory control sample (LLCS)/ laboratory control sample (LCS)/ laboratory control sample duplicate (LCSD) recoveries were in control for the associated target analytes; therefore, the data have been reported. The associated samples are impacted: 500-271835-2, CCVL 320-864580/2, LCS 320-864429/3-A, LCSD 320-864429/4-A, LLCS 320-864429/2-A and MB 320-864429/1-A.

Method 1633: Perfluorobutanesulfonic acid (PFBS) was detected above the reporting limit (RL) in the method blank associated with preparation batch 320-864429 and analytical batch 320-864580 as well as in the following samples: 500-271835-1 and MB 320-864429/1-A. All affected samples re-extracted. Both sets of data have been reported.

Method 1633: The low level continuing calibration verifications (CCVL) associated with batch 320-864580 recovered outside control limits for Perfluoropentanoic acid (PFPeA). The samples were re-analyzed with the CCVs within control limits for the affected analyte and both sets of data have been reported: 500-271835-1 and CCVL 320-864580/2

Method 1633: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: 500-271835-1. 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 1633: The method blank for preparation batch 320-864429 contained Perfluorobutanesulfonic acid (PFBS) above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction of samples were not performed.

Method 1633: The "C" 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. The associated analytes have been flagged: 500-271835-1 and 500-271835-2.

Method 1633: The continuing calibration verification (CCV) associated with batch 320-864781 recovered above the upper control limit for the following isotope dilution analyte (IDA): M2-4:2 FTS. The associated target analyte, 4:2 FTS, was within control limits in the CCV. The client samples were in control for the affected IDA; therefore, the data have been reported. The associated samples are impacted: 500-271835-1 and CCV 320-864781/1.

Method 1633: One or more sample extract(s) was diluted (as indicated in the report) due to high target analyte concentration(s). Elevated reporting limits (RLs) are provided.

Method 1633: The transition mass ratio was outside of the established ratio limit for Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) in CCVL 320-864776/2 associated to this data set. This is indicated by the "R" flag in the raw data. As the flagged data is in control in the CCVL, there is no adverse impact to the data.

Method 1633: Internal standard (ISTD) response for the following sample was outside control limits: 500-271835-1. The sample(s) was re-extracted re-analyzed and ISTD response was outside control limits. The ISTD is not used to quantitate the reported target analytes.

Method 1633: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: 500-271835-1. 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 1633: The "C" 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. The associated analytes have been flagged: 500-271835-1.

Job ID: 500-271835-1 (Continued) Eurofins Chicago

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-865377 recovered above the upper control limit for isotope dilution analyte (IDA): M2-4:2 FTS. The associated target analyte, 4:2 FTS, is within control limits in the CCVL. The client samples were in control for the affected IDA; therefore, the data have been reported. The associated samples are impacted: 500-271835-1 and CCVL 320-865377/2.

Method 1633: Internal standard (ISTD) response for the following sample was outside control limits: 500-271835-1. The sample(s) was re-extracted and/or re-analyzed and ISTD response was outside control limits.

Method 1633: Re-extraction of the following sample was performed due to a method blank detection for Perfluorobutanesulfonic acid (PFBS), above the reporting limit (RL), in the initial analysis: 500-271835-1. All sets of data have been reported.

Method 1633: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: 500-271835-1. 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 1633: The following samples were re-analyzed due to continuing calibration failure for target analyte Perfluoropentanoic acid (PFPeA) in the initial analysis of these samples. 500-271835-1

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

Organic Prep
Method 1633: The following samples in preparation batch 320-864429 were observed to have floating particulates present in the sample bottle: 500-271835-1 and 500-271835-2.

Method 1633: The following samples in preparation batch 320-864429 were discolored prior to extraction: 500-271835-1 and 500-271835-2.

Method 1633: The following sample was discolored after adjusting to the final volume: 500-271835-1.

Method 1633: The following samples in preparation batch 320-865312 were discolored prior to extraction. 500-271835-1

Method 1633: The following samples in preparation batch 320-865312 were discolored following extraction. 500-271835-1

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-271835-1	V-200-A	Water	07/17/25 05:30	07/18/25 08:00
500-271835-2	V-900-A	Water	07/17/25 05:35	07/18/25 08:00

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-200-A

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**160**		3.2	0.29	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoropentanoic acid (PFPeA)	**320**	^	1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorohexanoic acid (PFHxA)	**410**		1.6	0.21	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoroheptanoic acid (PFHpA)	**350**		1.6	0.27	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorooctanoic acid (PFOA)	**1900**	E	1.6	0.31	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorononanoic acid (PFNA)	**100**		1.6	0.36	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorodecanoic acid (PFDA)	**64**		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoroundecanoic acid (PFUnA)	**30**		1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorododecanoic acid (PFDoA)	**3.3**		1.6	0.44	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorotridecanoic acid (PFTriA)	**0.97**	J	1.6	0.45	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.6	0.64	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorobutanesulfonic acid (PFBS)	**13**	B	1.6	0.43	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoropentanesulfonic acid (PFPeS)	**2.4**		1.6	0.17	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	**68**		1.6	0.19	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoroheptanesulfonic acid (PFHpS)	**4.8**		1.6	0.14	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorooctanesulfonic acid (PFOS)	**470**	E	1.6	0.22	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorononanesulfonic acid (PFNS)	**0.46**	J	1.6	0.25	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorododecanesulfonic acid (PFDoS)	<0.42		1.6	0.42	ng/L		07/21/25 04:43	07/21/25 18:32	1
4:2 FTS	**7.1**		3.2	0.34	ng/L		07/21/25 04:43	07/21/25 18:32	1
6:2 FTS	**1600**	E	3.2	0.32	ng/L		07/21/25 04:43	07/21/25 18:32	1
8:2 FTS	**1000**	E	3.2	0.71	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluorooctanesulfonamide (FOSA)	**16**		1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:32	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/21/25 04:43	07/21/25 18:32	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:32	1
NMeFOSAA	<0.28		1.6	0.28	ng/L		07/21/25 04:43	07/21/25 18:32	1
NEtFOSAA	**2.9**		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:32	1
NMeFOSE	<1.8		7.9	1.8	ng/L		07/21/25 04:43	07/21/25 18:32	1
NEtFOSE	<1.9		7.9	1.9	ng/L		07/21/25 04:43	07/21/25 18:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	**0.42**	J C	1.2	0.31	ng/L		07/21/25 04:43	07/21/25 18:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.32		1.6	0.32	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.22**	J	1.6	0.15	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/21/25 18:32	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.57		1.6	0.57	ng/L		07/21/25 04:43	07/21/25 18:32	1
F-53B Major	<0.46		1.6	0.46	ng/L		07/21/25 04:43	07/21/25 18:32	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/21/25 04:43	07/21/25 18:32	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/21/25 18:32	1

Client Sample ID: V-200-A
Lab Sample ID: 500-271835-1

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00
Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	9.7		3.2	0.57	ng/L		07/21/25 04:43	07/21/25 18:32	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	36		7.9	1.4	ng/L		07/21/25 04:43	07/21/25 18:32	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	4.6	J	7.9	0.98	ng/L		07/21/25 04:43	07/21/25 18:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95.9*	*	*5 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C5 PFPeA	*67.9*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C5 PFHxA	*82.8*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C4 PFHpA	*82.0*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C8 PFOA	*104*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C9 PFNA	*106*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C6 PFDA	*102*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C7 PFUnA	*92.6*		*30 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C2 PFDoA	*80.8*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C2 PFTeDA	*73.4*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C3 PFBS	*98.5*		*40 - 135*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C3 PFHxS	*100*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C8 PFOS	*91.6*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C8 FOSA	*75.6*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d3-NMeFOSAA	*76.0*		*40 - 170*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d5-NEtFOSAA	*72.3*		*25 - 135*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
M2-4:2 FTS	*191*		*40 - 200*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
M2-6:2 FTS	*88.9*		*40 - 200*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
M2-8:2 FTS	*84.4*		*40 - 300*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
13C3 HFPO-DA	*86.9*		*40 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d7-N-MeFOSE-M	*80.0*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d9-N-EtFOSE-M	*78.9*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d5-NEtPFOSA	*72.0*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*
d3-NMePFOSA	*72.4*		*10 - 130*	*07/21/25 04:43*	*07/21/25 18:32*	*1*

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	160		32	2.9	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoropentanoic acid (PFPeA)	480		16	1.8	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorohexanoic acid (PFHxA)	420		16	2.1	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoroheptanoic acid (PFHpA)	350		16	2.7	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorooctanoic acid (PFOA)	2000		16	3.1	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorononanoic acid (PFNA)	98		16	3.6	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorodecanoic acid (PFDA)	63		16	3.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoroundecanoic acid (PFUnA)	31		16	1.8	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorododecanoic acid (PFDoA)	<4.4		16	4.4	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorotridecanoic acid (PFTriA)	<4.5		16	4.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorotetradecanoic acid (PFTeA)	<6.4		16	6.4	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorobutanesulfonic acid (PFBS)	11	J B	16	4.3	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoropentanesulfonic acid (PFPeS)	2.3	J	16	1.7	ng/L		07/21/25 04:43	07/22/25 20:45	10

Client Sample ID: V-200-A

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	**66**		16	1.9	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoroheptanesulfonic acid (PFHpS)	**4.7**	**J**	16	1.4	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorooctanesulfonic acid (PFOS)	**450**		16	2.2	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorononanesulfonic acid (PFNS)	<2.5		16	2.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorodecanesulfonic acid (PFDS)	<2.4		16	2.4	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorododecanesulfonic acid (PFDoS)	<4.2		16	4.2	ng/L		07/21/25 04:43	07/22/25 20:45	10
4:2 FTS	**8.2**	**J**	32	3.4	ng/L		07/21/25 04:43	07/22/25 20:45	10
6:2 FTS	**1600**		32	3.2	ng/L		07/21/25 04:43	07/22/25 20:45	10
8:2 FTS	**1100**		32	7.1	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluorooctanesulfonamide (FOSA)	**16**		16	1.8	ng/L		07/21/25 04:43	07/22/25 20:45	10
NMeFOSA	<3.0		16	3.0	ng/L		07/21/25 04:43	07/22/25 20:45	10
NEtFOSA	<3.5		16	3.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
NMeFOSAA	<2.8		16	2.8	ng/L		07/21/25 04:43	07/22/25 20:45	10
NEtFOSAA	<3.5		16	3.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
NMeFOSE	<18		79	18	ng/L		07/21/25 04:43	07/22/25 20:45	10
NEtFOSE	<19		79	19	ng/L		07/21/25 04:43	07/22/25 20:45	10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.1		12	3.1	ng/L		07/21/25 04:43	07/22/25 20:45	10
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<3.2		16	3.2	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.5		16	1.5	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		16	2.0	ng/L		07/21/25 04:43	07/22/25 20:45	10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<5.7		16	5.7	ng/L		07/21/25 04:43	07/22/25 20:45	10
F-53B Major	<4.6		16	4.6	ng/L		07/21/25 04:43	07/22/25 20:45	10
F-53B Minor	<2.3		16	2.3	ng/L		07/21/25 04:43	07/22/25 20:45	10
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		16	2.0	ng/L		07/21/25 04:43	07/22/25 20:45	10
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<5.7		32	5.7	ng/L		07/21/25 04:43	07/22/25 20:45	10
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**32**	**J**	79	14	ng/L		07/21/25 04:43	07/22/25 20:45	10
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.8		79	9.8	ng/L		07/21/25 04:43	07/22/25 20:45	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93.1*	*	*5 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C5 PFPeA	*105*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C5 PFHxA	*104*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C4 PFHpA	*99.1*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C8 PFOA	*108*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C9 PFNA	*118*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C6 PFDA	*97.3*	*	*40 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C7 PFUnA	*94.9*	*	*30 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C2 PFDoA	*80.0*	*	*10 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C2 PFTeDA	*73.7*	*	*10 - 130*	*07/21/25 04:43*	*07/22/25 20:45*	*10*
13C3 PFBS	*96.9*	*	*40 - 135*	*07/21/25 04:43*	*07/22/25 20:45*	*10*

Client Sample ID: V-200-A
Lab Sample ID: 500-271835-1

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00
Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - DL (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	99.6	*	40 - 130	07/21/25 04:43	07/22/25 20:45	10
13C8 PFOS	99.3	*	40 - 130	07/21/25 04:43	07/22/25 20:45	10
13C8 FOSA	76.3	*	40 - 130	07/21/25 04:43	07/22/25 20:45	10
d3-NMeFOSAA	82.3	*	40 - 170	07/21/25 04:43	07/22/25 20:45	10
d5-NEtFOSAA	75.5	*	25 - 135	07/21/25 04:43	07/22/25 20:45	10
M2-4:2 FTS	142	^c *	40 - 200	07/21/25 04:43	07/22/25 20:45	10
M2-6:2 FTS	110	*	40 - 200	07/21/25 04:43	07/22/25 20:45	10
M2-8:2 FTS	99.3	*	40 - 300	07/21/25 04:43	07/22/25 20:45	10
13C3 HFPO-DA	92.1	*	40 - 130	07/21/25 04:43	07/22/25 20:45	10
d7-N-MeFOSE-M	71.0	*	10 - 130	07/21/25 04:43	07/22/25 20:45	10
d9-N-EtFOSE-M	76.4	*	10 - 130	07/21/25 04:43	07/22/25 20:45	10
d5-NEtPFOSA	67.2	*	10 - 130	07/21/25 04:43	07/22/25 20:45	10
d3-NMePFOSA	75.4	*	10 - 130	07/21/25 04:43	07/22/25 20:45	10

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**170**		3.2	0.29	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoropentanoic acid (PFPeA)	**320**		1.6	0.18	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorohexanoic acid (PFHxA)	**400**		1.6	0.21	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoroheptanoic acid (PFHpA)	**340**		1.6	0.27	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorooctanoic acid (PFOA)	**1900**	**E**	1.6	0.31	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorononanoic acid (PFNA)	**110**		1.6	0.36	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorodecanoic acid (PFDA)	**68**		1.6	0.35	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoroundecanoic acid (PFUnA)	**30**		1.6	0.18	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorododecanoic acid (PFDoA)	**3.2**		1.6	0.44	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorotridecanoic acid (PFTriA)	**1.2**	**J**	1.6	0.45	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.6	0.64	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorobutanesulfonic acid (PFBS)	**12**	**B**	1.6	0.43	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoropentanesulfonic acid (PFPeS)	**2.0**		1.6	0.17	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorohexanesulfonic acid (PFHxS)	**66**		1.6	0.19	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoroheptanesulfonic acid (PFHpS)	**4.8**		1.6	0.14	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorooctanesulfonic acid (PFOS)	**450**	**E**	1.6	0.22	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorononanesulfonic acid (PFNS)	**0.34**	**J**	1.6	0.25	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorodecanesulfonic acid (PFDS)	**0.28**	**J C**	1.6	0.24	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorododecanesulfonic acid (PFDoS)	<0.42		1.6	0.42	ng/L		07/21/25 04:43	07/22/25 20:28	1
4:2 FTS	**7.4**		3.2	0.34	ng/L		07/21/25 04:43	07/22/25 20:28	1
6:2 FTS	**1500**	**E**	3.2	0.32	ng/L		07/21/25 04:43	07/22/25 20:28	1
8:2 FTS	**1000**	**E**	3.2	0.71	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluorooctanesulfonamide (FOSA)	**16**		1.6	0.18	ng/L		07/21/25 04:43	07/22/25 20:28	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/21/25 04:43	07/22/25 20:28	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/21/25 04:43	07/22/25 20:28	1

Client Sample ID: V-200-A
Lab Sample ID: 500-271835-1

Date Collected: 07/17/25 05:30
Matrix: Water
Date Received: 07/18/25 08:00

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	<0.28		1.6	0.28	ng/L		07/21/25 04:43	07/22/25 20:28	1
NEtFOSAA	**2.9**		1.6	0.35	ng/L		07/21/25 04:43	07/22/25 20:28	1
NMeFOSE	<1.8		7.9	1.8	ng/L		07/21/25 04:43	07/22/25 20:28	1
NEtFOSE	<1.9		7.9	1.9	ng/L		07/21/25 04:43	07/22/25 20:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/21/25 04:43	07/22/25 20:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.32		1.6	0.32	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.25**	**J**	1.6	0.15	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/22/25 20:28	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.57		1.6	0.57	ng/L		07/21/25 04:43	07/22/25 20:28	1
F-53B Major	<0.46		1.6	0.46	ng/L		07/21/25 04:43	07/22/25 20:28	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/21/25 04:43	07/22/25 20:28	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/22/25 20:28	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	**10**		3.2	0.57	ng/L		07/21/25 04:43	07/22/25 20:28	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**40**		7.9	1.4	ng/L		07/21/25 04:43	07/22/25 20:28	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	**5.6**	**J**	7.9	0.98	ng/L		07/21/25 04:43	07/22/25 20:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97.0*	*	*5 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C5 PFPeA	*68.4*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C5 PFHxA	*82.7*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C4 PFHpA	*88.4*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C8 PFOA	*108*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C9 PFNA	*105*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C6 PFDA	*99.8*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C7 PFUnA	*94.3*		*30 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C2 PFDoA	*79.1*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C2 PFTeDA	*70.4*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C3 PFBS	*95.0*		*40 - 135*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C3 PFHxS	*102*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C8 PFOS	*94.1*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C8 FOSA	*73.5*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d3-NMeFOSAA	*73.0*		*40 - 170*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d5-NEtFOSAA	*72.3*		*25 - 135*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
M2-4:2 FTS	*199*	*^c*	*40 - 200*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
M2-6:2 FTS	*97.8*		*40 - 200*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
M2-8:2 FTS	*87.8*		*40 - 300*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
13C3 HFPO-DA	*83.6*		*40 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d7-N-MeFOSE-M	*70.6*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d9-N-EtFOSE-M	*77.2*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d5-NEtPFOSA	*68.6*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*
d3-NMePFOSA	*68.9*		*10 - 130*	*07/21/25 04:43*	*07/22/25 20:28*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-200-A

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**170**		2.9	0.27	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoropentanoic acid (PFPeA)	**300**		1.5	0.17	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorohexanoic acid (PFHxA)	**400**		1.5	0.20	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoroheptanoic acid (PFHpA)	**350**		1.5	0.25	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorooctanoic acid (PFOA)	**1800**	**E**	1.5	0.29	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorononanoic acid (PFNA)	**100**		1.5	0.33	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorodecanoic acid (PFDA)	**68**		1.5	0.32	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoroundecanoic acid (PFUnA)	**32**		1.5	0.17	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorododecanoic acid (PFDoA)	**3.3**		1.5	0.41	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorotridecanoic acid (PFTriA)	**1.2**	**J**	1.5	0.42	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorotetradecanoic acid (PFTeA)	<0.59		1.5	0.59	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorobutanesulfonic acid (PFBS)	**12**		1.5	0.39	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoropentanesulfonic acid (PFPeS)	**2.0**		1.5	0.16	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorohexanesulfonic acid (PFHxS)	**69**		1.5	0.18	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoroheptanesulfonic acid (PFHpS)	**5.0**		1.5	0.13	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorooctanesulfonic acid (PFOS)	**450**	**E**	1.5	0.20	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorononanesulfonic acid (PFNS)	<0.23		1.5	0.23	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorodecanesulfonic acid (PFDS)	**0.34**	**J**	1.5	0.23	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorododecanesulfonic acid (PFDoS)	<0.39		1.5	0.39	ng/L		07/23/25 19:41	07/24/25 10:09	1
4:2 FTS	**6.8**		2.9	0.32	ng/L		07/23/25 19:41	07/24/25 10:09	1
6:2 FTS	**1500**	**E**	2.9	0.30	ng/L		07/23/25 19:41	07/24/25 10:09	1
8:2 FTS	**1000**	**E**	2.9	0.66	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluorooctanesulfonamide (FOSA)	**16**		1.5	0.16	ng/L		07/23/25 19:41	07/24/25 10:09	1
NMeFOSA	<0.28		1.5	0.28	ng/L		07/23/25 19:41	07/24/25 10:09	1
NEtFOSA	<0.33		1.5	0.33	ng/L		07/23/25 19:41	07/24/25 10:09	1
NMeFOSAA	<0.26		1.5	0.26	ng/L		07/23/25 19:41	07/24/25 10:09	1
NEtFOSAA	**2.9**		1.5	0.32	ng/L		07/23/25 19:41	07/24/25 10:09	1
NMeFOSE	<1.7		7.3	1.7	ng/L		07/23/25 19:41	07/24/25 10:09	1
NEtFOSE	<1.8		7.3	1.8	ng/L		07/23/25 19:41	07/24/25 10:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.29		1.1	0.29	ng/L		07/23/25 19:41	07/24/25 10:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.29		1.5	0.29	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	**0.19**	**J**	1.5	0.14	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	**0.20**	**J**	1.5	0.19	ng/L		07/23/25 19:41	07/24/25 10:09	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.53		1.5	0.53	ng/L		07/23/25 19:41	07/24/25 10:09	1
F-53B Major	<0.42		1.5	0.42	ng/L		07/23/25 19:41	07/24/25 10:09	1
F-53B Minor	<0.22		1.5	0.22	ng/L		07/23/25 19:41	07/24/25 10:09	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.18		1.5	0.18	ng/L		07/23/25 19:41	07/24/25 10:09	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-200-A

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	7.8		2.9	0.53	ng/L		07/23/25 19:41	07/24/25 10:09	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	36		7.3	1.3	ng/L		07/23/25 19:41	07/24/25 10:09	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	4.0	J	7.3	0.91	ng/L		07/23/25 19:41	07/24/25 10:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91.0*	*	*5 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C5 PFPeA	*68.2*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C5 PFHxA	*77.3*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C4 PFHpA	*77.5*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C8 PFOA	*107*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C9 PFNA	*100*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C6 PFDA	*97.0*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C7 PFUnA	*90.5*		*30 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C2 PFDoA	*82.3*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C2 PFTeDA	*92.7*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C3 PFBS	*95.9*		*40 - 135*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C3 PFHxS	*97.0*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C8 PFOS	*95.2*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C8 FOSA	*73.3*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d3-NMeFOSAA	*73.7*		*40 - 170*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d5-NEtFOSAA	*76.1*		*25 - 135*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
M2-4:2 FTS	*196*		*40 - 200*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
M2-6:2 FTS	*93.9*		*40 - 200*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
M2-8:2 FTS	*88.2*		*40 - 300*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
13C3 HFPO-DA	*75.3*		*40 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d7-N-MeFOSE-M	*65.2*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d9-N-EtFOSE-M	*67.2*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d5-NEtPFOSA	*67.1*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*
d3-NMePFOSA	*71.6*		*10 - 130*	*07/23/25 19:41*	*07/24/25 10:09*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-900-A

Date Collected: 07/17/25 05:35
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.68**	**J**	3.2	0.30	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoropentanoic acid (PFPeA)	<0.18	^	1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorohexanoic acid (PFHxA)	<0.21		1.6	0.21	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoroheptanoic acid (PFHpA)	<0.27		1.6	0.27	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorooctanoic acid (PFOA)	**0.38**	**J C**	1.6	0.31	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorononanoic acid (PFNA)	<0.36		1.6	0.36	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorodecanoic acid (PFDA)	<0.35		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoroundecanoic acid (PFUnA)	<0.18		1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorododecanoic acid (PFDoA)	<0.44		1.6	0.44	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorotridecanoic acid (PFTriA)	<0.46		1.6	0.46	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.6	0.64	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorobutanesulfonic acid (PFBS)	<0.43		1.6	0.43	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.6	0.19	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.14		1.6	0.14	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorooctanesulfonic acid (PFOS)	**0.33**	**J**	1.6	0.22	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorononanesulfonic acid (PFNS)	<0.25		1.6	0.25	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorodecanesulfonic acid (PFDS)	<0.25		1.6	0.25	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorododecanesulfonic acid (PFDoS)	<0.42		1.6	0.42	ng/L		07/21/25 04:43	07/21/25 18:49	1
4:2 FTS	<0.35		3.2	0.35	ng/L		07/21/25 04:43	07/21/25 18:49	1
6:2 FTS	<0.32		3.2	0.32	ng/L		07/21/25 04:43	07/21/25 18:49	1
8:2 FTS	**0.94**	**J**	3.2	0.71	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluorooctanesulfonamide (FOSA)	<0.18		1.6	0.18	ng/L		07/21/25 04:43	07/21/25 18:49	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/21/25 04:43	07/21/25 18:49	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:49	1
NMeFOSAA	<0.28		1.6	0.28	ng/L		07/21/25 04:43	07/21/25 18:49	1
NEtFOSAA	<0.35		1.6	0.35	ng/L		07/21/25 04:43	07/21/25 18:49	1
NMeFOSE	<1.8		7.9	1.8	ng/L		07/21/25 04:43	07/21/25 18:49	1
NEtFOSE	<1.9		7.9	1.9	ng/L		07/21/25 04:43	07/21/25 18:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/21/25 04:43	07/21/25 18:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.32		1.6	0.32	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/21/25 18:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.57		1.6	0.57	ng/L		07/21/25 04:43	07/21/25 18:49	1
F-53B Major	<0.46		1.6	0.46	ng/L		07/21/25 04:43	07/21/25 18:49	1
F-53B Minor	<0.24		1.6	0.24	ng/L		07/21/25 04:43	07/21/25 18:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/21/25 04:43	07/21/25 18:49	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.57		3.2	0.57	ng/L		07/21/25 04:43	07/21/25 18:49	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.4		7.9	1.4	ng/L		07/21/25 04:43	07/21/25 18:49	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.98		7.9	0.98	ng/L		07/21/25 04:43	07/21/25 18:49	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-900-A

Date Collected: 07/17/25 05:35
Date Received: 07/18/25 08:00

Lab Sample ID: 500-271835-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	89.3		5 - 130	07/21/25 04:43	07/21/25 18:49	1
13C5 PFPeA	94.8		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C5 PFHxA	98.1		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C4 PFHpA	94.0		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C8 PFOA	95.7		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C9 PFNA	99.6		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C6 PFDA	94.2		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C7 PFUnA	91.6		30 - 130	07/21/25 04:43	07/21/25 18:49	1
13C2 PFDoA	77.4		10 - 130	07/21/25 04:43	07/21/25 18:49	1
13C2 PFTeDA	86.2		10 - 130	07/21/25 04:43	07/21/25 18:49	1
13C3 PFBS	95.7		40 - 135	07/21/25 04:43	07/21/25 18:49	1
13C3 PFHxS	92.9		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C8 PFOS	88.8		40 - 130	07/21/25 04:43	07/21/25 18:49	1
13C8 FOSA	71.6		40 - 130	07/21/25 04:43	07/21/25 18:49	1
d3-NMeFOSAA	75.9		40 - 170	07/21/25 04:43	07/21/25 18:49	1
d5-NEtFOSAA	73.9		25 - 135	07/21/25 04:43	07/21/25 18:49	1
M2-4:2 FTS	83.8		40 - 200	07/21/25 04:43	07/21/25 18:49	1
M2-6:2 FTS	73.3		40 - 200	07/21/25 04:43	07/21/25 18:49	1
M2-8:2 FTS	78.1		40 - 300	07/21/25 04:43	07/21/25 18:49	1
13C3 HFPO-DA	101		40 - 130	07/21/25 04:43	07/21/25 18:49	1
d7-N-MeFOSE-M	71.8		10 - 130	07/21/25 04:43	07/21/25 18:49	1
d9-N-EtFOSE-M	77.8		10 - 130	07/21/25 04:43	07/21/25 18:49	1
d5-NEtPFOSA	68.8		10 - 130	07/21/25 04:43	07/21/25 18:49	1
d3-NMePFOSA	70.5		10 - 130	07/21/25 04:43	07/21/25 18:49	1

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-271835-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
*	ISTD response or retention time outside acceptable limits
*	Isotope Dilution analyte is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
^c	CCV Recovery is outside acceptance limits.
B	Compound was found in the blank and sample.
C	See Case Narrative
E	Result exceeded calibration range.
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-864429/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoropentanoic acid (PFPeA)	<0.23		2.0	0.23	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorobutanesulfonic acid (PFBS)	2.36		2.0	0.54	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/21/25 04:43	07/21/25 14:58	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/21/25 04:43	07/21/25 14:58	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/21/25 04:43	07/21/25 14:58	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/21/25 04:43	07/21/25 14:58	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/21/25 04:43	07/21/25 14:58	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/21/25 04:43	07/21/25 14:58	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/21/25 04:43	07/21/25 14:58	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/21/25 04:43	07/21/25 14:58	1
NMeFOSE	<2.3		10	2.3	ng/L		07/21/25 04:43	07/21/25 14:58	1
NEtFOSE	<2.4		10	2.4	ng/L		07/21/25 04:43	07/21/25 14:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/21/25 04:43	07/21/25 14:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/21/25 04:43	07/21/25 14:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/21/25 04:43	07/21/25 14:58	1
F-53B Major	<0.58		2.0	0.58	ng/L		07/21/25 04:43	07/21/25 14:58	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/21/25 04:43	07/21/25 14:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/21/25 04:43	07/21/25 14:58	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/21/25 04:43	07/21/25 14:58	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/21/25 04:43	07/21/25 14:58	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-864429/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/21/25 04:43	07/21/25 14:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*5 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C5 PFPeA	*108*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C5 PFHxA	*112*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C4 PFHpA	*111*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C8 PFOA	*112*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C9 PFNA	*112*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C6 PFDA	*112*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C7 PFUnA	*106*		*30 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C2 PFDoA	*95.0*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C2 PFTeDA	*106*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C3 PFBS	*110*		*40 - 135*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C3 PFHxS	*106*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C8 PFOS	*102*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C8 FOSA	*77.1*		*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d3-NMeFOSAA	*94.7*		*40 - 170*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d5-NEtFOSAA	*87.9*		*25 - 135*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
M2-4:2 FTS	*104*		*40 - 200*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
M2-6:2 FTS	*87.9*		*40 - 200*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
M2-8:2 FTS	*96.5*		*40 - 300*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
13C3 HFPO-DA	*139*	*	*40 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d7-N-MeFOSE-M	*84.6*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d9-N-EtFOSE-M	*94.6*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d5-NEtPFOSA	*69.1*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*
d3-NMePFOSA	*68.6*		*10 - 130*	*07/21/25 04:43*	*07/21/25 14:58*	*1*

Lab Sample ID: LCS 320-864429/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	80.2		ng/L		100	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	46.3		ng/L		116	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	42.3		ng/L		106	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	43.7		ng/L		109	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	36.4		ng/L		91	70 - 150
Perfluorononanoic acid (PFNA)	40.0	38.2		ng/L		96	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.1		ng/L		95	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	38.9		ng/L		97	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	43.6		ng/L		109	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	37.3		ng/L		93	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	37.5		ng/L		94	60 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-864429/3-A
Matrix: Water
Analysis Batch: 864580

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864429

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	37.4		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.3		ng/L		97	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.6		ng/L		95	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.4		ng/L		95	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	35.2		ng/L		95	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.9		ng/L		96	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	36.9		ng/L		96	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	36.3		ng/L		94	50 - 145
4:2 FTS	75.0	77.5		ng/L		103	70 - 145
6:2 FTS	76.2	83.1		ng/L		109	65 - 155
8:2 FTS	76.8	75.1		ng/L		98	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	41.5		ng/L		104	70 - 145
NMeFOSA	40.0	45.3		ng/L		113	60 - 150
NEtFOSA	40.0	41.6		ng/L		104	65 - 145
NMeFOSAA	40.0	40.0		ng/L		100	50 - 140
NEtFOSAA	40.0	40.7		ng/L		102	70 - 145
NMeFOSE	200	194		ng/L		97	70 - 145
NEtFOSE	200	191		ng/L		95	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	26.2		ng/L		87	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	38.3		ng/L		101	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	41.6		ng/L		104	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	43.5		ng/L		109	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	33.0		ng/L		83	50 - 150
F-53B Major	37.4	36.9		ng/L		99	70 - 155
F-53B Minor	37.8	43.2		ng/L		114	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	39.0		ng/L		109	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	78.5		ng/L		98	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	165		ng/L		83	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	155		ng/L		77	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*97.7*		*5 - 130*
13C5 PFPeA	*101*		*40 - 130*
13C5 PFHxA	*109*		*40 - 130*
13C4 PFHpA	*101*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-864429/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*116*		*40 - 130*
13C9 PFNA	*105*		*40 - 130*
13C6 PFDA	*108*		*40 - 130*
13C7 PFUnA	*108*		*30 - 130*
13C2 PFDoA	*93.9*		*10 - 130*
13C2 PFTeDA	*107*		*10 - 130*
13C3 PFBS	*106*		*40 - 135*
13C3 PFHxS	*105*		*40 - 130*
13C8 PFOS	*103*		*40 - 130*
13C8 FOSA	*74.1*		*40 - 130*
d3-NMeFOSAA	*89.0*		*40 - 170*
d5-NEtFOSAA	*86.7*		*25 - 135*
M2-4:2 FTS	*103*		*40 - 200*
M2-6:2 FTS	*84.1*		*40 - 200*
M2-8:2 FTS	*95.3*		*40 - 300*
13C3 HFPO-DA	*107*		*40 - 130*
d7-N-MeFOSE-M	*83.7*		*10 - 130*
d9-N-EtFOSE-M	*89.6*		*10 - 130*
d5-NEtPFOSA	*70.4*		*10 - 130*
d3-NMePFOSA	*67.0*		*10 - 130*

Lab Sample ID: LCSD 320-864429/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	83.9		ng/L		105	70 - 140	5	30
Perfluoropentanoic acid (PFPeA)	40.0	47.2		ng/L		118	65 - 135	2	30
Perfluorohexanoic acid (PFHxA)	40.0	42.1		ng/L		105	70 - 145	0	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.9		ng/L		102	70 - 150	6	30
Perfluorooctanoic acid (PFOA)	40.0	37.8		ng/L		94	70 - 150	4	30
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		105	70 - 150	10	30
Perfluorodecanoic acid (PFDA)	40.0	38.4		ng/L		96	70 - 140	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	41.2		ng/L		103	70 - 145	6	30
Perfluorododecanoic acid (PFDoA)	40.0	43.4		ng/L		108	70 - 140	1	30
Perfluorotridecanoic acid (PFTriA)	40.0	37.3		ng/L		93	65 - 140	0	30
Perfluorotetradecanoic acid (PFTeA)	40.0	41.7		ng/L		104	60 - 140	11	30
Perfluorobutanesulfonic acid (PFBS)	35.5	38.3		ng/L		108	60 - 145	2	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.5		ng/L		102	65 - 140	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.6		ng/L		97	65 - 145	3	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.8		ng/L		99	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)	37.2	35.0		ng/L		94	55 - 150	1	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-864429/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.5	35.9		ng/L		93	65 - 145	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.8		ng/L		101	60 - 145	5	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	34.7		ng/L		89	50 - 145	4	30
4:2 FTS			75.0	81.7		ng/L		109	70 - 145	5	30
6:2 FTS			76.2	81.2		ng/L		107	65 - 155	2	30
8:2 FTS			76.8	81.3		ng/L		106	60 - 150	8	30
Perfluorooctanesulfonamide (FOSA)			40.0	41.4		ng/L		103	70 - 145	0	30
NMeFOSA			40.0	44.8		ng/L		112	60 - 150	1	30
NEtFOSA			40.0	43.4		ng/L		108	65 - 145	4	30
NMeFOSAA			40.0	40.1		ng/L		100	50 - 140	0	30
NEtFOSAA			40.0	40.3		ng/L		101	70 - 145	1	30
NMeFOSE			200	202		ng/L		101	70 - 145	4	30
NEtFOSE			200	193		ng/L		96	70 - 135	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	27.4		ng/L		91	70 - 140	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	36.5		ng/L		96	65 - 145	5	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	41.3		ng/L		103	55 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	42.1		ng/L		105	60 - 150	3	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	37.7		ng/L		94	50 - 150	13	30
F-53B Major			37.4	36.8		ng/L		98	70 - 155	0	30
F-53B Minor			37.8	42.9		ng/L		114	55 - 160	1	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	40.0		ng/L		112	70 - 140	3	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	73.9		ng/L		92	65 - 130	6	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	165		ng/L		83	70 - 135	0	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	158		ng/L		79	50 - 145	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*97.3*		*5 - 130*
13C5 PFPeA	*103*		*40 - 130*
13C5 PFHxA	*110*		*40 - 130*
13C4 PFHpA	*110*		*40 - 130*
13C8 PFOA	*109*		*40 - 130*
13C9 PFNA	*104*		*40 - 130*
13C6 PFDA	*106*		*40 - 130*
13C7 PFUnA	*102*		*30 - 130*
13C2 PFDoA	*92.6*		*10 - 130*
13C2 PFTeDA	*106*		*10 - 130*
13C3 PFBS	*103*		*40 - 135*
13C3 PFHxS	*102*		*40 - 130*
13C8 PFOS	*105*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-864429/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*77.6*		*40 - 130*
d3-NMeFOSAA	*94.3*		*40 - 170*
d5-NEtFOSAA	*89.3*		*25 - 135*
M2-4:2 FTS	*94.5*		*40 - 200*
M2-6:2 FTS	*87.0*		*40 - 200*
M2-8:2 FTS	*91.4*		*40 - 300*
13C3 HFPO-DA	*109*		*40 - 130*
d7-N-MeFOSE-M	*84.0*		*10 - 130*
d9-N-EtFOSE-M	*91.2*		*10 - 130*
d5-NEtPFOSA	*69.1*		*10 - 130*
d3-NMePFOSA	*67.2*		*10 - 130*

Lab Sample ID: LLCS 320-864429/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.29		ng/L		104	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	5.02		ng/L		126	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.23		ng/L		106	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	4.11		ng/L		103	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.86		ng/L		96	70 - 150
Perfluorononanoic acid (PFNA)	4.00	4.28		ng/L		107	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.42		ng/L		86	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.09		ng/L		102	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.41		ng/L		110	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.86		ng/L		97	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.28		ng/L		107	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	4.05		ng/L		114	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.80		ng/L		101	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.88		ng/L		106	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.83		ng/L		100	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.67		ng/L		99	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	4.33		ng/L		112	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.87		ng/L		100	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	4.13		ng/L		106	50 - 145
4:2 FTS	7.50	8.41		ng/L		112	70 - 145
6:2 FTS	7.62	8.90		ng/L		117	65 - 155
8:2 FTS	7.68	8.40		ng/L		109	60 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-864429/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	4.00	4.33		ng/L		108	70 - 145
NMeFOSA	4.00	4.52		ng/L		113	60 - 150
NEtFOSA	4.00	4.15		ng/L		104	65 - 145
NMeFOSAA	4.00	3.80		ng/L		95	50 - 140
NEtFOSAA	4.00	4.34		ng/L		109	70 - 145
NMeFOSE	20.0	20.3		ng/L		102	70 - 145
NEtFOSE	20.0	18.1		ng/L		91	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.78		ng/L		93	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.76		ng/L		99	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.20		ng/L		105	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.39		ng/L		110	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	3.59		ng/L		90	50 - 150
F-53B Major	3.74	3.83		ng/L		103	70 - 155
F-53B Minor	3.78	4.12		ng/L		109	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.85		ng/L		108	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	7.58		ng/L		95	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	17.0		ng/L		85	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	14.9		ng/L		74	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*104*		*5 - 130*
13C5 PFPeA	*110*		*40 - 130*
13C5 PFHxA	*118*		*40 - 130*
13C4 PFHpA	*116*		*40 - 130*
13C8 PFOA	*109*		*40 - 130*
13C9 PFNA	*105*		*40 - 130*
13C6 PFDA	*115*		*40 - 130*
13C7 PFUnA	*117*		*30 - 130*
13C2 PFDoA	*104*		*10 - 130*
13C2 PFTeDA	*118*		*10 - 130*
13C3 PFBS	*111*		*40 - 135*
13C3 PFHxS	*110*		*40 - 130*
13C8 PFOS	*104*		*40 - 130*
13C8 FOSA	*78.8*		*40 - 130*
d3-NMeFOSAA	*96.0*		*40 - 170*
d5-NEtFOSAA	*92.9*		*25 - 135*
M2-4:2 FTS	*103*		*40 - 200*
M2-6:2 FTS	*86.3*		*40 - 200*
M2-8:2 FTS	*98.2*		*40 - 300*
13C3 HFPO-DA	*118*		*40 - 130*
d7-N-MeFOSE-M	*90.7*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-864429/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 864580 **Prep Batch: 864429**

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
d9-N-EtFOSE-M	*101*		*10 - 130*
d5-NEtPFOSA	*76.2*		*10 - 130*
d3-NMePFOSA	*72.1*		*10 - 130*

Lab Sample ID: MB 320-865312/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoropentanoic acid (PFPeA)	<0.23		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorobutanesulfonic acid (PFBS)	<0.54		2.0	0.54	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/23/25 19:41	07/24/25 08:47	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/23/25 19:41	07/24/25 08:47	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSE	<2.3		10	2.3	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSE	<2.4		10	2.4	ng/L		07/23/25 19:41	07/24/25 08:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/23/25 19:41	07/24/25 08:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/23/25 19:41	07/24/25 08:47	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-865312/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<0.58		2.0	0.58	ng/L		07/23/25 19:41	07/24/25 08:47	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/23/25 19:41	07/24/25 08:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98.6*		*5 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C5 PFPeA	*120*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C5 PFHxA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C4 PFHpA	*109*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 PFOA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C9 PFNA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C6 PFDA	*101*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C7 PFUnA	*86.8*		*30 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C2 PFDoA	*81.4*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C2 PFTeDA	*84.5*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 PFBS	*102*		*40 - 135*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 PFHxS	*99.6*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 PFOS	*97.0*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 FOSA	*66.7*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d3-NMeFOSAA	*80.8*		*40 - 170*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d5-NEtFOSAA	*76.7*		*25 - 135*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-4:2 FTS	*144*		*40 - 200*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-6:2 FTS	*99.9*		*40 - 200*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-8:2 FTS	*110*		*40 - 300*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 HFPO-DA	*103*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d7-N-MeFOSE-M	*64.1*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d9-N-EtFOSE-M	*67.3*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d5-NEtPFOSA	*57.0*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d3-NMePFOSA	*60.2*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*

Lab Sample ID: LCS 320-865312/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	83.1		ng/L		104	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	39.7		ng/L		99	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	44.2		ng/L		111	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	40.1		ng/L		100	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.2		ng/L		96	70 - 150
Perfluorononanoic acid (PFNA)	40.0	42.4		ng/L		106	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	39.0		ng/L		98	70 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865312/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	40.0	38.5		ng/L		96	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	45.5		ng/L		114	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	38.5		ng/L		96	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	40.7		ng/L		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	37.5		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.5		ng/L		94	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.0		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	35.5		ng/L		93	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	34.5		ng/L		93	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.1		ng/L		94	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	38.7		ng/L		100	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.2		ng/L		91	50 - 145
4:2 FTS	75.0	80.3		ng/L		107	70 - 145
6:2 FTS	76.2	85.5		ng/L		112	65 - 155
8:2 FTS	76.8	77.9		ng/L		101	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	42.2		ng/L		105	70 - 145
NMeFOSA	40.0	42.8		ng/L		107	60 - 150
NEtFOSA	40.0	43.4		ng/L		108	65 - 145
NMeFOSAA	40.0	37.1		ng/L		93	50 - 140
NEtFOSAA	40.0	39.9		ng/L		100	70 - 145
NMeFOSE	200	211		ng/L		106	70 - 145
NEtFOSE	200	193		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	29.1		ng/L		97	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.3		ng/L		104	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	39.0		ng/L		98	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	42.2		ng/L		106	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	42.7		ng/L		107	50 - 150
F-53B Major	37.4	41.6		ng/L		111	70 - 155
F-53B Minor	37.8	50.7		ng/L		134	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	40.3		ng/L		113	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	71.7		ng/L		90	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	164		ng/L		82	70 - 135

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865312/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	154		ng/L		77	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*89.6*		*5 - 130*
13C5 PFPeA	*101*		*40 - 130*
13C5 PFHxA	*95.3*		*40 - 130*
13C4 PFHpA	*96.4*		*40 - 130*
13C8 PFOA	*97.3*		*40 - 130*
13C9 PFNA	*96.7*		*40 - 130*
13C6 PFDA	*99.6*		*40 - 130*
13C7 PFUnA	*96.9*		*30 - 130*
13C2 PFDoA	*87.9*		*10 - 130*
13C2 PFTeDA	*101*		*10 - 130*
13C3 PFBS	*95.1*		*40 - 135*
13C3 PFHxS	*97.9*		*40 - 130*
13C8 PFOS	*97.1*		*40 - 130*
13C8 FOSA	*66.6*		*40 - 130*
d3-NMeFOSAA	*83.5*		*40 - 170*
d5-NEtFOSAA	*83.5*		*25 - 135*
M2-4:2 FTS	*125*		*40 - 200*
M2-6:2 FTS	*93.1*		*40 - 200*
M2-8:2 FTS	*103*		*40 - 300*
13C3 HFPO-DA	*91.3*		*40 - 130*
d7-N-MeFOSE-M	*71.0*		*10 - 130*
d9-N-EtFOSE-M	*77.2*		*10 - 130*
d5-NEtPFOSA	*68.3*		*10 - 130*
d3-NMePFOSA	*69.4*		*10 - 130*

Lab Sample ID: LCSD 320-865312/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	84.9		ng/L		106	70 - 140	2	30
Perfluoropentanoic acid (PFPeA)	40.0	37.8		ng/L		94	65 - 135	5	30
Perfluorohexanoic acid (PFHxA)	40.0	40.3		ng/L		101	70 - 145	9	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.9		ng/L		102	70 - 150	2	30
Perfluorooctanoic acid (PFOA)	40.0	37.6		ng/L		94	70 - 150	2	30
Perfluorononanoic acid (PFNA)	40.0	40.8		ng/L		102	70 - 150	4	30
Perfluorodecanoic acid (PFDA)	40.0	38.3		ng/L		96	70 - 140	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	70 - 145	3	30
Perfluorododecanoic acid (PFDoA)	40.0	43.8		ng/L		109	70 - 140	4	30
Perfluorotridecanoic acid (PFTriA)	40.0	36.4		ng/L		91	65 - 140	6	30
Perfluorotetradecanoic acid (PFTeA)	40.0	37.3		ng/L		93	60 - 140	9	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865312/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)	35.5	37.2		ng/L		105	60 - 145	1	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.1		ng/L		93	65 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.0		ng/L		93	65 - 145	3	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.4		ng/L		98	70 - 150	5	30
Perfluorooctanesulfonic acid (PFOS)	37.2	35.2		ng/L		95	55 - 150	2	30
Perfluorononanesulfonic acid (PFNS)	38.5	40.4		ng/L		105	65 - 145	11	30
Perfluorodecanesulfonic acid (PFDS)	38.6	37.0		ng/L		96	60 - 145	4	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	33.6		ng/L		87	50 - 145	5	30
4:2 FTS	75.0	76.6		ng/L		102	70 - 145	5	30
6:2 FTS	76.2	77.3		ng/L		102	65 - 155	10	30
8:2 FTS	76.8	73.4		ng/L		96	60 - 150	6	30
Perfluorooctanesulfonamide (FOSA)	40.0	39.9		ng/L		100	70 - 145	5	30
NMeFOSA	40.0	43.0		ng/L		108	60 - 150	1	30
NEtFOSA	40.0	41.4		ng/L		104	65 - 145	5	30
NMeFOSAA	40.0	41.4		ng/L		104	50 - 140	11	30
NEtFOSAA	40.0	41.2		ng/L		103	70 - 145	3	30
NMeFOSE	200	203		ng/L		101	70 - 145	4	30
NEtFOSE	200	191		ng/L		95	70 - 135	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	24.8		ng/L		83	70 - 140	16	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	38.5		ng/L		102	65 - 145	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	37.4		ng/L		94	55 - 140	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	40.6		ng/L		101	60 - 150	4	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	37.8		ng/L		95	50 - 150	12	30
F-53B Major	37.4	39.8		ng/L		107	70 - 155	4	30
F-53B Minor	37.8	45.1		ng/L		119	55 - 160	12	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	39.5		ng/L		111	70 - 140	2	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	69.2		ng/L		86	65 - 130	4	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	159		ng/L		80	70 - 135	3	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	158		ng/L		79	50 - 145	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*91.5*		*5 - 130*
13C5 PFPeA	*114*		*40 - 130*
13C5 PFHxA	*104*		*40 - 130*
13C4 PFHpA	*105*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865312/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 PFOA	*98.3*		*40 - 130*
13C9 PFNA	*101*		*40 - 130*
13C6 PFDA	*89.0*		*40 - 130*
13C7 PFUnA	*87.2*		*30 - 130*
13C2 PFDoA	*77.8*		*10 - 130*
13C2 PFTeDA	*85.2*		*10 - 130*
13C3 PFBS	*97.3*		*40 - 135*
13C3 PFHxS	*98.9*		*40 - 130*
13C8 PFOS	*94.2*		*40 - 130*
13C8 FOSA	*69.0*		*40 - 130*
d3-NMeFOSAA	*83.3*		*40 - 170*
d5-NEtFOSAA	*81.5*		*25 - 135*
M2-4:2 FTS	*131*		*40 - 200*
M2-6:2 FTS	*99.4*		*40 - 200*
M2-8:2 FTS	*108*		*40 - 300*
13C3 HFPO-DA	*102*		*40 - 130*
d7-N-MeFOSE-M	*71.4*		*10 - 130*
d9-N-EtFOSE-M	*73.2*		*10 - 130*
d5-NEtPFOSA	*69.1*		*10 - 130*
d3-NMePFOSA	*69.6*		*10 - 130*

Lab Sample ID: LLCS 320-865312/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.89		ng/L		111	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	3.97		ng/L		99	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.42		ng/L		111	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.93		ng/L		98	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.42		ng/L		110	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.97		ng/L		99	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.70		ng/L		92	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.11		ng/L		103	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.50		ng/L		113	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.97		ng/L		99	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	3.74		ng/L		94	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.64		ng/L		102	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.65		ng/L		97	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.50		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.81		ng/L		100	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.81		ng/L		102	55 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865312/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865377 **Prep Batch: 865312**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	3.85	3.72		ng/L		97	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.59		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.82		ng/L		98	50 - 145
4:2 FTS	7.50	7.35		ng/L		98	70 - 145
6:2 FTS	7.62	8.63		ng/L		113	65 - 155
8:2 FTS	7.68	7.85		ng/L		102	60 - 150
Perfluorooctanesulfonamide (FOSA)	4.00	4.06		ng/L		101	70 - 145
NMeFOSA	4.00	4.41		ng/L		110	60 - 150
NEtFOSA	4.00	4.66		ng/L		116	65 - 145
NMeFOSAA	4.00	3.38		ng/L		85	50 - 140
NEtFOSAA	4.00	4.11		ng/L		103	70 - 145
NMeFOSE	20.0	20.1		ng/L		100	70 - 145
NEtFOSE	20.0	19.3		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.34		ng/L		78	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.81		ng/L		101	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.71		ng/L		93	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.00		ng/L		100	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.29		ng/L		107	50 - 150
F-53B Major	3.74	3.88		ng/L		104	70 - 155
F-53B Minor	3.78	4.70		ng/L		124	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	4.15		ng/L		116	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	6.86		ng/L		86	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	16.2		ng/L		81	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	15.8		ng/L		79	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*88.5*		*5 - 130*
13C5 PFPeA	*115*		*40 - 130*
13C5 PFHxA	*106*		*40 - 130*
13C4 PFHpA	*109*		*40 - 130*
13C8 PFOA	*111*		*40 - 130*
13C9 PFNA	*102*		*40 - 130*
13C6 PFDA	*101*		*40 - 130*
13C7 PFUnA	*96.5*		*30 - 130*
13C2 PFDoA	*86.9*		*10 - 130*
13C2 PFTeDA	*97.9*		*10 - 130*
13C3 PFBS	*103*		*40 - 135*
13C3 PFHxS	*98.6*		*40 - 130*
13C8 PFOS	*103*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865312/2-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C8 FOSA	72.4		40 - 130
d3-NMeFOSAA	90.1		40 - 170
d5-NEtFOSAA	86.2		25 - 135
M2-4:2 FTS	148		40 - 200
M2-6:2 FTS	98.2		40 - 200
M2-8:2 FTS	111		40 - 300
13C3 HFPO-DA	106		40 - 130
d7-N-MeFOSE-M	77.8		10 - 130
d9-N-EtFOSE-M	80.0		10 - 130
d5-NEtPFOSA	68.7		10 - 130
d3-NMePFOSA	72.1		10 - 130

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Client Sample ID: V-200-A

Lab Sample ID: 500-271835-1

Date Collected: 07/17/25 05:30
Date Received: 07/18/25 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			864429	DXT	EET SAC	07/21/25 04:43
Total/NA	Analysis	1633A		1	864580	C1P	EET SAC	07/21/25 18:32
Total/NA	Prep	1633	RA		864429	DXT	EET SAC	07/21/25 04:43
Total/NA	Analysis	1633A	RA	1	864781	K1D	EET SAC	07/22/25 20:28
Total/NA	Prep	1633	DL		864429	DXT	EET SAC	07/21/25 04:43
Total/NA	Analysis	1633A	DL	10	864781	K1D	EET SAC	07/22/25 20:45
Total/NA	Prep	1633	RE		865312	CJS	EET SAC	07/23/25 19:41
Total/NA	Analysis	1633A	RE	1	865377	JTD	EET SAC	07/24/25 10:09

Client Sample ID: V-900-A

Lab Sample ID: 500-271835-2

Date Collected: 07/17/25 05:35
Date Received: 07/18/25 08:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			864429	DXT	EET SAC	07/21/25 04:43
Total/NA	Analysis	1633A		1	864580	C1P	EET SAC	07/21/25 18:49

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 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins TestA. ica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467 7248

Chai f Custody Record

eurofins

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-17-25	COC No 1
Arcadis U.S. Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time: ☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only: Walk-in Client: Lab Sampling
Phone	TAT if different from Below ____ ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			
FAX				Lab Project Number: 50015522
Project Name: Marinette WI				
Site: Marinette, WI				
P O # 30284780.4 1 1 (WPDES)				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS EPA 1633 (40 Compounds)	Sample Specific Notes:
V-200-A	7-17-25	5 30	G	W	2	N	N	X	System Influent
V-900-A	↓	5:35	G	W	2	N	N	X	System Effluent

500-271835 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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments.
7-Day TAT Max or Prelim Report by Day 7
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact: ☑ Yes ☐ No | Custody Seal No 174/9593 | Cooler Temp. (°C): Obs'd. 7.0 Corr'd: 7.0 | Therm ID No. 610

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jacob Ramnger	Barley Excavating	7-17-25/7:10	Fed Ex		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
				EET Sac	7/18/25 800
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002 Rev 4.23, dated 4/16/2019

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-271835-1

Login Number: 271835
List Number: 1
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 07/18/25 03:40 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	1949593
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	2.0c
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?	N/A	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271835-1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
500-271835-1	V-200-A	95.9 *	67.9	82.8	82.0	104	106	102	92.6
500-271835-1 - RA	V-200-A	97.0 *	68.4	82.7	88.4	108	105	99.8	94.3
500-271835-1 - DL	V-200-A	93.1 *	105 *	104 *	99.1 *	108 *	118 *	97.3 *	94.9 *
500-271835-1 - RE	V-200-A	91.0 *	68.2	77.3	77.5	107	100	97.0	90.5
500-271835-2	V-900-A	89.3	94.8	98.1	94.0	95.7	99.6	94.2	91.6
LCS 320-864429/3-A	Lab Control Sample	97.7	101	109	101	116	105	108	108
LCS 320-865312/3-A	Lab Control Sample	89.6	101	95.3	96.4	97.3	96.7	99.6	96.9
LCSD 320-864429/4-A	Lab Control Sample Dup	97.3	103	110	110	109	104	106	102
LCSD 320-865312/4-A	Lab Control Sample Dup	91.5	114	104	105	98.3	101	89.0	87.2
LLCS 320-864429/2-A	Lab Control Sample	104	110	118	116	109	105	115	117
LLCS 320-865312/2-A	Lab Control Sample	88.5	115	106	109	111	102	101	96.5
MB 320-864429/1-A	Method Blank	101	108	112	111	112	112	112	106
MB 320-865312/1-A	Method Blank	98.6	120	108	109	108	108	101	86.8

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
500-271835-1	V-200-A	80.8	73.4	98.5	100	91.6	75.6	76.0	72.3
500-271835-1 - RA	V-200-A	79.1	70.4	95.0	102	94.1	73.5	73.0	72.3
500-271835-1 - DL	V-200-A	80.0 *	73.7 *	96.9 *	99.6 *	99.3 *	76.3 *	82.3 *	75.5 *
500-271835-1 - RE	V-200-A	82.3	92.7	95.9	97.0	95.2	73.3	73.7	76.1
500-271835-2	V-900-A	77.4	86.2	95.7	92.9	88.8	71.6	75.9	73.9
LCS 320-864429/3-A	Lab Control Sample	93.9	107	106	105	103	74.1	89.0	86.7
LCS 320-865312/3-A	Lab Control Sample	87.9	101	95.1	97.9	97.1	66.6	83.5	83.5
LCSD 320-864429/4-A	Lab Control Sample Dup	92.6	106	103	102	105	77.6	94.3	89.3
LCSD 320-865312/4-A	Lab Control Sample Dup	77.8	85.2	97.3	98.9	94.2	69.0	83.3	81.5
LLCS 320-864429/2-A	Lab Control Sample	104	118	111	110	104	78.8	96.0	92.9
LLCS 320-865312/2-A	Lab Control Sample	86.9	97.9	103	98.6	103	72.4	90.1	86.2
MB 320-864429/1-A	Method Blank	95.0	106	110	106	102	77.1	94.7	87.9
MB 320-865312/1-A	Method Blank	81.4	84.5	102	99.6	97.0	66.7	80.8	76.7

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA
Lab Sample ID	Client Sample ID	(40-200)	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)
500-271835-1	V-200-A	191	88.9	84.4	86.9	80.0	78.9	72.0	72.4
500-271835-1 - RA	V-200-A	199 ^c	97.8	87.8	83.6	70.6	77.2	68.6	68.9
500-271835-1 - DL	V-200-A	142 ^c *	110 *	99.3 *	92.1 *	71.0 *	76.4 *	67.2 *	75.4 *
500-271835-1 - RE	V-200-A	196	93.9	88.2	75.3	65.2	67.2	67.1	71.6
500-271835-2	V-900-A	83.8	73.3	78.1	101	71.8	77.8	68.8	70.5
LCS 320-864429/3-A	Lab Control Sample	103	84.1	95.3	107	83.7	89.6	70.4	67.0
LCS 320-865312/3-A	Lab Control Sample	125	93.1	103	91.3	71.0	77.2	68.3	69.4
LCSD 320-864429/4-A	Lab Control Sample Dup	94.5	87.0	91.4	109	84.0	91.2	69.1	67.2
LCSD 320-865312/4-A	Lab Control Sample Dup	131	99.4	108	102	71.4	73.2	69.1	69.6
LLCS 320-864429/2-A	Lab Control Sample	103	86.3	98.2	118	90.7	101	76.2	72.1
LLCS 320-865312/2-A	Lab Control Sample	148	98.2	111	106	77.8	80.0	68.7	72.1
MB 320-864429/1-A	Method Blank	104	87.9	96.5	139 *	84.6	94.6	69.1	68.6
MB 320-865312/1-A	Method Blank	144	99.9	110	103	64.1	67.3	57.0	60.2

Surrogate Legend

PFBA = 13C4 PFBA

PFPeA = 13C5 PFPeA

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-271835-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

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JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-271938-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Client Sample Results 7
Definitions 10
Surrogate Summary 11
QC Sample Results 12
Chronicle 16
Certification Summary 17
Chain of Custody 18
Receipt Checklists 20

Job Narrative
500-271938-1

Receipt
The samples were received on 7/22/2025 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.1º C.

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

GC/MS Semi VOA
Method 625.1: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: LCS 500-827078/2-A. These results have been reported and qualified.

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

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

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Method	Method Description	Protocol	Laboratory
624.1	Volatile Organic Compounds (GC/MS)	EPA	EET CHI
625.1	Semivolatile Organic Compounds (GC/MS)	EPA	EET CHI
1664B	HEM and SGT-HEM	1664B	EET CHI
SM 2540D	Solids, Total Suspended (TSS)	SM	EET CHI
1664B	HEM and SGT-HEM (SPE)	1664B	EET CHI
625	Liquid-Liquid Extraction	EPA	EET CHI

Protocol References:

1664B = EPA-821-98-002
EPA = US Environmental Protection Agency
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET CHI = Eurofins Chicago, 18410 Crossing Drive, Suite E, Tinley Park, IL 60487, TEL (708)534-5200

Sample Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-271938-1	V-200-A	Water	07/21/25 10:25	07/22/25 09:40
500-271938-2	V-900-A	Water	07/21/25 10:50	07/22/25 09:40
500-271938-3	Trip Blank (7-21-25)-A	Water	07/21/25 00:00	07/22/25 09:40

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Client Sample ID: V-200-A

Date Collected: 07/21/25 10:25
Date Received: 07/22/25 09:40

Lab Sample ID: 500-271938-1

Matrix: Water

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			07/24/25 14:38	1
Toluene	<0.15		0.50	0.15	ug/L			07/24/25 14:38	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/24/25 14:38	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/24/25 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*07/24/25 14:38*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/24/25 14:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*110*		*70 - 130*		*07/24/25 14:38*	*1*
Dibromofluoromethane	*97*		*70 - 130*		*07/24/25 14:38*	*1*

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.097		0.79	0.097	ug/L		07/23/25 13:47	07/25/25 15:32	1
Acenaphthylene	<0.11		0.79	0.11	ug/L		07/23/25 13:47	07/25/25 15:32	1
Anthracene	<0.15		0.79	0.15	ug/L		07/23/25 13:47	07/25/25 15:32	1
Benzo[a]anthracene	<0.052		0.79	0.052	ug/L		07/23/25 13:47	07/25/25 15:32	1
Benzo[a]pyrene	<0.060		0.79	0.060	ug/L		07/23/25 13:47	07/25/25 15:32	1
Benzo[b]fluoranthene	<0.065		0.79	0.065	ug/L		07/23/25 13:47	07/25/25 15:32	1
Benzo[g,h,i]perylene	<0.38		0.79	0.38	ug/L		07/23/25 13:47	07/25/25 15:32	1
Benzo[k]fluoranthene	<0.13		0.79	0.13	ug/L		07/23/25 13:47	07/25/25 15:32	1
Chrysene	<0.074		0.79	0.074	ug/L		07/23/25 13:47	07/25/25 15:32	1
Dibenz(a,h)anthracene	<0.090		0.79	0.090	ug/L		07/23/25 13:47	07/25/25 15:32	1
Fluoranthene	<0.16		0.79	0.16	ug/L		07/23/25 13:47	07/25/25 15:32	1
Fluorene	<0.13		0.79	0.13	ug/L		07/23/25 13:47	07/25/25 15:32	1
Indeno[1,2,3-cd]pyrene	<0.061		0.79	0.061	ug/L		07/23/25 13:47	07/25/25 15:32	1
1-Methylnaphthalene	<0.24		1.6	0.24	ug/L		07/23/25 13:47	07/25/25 15:32	1
2-Methylnaphthalene	<0.067		1.6	0.067	ug/L		07/23/25 13:47	07/25/25 15:32	1
Naphthalene	<0.12		0.79	0.12	ug/L		07/23/25 13:47	07/25/25 15:32	1
Phenanthrene	<0.17		0.79	0.17	ug/L		07/23/25 13:47	07/25/25 15:32	1
Pyrene	<0.18		0.79	0.18	ug/L		07/23/25 13:47	07/25/25 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*76*		*34 - 110*	*07/23/25 13:47*	*07/25/25 15:32*	*1*
Nitrobenzene-d5	*80*		*36 - 120*	*07/23/25 13:47*	*07/25/25 15:32*	*1*
Terphenyl-d14	*110*		*40 - 145*	*07/23/25 13:47*	*07/25/25 15:32*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664B)	**1.3**	**J**	5.0	1.3	mg/L		07/30/25 07:55	07/30/25 08:02	1
Total Suspended Solids (SM 2540D)	**5.4**		5.0	1.9	mg/L			07/23/25 16:09	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Client Sample ID: V-900-A

Date Collected: 07/21/25 10:50
Date Received: 07/22/25 09:40

Lab Sample ID: 500-271938-2

Matrix: Water

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			07/24/25 15:01	1
Toluene	<0.15		0.50	0.15	ug/L			07/24/25 15:01	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/24/25 15:01	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/24/25 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*07/24/25 15:01*	*1*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*07/24/25 15:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*07/24/25 15:01*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*07/24/25 15:01*	*1*

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.097		0.79	0.097	ug/L		07/23/25 13:47	07/25/25 15:57	1
Acenaphthylene	<0.11		0.79	0.11	ug/L		07/23/25 13:47	07/25/25 15:57	1
Anthracene	<0.15		0.79	0.15	ug/L		07/23/25 13:47	07/25/25 15:57	1
Benzo[a]anthracene	<0.051		0.79	0.051	ug/L		07/23/25 13:47	07/25/25 15:57	1
Benzo[a]pyrene	<0.060		0.79	0.060	ug/L		07/23/25 13:47	07/25/25 15:57	1
Benzo[b]fluoranthene	<0.064		0.79	0.064	ug/L		07/23/25 13:47	07/25/25 15:57	1
Benzo[g,h,i]perylene	<0.38		0.79	0.38	ug/L		07/23/25 13:47	07/25/25 15:57	1
Benzo[k]fluoranthene	<0.13		0.79	0.13	ug/L		07/23/25 13:47	07/25/25 15:57	1
Chrysene	<0.074		0.79	0.074	ug/L		07/23/25 13:47	07/25/25 15:57	1
Dibenz(a,h)anthracene	<0.089		0.79	0.089	ug/L		07/23/25 13:47	07/25/25 15:57	1
Fluoranthene	<0.16		0.79	0.16	ug/L		07/23/25 13:47	07/25/25 15:57	1
Fluorene	<0.13		0.79	0.13	ug/L		07/23/25 13:47	07/25/25 15:57	1
Indeno[1,2,3-cd]pyrene	<0.061		0.79	0.061	ug/L		07/23/25 13:47	07/25/25 15:57	1
1-Methylnaphthalene	<0.24		1.6	0.24	ug/L		07/23/25 13:47	07/25/25 15:57	1
2-Methylnaphthalene	<0.066		1.6	0.066	ug/L		07/23/25 13:47	07/25/25 15:57	1
Naphthalene	<0.12		0.79	0.12	ug/L		07/23/25 13:47	07/25/25 15:57	1
Phenanthrene	<0.17		0.79	0.17	ug/L		07/23/25 13:47	07/25/25 15:57	1
Pyrene	<0.18		0.79	0.18	ug/L		07/23/25 13:47	07/25/25 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*74*		*34 - 110*	*07/23/25 13:47*	*07/25/25 15:57*	*1*
Nitrobenzene-d5	*84*		*36 - 120*	*07/23/25 13:47*	*07/25/25 15:57*	*1*
Terphenyl-d14	*109*		*40 - 145*	*07/23/25 13:47*	*07/25/25 15:57*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664B)	**1.4**	**J**	4.9	1.3	mg/L		07/30/25 07:55	07/30/25 08:02	1
Total Suspended Solids (SM 2540D)	<1.9		5.0	1.9	mg/L			07/23/25 16:07	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Client Sample ID: Trip Blank (7-21-25)-A

Lab Sample ID: 500-271938-3

Date Collected: 07/21/25 00:00
Date Received: 07/22/25 09:40

Matrix: Water

Method: EPA 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			07/24/25 11:55	1
Toluene	<0.15		0.50	0.15	ug/L			07/24/25 11:55	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/24/25 11:55	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/24/25 11:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*07/24/25 11:55*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/24/25 11:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*		*07/24/25 11:55*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*07/24/25 11:55*	*1*

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-271938-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

General Chemistry

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Surrogate Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	BFB	DCA	DBFM
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(70-130)
500-271938-1	V-200-A	97	100	110	97
500-271938-1 MS	V-200-A	101	99	104	99
500-271938-1 MSD	V-200-A	98	99	107	99
500-271938-2	V-900-A	98	101	105	95
500-271938-3	Trip Blank (7-21-25)-A	98	100	100	95
LCS 500-827188/4	Lab Control Sample	98	99	101	98
MB 500-827188/7	Method Blank	97	100	101	95

Surrogate Legend

TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
DBFM = Dibromofluoromethane

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPHL
Lab Sample ID	Client Sample ID	(34-110)	(36-120)	(40-145)
500-271938-1	V-200-A	76	80	110
500-271938-2	V-900-A	74	84	109
LCS 500-827078/2-A	Lab Control Sample	113 X	119	141
LCSD 500-827078/3-A	Lab Control Sample Dup	98	93	104
MB 500-827078/1-A	Method Blank	82	84	106

Surrogate Legend

FBP = 2-Fluorobiphenyl
NBZ = Nitrobenzene-d5
TPHL = Terphenyl-d14

QC Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-827188/7
Matrix: Water
Analysis Batch: 827188

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			07/24/25 11:31	1
Toluene	<0.15		0.50	0.15	ug/L			07/24/25 11:31	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/24/25 11:31	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/24/25 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*97*		*70 - 130*		*07/24/25 11:31*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/24/25 11:31*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*		*07/24/25 11:31*	*1*
Dibromofluoromethane	*95*		*70 - 130*		*07/24/25 11:31*	*1*

Lab Sample ID: LCS 500-827188/4
Matrix: Water
Analysis Batch: 827188

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	50.0	54.1		ug/L		108	65 - 135
Toluene	50.0	51.5		ug/L		103	70 - 130
Ethylbenzene	50.0	52.0		ug/L		104	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 130*
Dibromofluoromethane	*98*		*70 - 130*

Lab Sample ID: 500-271938-1 MS
Matrix: Water
Analysis Batch: 827188

Client Sample ID: V-200-A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.15		50.0	51.5		ug/L		103	37 - 151
Toluene	<0.15		50.0	50.9		ug/L		102	47 - 150
Ethylbenzene	<0.18		50.0	50.1		ug/L		100	37 - 162

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*

Lab Sample ID: 500-271938-1 MSD
Matrix: Water
Analysis Batch: 827188

Client Sample ID: V-200-A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.15		50.0	52.5		ug/L		105	37 - 151	2	61
Toluene	<0.15		50.0	49.9		ug/L		100	47 - 150	2	41

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-271938-1 MSD **Client Sample ID: V-200-A**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 827188

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethylbenzene	<0.18		50.0	49.2		ug/L		98	37 - 162	2	63

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*107*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-827078/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 827170 **Prep Batch: 827078**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.099		0.80	0.099	ug/L		07/23/25 13:47	07/24/25 14:21	1
Acenaphthylene	<0.11		0.80	0.11	ug/L		07/23/25 13:47	07/24/25 14:21	1
Anthracene	<0.15		0.80	0.15	ug/L		07/23/25 13:47	07/24/25 14:21	1
Benzo[a]anthracene	<0.052		0.80	0.052	ug/L		07/23/25 13:47	07/24/25 14:21	1
Benzo[a]pyrene	<0.061		0.80	0.061	ug/L		07/23/25 13:47	07/24/25 14:21	1
Benzo[b]fluoranthene	<0.065		0.80	0.065	ug/L		07/23/25 13:47	07/24/25 14:21	1
Benzo[g,h,i]perylene	<0.39		0.80	0.39	ug/L		07/23/25 13:47	07/24/25 14:21	1
Benzo[k]fluoranthene	<0.14		0.80	0.14	ug/L		07/23/25 13:47	07/24/25 14:21	1
Chrysene	<0.075		0.80	0.075	ug/L		07/23/25 13:47	07/24/25 14:21	1
Dibenz(a,h)anthracene	<0.091		0.80	0.091	ug/L		07/23/25 13:47	07/24/25 14:21	1
Fluoranthene	<0.16		0.80	0.16	ug/L		07/23/25 13:47	07/24/25 14:21	1
Fluorene	<0.13		0.80	0.13	ug/L		07/23/25 13:47	07/24/25 14:21	1
Indeno[1,2,3-cd]pyrene	<0.061		0.80	0.061	ug/L		07/23/25 13:47	07/24/25 14:21	1
1-Methylnaphthalene	<0.24		1.6	0.24	ug/L		07/23/25 13:47	07/24/25 14:21	1
2-Methylnaphthalene	<0.067		1.6	0.067	ug/L		07/23/25 13:47	07/24/25 14:21	1
Naphthalene	<0.12		0.80	0.12	ug/L		07/23/25 13:47	07/24/25 14:21	1
Phenanthrene	<0.17		0.80	0.17	ug/L		07/23/25 13:47	07/24/25 14:21	1
Pyrene	<0.18		0.80	0.18	ug/L		07/23/25 13:47	07/24/25 14:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*82*		*34 - 110*	*07/23/25 13:47*	*07/24/25 14:21*	*1*
Nitrobenzene-d5	*84*		*36 - 120*	*07/23/25 13:47*	*07/24/25 14:21*	*1*
Terphenyl-d14	*106*		*40 - 145*	*07/23/25 13:47*	*07/24/25 14:21*	*1*

Lab Sample ID: LCS 500-827078/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 827170 **Prep Batch: 827078**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	40.0	34.5		ug/L		86	47 - 145
Acenaphthylene	40.0	39.1		ug/L		98	33 - 145
Anthracene	40.0	41.0		ug/L		102	27 - 133
Benzo[a]anthracene	40.0	38.1		ug/L		95	33 - 143

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-827078/2-A
Matrix: Water
Analysis Batch: 827170

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827078

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	40.0	37.7		ug/L		94	17 - 163
Benzo[b]fluoranthene	40.0	36.6		ug/L		91	24 - 159
Benzo[g,h,i]perylene	40.0	35.8		ug/L		89	10 - 219
Benzo[k]fluoranthene	40.0	37.5		ug/L		94	11 - 162
Chrysene	40.0	37.0		ug/L		92	17 - 168
Dibenz(a,h)anthracene	40.0	37.0		ug/L		93	10 - 227
Fluoranthene	40.0	42.8		ug/L		107	26 - 137
Fluorene	40.0	36.4		ug/L		91	59 - 121
Indeno[1,2,3-cd]pyrene	40.0	39.3		ug/L		98	10 - 171
1-Methylnaphthalene	40.0	29.5		ug/L		74	
2-Methylnaphthalene	40.0	33.7		ug/L		84	34 - 110
Naphthalene	40.0	32.1		ug/L		80	21 - 133
Phenanthrene	40.0	38.6		ug/L		96	54 - 120
Pyrene	40.0	39.4		ug/L		98	52 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*113*	*X*	*34 - 110*
Nitrobenzene-d5	*119*		*36 - 120*
Terphenyl-d14	*141*		*40 - 145*

Lab Sample ID: LCSD 500-827078/3-A
Matrix: Water
Analysis Batch: 827170

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 827078

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	40.0	34.1		ug/L		85	47 - 145	1	20
Acenaphthylene	40.0	36.1		ug/L		90	33 - 145	8	20
Anthracene	40.0	40.4		ug/L		101	27 - 133	1	20
Benzo[a]anthracene	40.0	36.9		ug/L		92	33 - 143	3	20
Benzo[a]pyrene	40.0	37.5		ug/L		94	17 - 163	1	20
Benzo[b]fluoranthene	40.0	37.5		ug/L		94	24 - 159	2	20
Benzo[g,h,i]perylene	40.0	36.5		ug/L		91	10 - 219	2	20
Benzo[k]fluoranthene	40.0	35.6		ug/L		89	11 - 162	5	20
Chrysene	40.0	35.5		ug/L		89	17 - 168	4	20
Dibenz(a,h)anthracene	40.0	39.1		ug/L		98	10 - 227	6	20
Fluoranthene	40.0	40.9		ug/L		102	26 - 137	5	20
Fluorene	40.0	35.7		ug/L		89	59 - 121	2	20
Indeno[1,2,3-cd]pyrene	40.0	39.3		ug/L		98	10 - 171	0	20
1-Methylnaphthalene	40.0	31.6		ug/L		79		7	
2-Methylnaphthalene	40.0	34.0		ug/L		85	34 - 110	1	20
Naphthalene	40.0	31.7		ug/L		79	21 - 133	1	20
Phenanthrene	40.0	38.1		ug/L		95	54 - 120	1	20
Pyrene	40.0	37.4		ug/L		93	52 - 120	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*98*		*34 - 110*
Nitrobenzene-d5	*93*		*36 - 120*
Terphenyl-d14	*104*		*40 - 145*

QC Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 500-827906/1-A
Matrix: Water
Analysis Batch: 827917

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 827906

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<1.3		5.0	1.3	mg/L		07/30/25 07:55	07/30/25 08:02	1

Lab Sample ID: LCS 500-827906/2-A
Matrix: Water
Analysis Batch: 827917

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827906

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	32.60		mg/L		82	78 - 114

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

Lab Sample ID: MB 500-827104/1
Matrix: Water
Analysis Batch: 827104

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	<1.9		5.0	1.9	mg/L			07/23/25 15:12	1

Lab Sample ID: LCS 500-827104/2
Matrix: Water
Analysis Batch: 827104

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Suspended Solids	200	163.0		mg/L		82	80 - 120

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271938-1

Client Sample ID: V-200-A
Date Collected: 07/21/25 10:25
Date Received: 07/22/25 09:40

Lab Sample ID: 500-271938-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	827188	W1T	EET CHI	07/24/25 14:38
Total/NA	Prep	625			827078	LG	EET CHI	07/23/25 13:47
Total/NA	Analysis	625.1		1	827350	H7CM	EET CHI	07/25/25 15:32
Total/NA	Prep	1664B			827906	NM	EET CHI	07/30/25 07:55
Total/NA	Analysis	1664B		1	827917	NM	EET CHI	07/30/25 08:02
Total/NA	Analysis	SM 2540D		1	827104	TR	EET CHI	07/23/25 16:09 - 07/23/25 16:12 [1]

Client Sample ID: V-900-A
Date Collected: 07/21/25 10:50
Date Received: 07/22/25 09:40

Lab Sample ID: 500-271938-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	827188	W1T	EET CHI	07/24/25 15:01
Total/NA	Prep	625			827078	LG	EET CHI	07/23/25 13:47
Total/NA	Analysis	625.1		1	827350	H7CM	EET CHI	07/25/25 15:57
Total/NA	Prep	1664B			827906	NM	EET CHI	07/30/25 07:55
Total/NA	Analysis	1664B		1	827917	NM	EET CHI	07/30/25 08:02
Total/NA	Analysis	SM 2540D		1	827104	TR	EET CHI	07/23/25 16:07 - 07/23/25 16:09 [1]

Client Sample ID: Trip Blank (7-21-25)-A
Date Collected: 07/21/25 00:00
Date Received: 07/22/25 09:40

Lab Sample ID: 500-271938-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	827188	W1T	EET CHI	07/24/25 11:55

[1] This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

Laboratory References:
EET CHI = Eurofins Chicago, 18410 Crossing Drive, Suite E, Tinley Park, IL 60487, TEL (708)534-5200

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-271938-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Laboratory: Eurofins Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	399172840	08-31-25

Eurofins TestAmerica, Chicago
18410 Crossing Drive
Suite E
Tinley Park, IL 60487
phone 708.534 5200 fax 708 534 5211

Chain of Custody Record

eurofins

500-271938 COC

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-21-25	COC No. 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time			For Lab Use Only:
Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			Walk-In Client:
FAX	TAT if different from Below Standard			Lab Sampling:
Project Name: Marinette, WI	☐ 2 weeks			
Site: Marinette, WI	☐ 1 week			Lab Project Number
P O #30284780.4.1.1 (WPDES)	☐ 2 days			50015522
	☐ 1 day			500-271938

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	BTEX Method 624	Oil & Grease Method 1664	TSS Method 2540D	PAHs Method 625	Sample Specific Notes:
1	V-200-A	7-21-25	10:25	G	W	8	N	N	X	X	X	X	System Influent
2	V-900-A	↓	10:50	G	W	8	N	N	X	X	X	X	System Effluent
3	Trip Blank (7-21-25)-A	↓	—	G	W	1	N	N	X				Trip Blank
									2	3	-	-	

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

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

V-200-A-pH-7.05 V-900-A-pH-7.03 0.3+0.1

Custody Seals Intact. ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C). Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jacob Ramirez	Barley Excavating	7-21-25/1315	Fed Ex		
Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: Stephanie Hernandez	Company: EEIA	Date/Time: 7/22/25 0940

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

8/5/2025

JAKE KAMINGER
BARLEY EXCAVATING INC
1824 10TH AVE

MENOMINEE, MI 49858
UNITED STATES US

ACTWGT: 25.00 LB MAN
CAD: 0780307/CAFE3855

Part # 1-9469-434 MTW EXP 09-25

TO **SAMPLE RECEIPT**
EUROFINS
18410 CROSSING DRIVE
SUITE E
TINLEY PARK IL 60487

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

RMA:

FedEx Express

FedEx
TRK# 0221 4561 8681 6117

TUE - 22 JUL AA
PRIORITY OVERNIGHT

XP JOTA

60487
IL-US
ORD

3962314 21Jul2026 GRBA 6B1G6/99C7/6FE6

500-271938 Waybi

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-271938-1

Login Number: 271938
List Number: 1
Creator: Hernandez, Stephanie

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

Generated 7/28/2025 8:42:13 AM

JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-271997-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

Generated
7/28/2025 8:42:13 AM

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Client Sample Results 7
Definitions 11
QC Sample Results 12
Chronicle 20
Certification Summary 21
Chain of Custody 22
Receipt Checklists 23
Isotope Dilution Summary 24

Job Narrative
500-271997-1

Receipt
The samples were received on 7/23/2025 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.8º C.

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

Organic Prep
Method 1633: The following samples in preparation batch 320-865633 were discolored prior to extraction. 500-271997-1 and 500-271997-2

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-271997-1	V-200-A	Water	07/21/25 10:20	07/23/25 09:20
500-271997-2	V-900-A	Water	07/21/25 10:45	07/23/25 09:20

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Client Sample ID: V-200-A

Date Collected: 07/21/25 10:20
Date Received: 07/23/25 09:20

Lab Sample ID: 500-271997-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**27**		2.9	0.27	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoropentanoic acid (PFPeA)	**57**		1.5	0.17	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorohexanoic acid (PFHxA)	**59**		1.5	0.20	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoroheptanoic acid (PFHpA)	**47**		1.5	0.25	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorooctanoic acid (PFOA)	**230**		1.5	0.29	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorononanoic acid (PFNA)	**14**		1.5	0.33	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorodecanoic acid (PFDA)	**13**		1.5	0.32	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoroundecanoic acid (PFUnA)	**9.3**		1.5	0.17	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorododecanoic acid (PFDoA)	**1.4**	**J**	1.5	0.41	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorotridecanoic acid (PFTriA)	**0.49**	**J**	1.5	0.42	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorotetradecanoic acid (PFTeA)	<0.59		1.5	0.59	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorobutanesulfonic acid (PFBS)	**2.2**		1.5	0.39	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoropentanesulfonic acid (PFPeS)	**0.33**	**J**	1.5	0.16	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorohexanesulfonic acid (PFHxS)	**7.3**		1.5	0.18	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.58**	**J**	1.5	0.13	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorooctanesulfonic acid (PFOS)	**72**		1.5	0.20	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorononanesulfonic acid (PFNS)	<0.23		1.5	0.23	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorodecanesulfonic acid (PFDS)	<0.23		1.5	0.23	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorododecanesulfonic acid (PFDoS)	<0.39		1.5	0.39	ng/L		07/24/25 19:55	07/25/25 12:03	1
4:2 FTS	**0.66**	**J**	2.9	0.32	ng/L		07/24/25 19:55	07/25/25 12:03	1
6:2 FTS	**160**		2.9	0.30	ng/L		07/24/25 19:55	07/25/25 12:03	1
8:2 FTS	**180**		2.9	0.66	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluorooctanesulfonamide (FOSA)	**6.1**		1.5	0.16	ng/L		07/24/25 19:55	07/25/25 12:03	1
NMeFOSA	<0.28		1.5	0.28	ng/L		07/24/25 19:55	07/25/25 12:03	1
NEtFOSA	<0.33		1.5	0.33	ng/L		07/24/25 19:55	07/25/25 12:03	1
NMeFOSAA	<0.26		1.5	0.26	ng/L		07/24/25 19:55	07/25/25 12:03	1
NEtFOSAA	**0.86**	**J**	1.5	0.32	ng/L		07/24/25 19:55	07/25/25 12:03	1
NMeFOSE	<1.7		7.3	1.7	ng/L		07/24/25 19:55	07/25/25 12:03	1
NEtFOSE	<1.8		7.3	1.8	ng/L		07/24/25 19:55	07/25/25 12:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.29		1.1	0.29	ng/L		07/24/25 19:55	07/25/25 12:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.29		1.5	0.29	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.14		1.5	0.14	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.19		1.5	0.19	ng/L		07/24/25 19:55	07/25/25 12:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.53		1.5	0.53	ng/L		07/24/25 19:55	07/25/25 12:03	1
F-53B Major	<0.42		1.5	0.42	ng/L		07/24/25 19:55	07/25/25 12:03	1
F-53B Minor	<0.22		1.5	0.22	ng/L		07/24/25 19:55	07/25/25 12:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.18		1.5	0.18	ng/L		07/24/25 19:55	07/25/25 12:03	1

Client Sample ID: V-200-A
Lab Sample ID: 500-271997-1

Date Collected: 07/21/25 10:20
Matrix: Water
Date Received: 07/23/25 09:20

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	2.2	J	2.9	0.53	ng/L		07/24/25 19:55	07/25/25 12:03	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	9.3		7.3	1.3	ng/L		07/24/25 19:55	07/25/25 12:03	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	2.4	J	7.3	0.91	ng/L		07/24/25 19:55	07/25/25 12:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95.8*		*5 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C5 PFPeA	*103*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C5 PFHxA	*97.8*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C4 PFHpA	*95.2*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C8 PFOA	*105*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C9 PFNA	*104*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C6 PFDA	*100*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C7 PFUnA	*88.9*		*30 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C2 PFDoA	*80.3*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C2 PFTeDA	*82.0*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C3 PFBS	*103*		*40 - 135*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C3 PFHxS	*106*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C8 PFOS	*97.3*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C8 FOSA	*88.2*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d3-NMeFOSAA	*81.2*		*40 - 170*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d5-NEtFOSAA	*76.8*		*25 - 135*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
M2-4:2 FTS	*167*		*40 - 200*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
M2-6:2 FTS	*108*		*40 - 200*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
M2-8:2 FTS	*100*		*40 - 300*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
13C3 HFPO-DA	*93.5*		*40 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d7-N-MeFOSE-M	*69.6*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d9-N-EtFOSE-M	*71.2*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d5-NEtPFOSA	*69.5*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*
d3-NMePFOSA	*70.1*		*10 - 130*	*07/24/25 19:55*	*07/25/25 12:03*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Client Sample ID: V-900-A

Date Collected: 07/21/25 10:45
Date Received: 07/23/25 09:20

Lab Sample ID: 500-271997-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**	**J**	3.0	0.28	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoropentanoic acid (PFPeA)	<0.18		1.5	0.18	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorohexanoic acid (PFHxA)	<0.20		1.5	0.20	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoroheptanoic acid (PFHpA)	<0.26		1.5	0.26	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorooctanoic acid (PFOA)	<0.30		1.5	0.30	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorononanoic acid (PFNA)	<0.34		1.5	0.34	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorodecanoic acid (PFDA)	<0.33		1.5	0.33	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoroundecanoic acid (PFUnA)	<0.17		1.5	0.17	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorododecanoic acid (PFDoA)	<0.42		1.5	0.42	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorotridecanoic acid (PFTriA)	<0.44		1.5	0.44	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorotetradecanoic acid (PFTeA)	<0.61		1.5	0.61	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorobutanesulfonic acid (PFBS)	<0.41		1.5	0.41	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoropentanesulfonic acid (PFPeS)	<0.16		1.5	0.16	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.5	0.19	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.13		1.5	0.13	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorooctanesulfonic acid (PFOS)	<0.21		1.5	0.21	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.5	0.24	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorodecanesulfonic acid (PFDS)	<0.23		1.5	0.23	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorododecanesulfonic acid (PFDoS)	<0.40		1.5	0.40	ng/L		07/24/25 19:55	07/25/25 12:19	1
4:2 FTS	<0.33		3.0	0.33	ng/L		07/24/25 19:55	07/25/25 12:19	1
6:2 FTS	<0.31		3.0	0.31	ng/L		07/24/25 19:55	07/25/25 12:19	1
8:2 FTS	<0.68		3.0	0.68	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluorooctanesulfonamide (FOSA)	<0.17		1.5	0.17	ng/L		07/24/25 19:55	07/25/25 12:19	1
NMeFOSA	<0.29		1.5	0.29	ng/L		07/24/25 19:55	07/25/25 12:19	1
NEtFOSA	<0.34		1.5	0.34	ng/L		07/24/25 19:55	07/25/25 12:19	1
NMeFOSAA	<0.27		1.5	0.27	ng/L		07/24/25 19:55	07/25/25 12:19	1
NEtFOSAA	<0.33		1.5	0.33	ng/L		07/24/25 19:55	07/25/25 12:19	1
NMeFOSE	<1.7		7.6	1.7	ng/L		07/24/25 19:55	07/25/25 12:19	1
NEtFOSE	<1.8		7.6	1.8	ng/L		07/24/25 19:55	07/25/25 12:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.30		1.1	0.30	ng/L		07/24/25 19:55	07/25/25 12:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.30		1.5	0.30	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.14		1.5	0.14	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.5	0.20	ng/L		07/24/25 19:55	07/25/25 12:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.55		1.5	0.55	ng/L		07/24/25 19:55	07/25/25 12:19	1
F-53B Major	<0.44		1.5	0.44	ng/L		07/24/25 19:55	07/25/25 12:19	1
F-53B Minor	<0.23		1.5	0.23	ng/L		07/24/25 19:55	07/25/25 12:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.19		1.5	0.19	ng/L		07/24/25 19:55	07/25/25 12:19	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.55		3.0	0.55	ng/L		07/24/25 19:55	07/25/25 12:19	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.3		7.6	1.3	ng/L		07/24/25 19:55	07/25/25 12:19	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.94		7.6	0.94	ng/L		07/24/25 19:55	07/25/25 12:19	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Client Sample ID: V-900-A

Date Collected: 07/21/25 10:45
Date Received: 07/23/25 09:20

Lab Sample ID: 500-271997-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	98.6		5 - 130	07/24/25 19:55	07/25/25 12:19	1
13C5 PFPeA	118		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C5 PFHxA	111		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C4 PFHpA	107		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C8 PFOA	107		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C9 PFNA	104		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C6 PFDA	102		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C7 PFUnA	93.5		30 - 130	07/24/25 19:55	07/25/25 12:19	1
13C2 PFDoA	83.7		10 - 130	07/24/25 19:55	07/25/25 12:19	1
13C2 PFTeDA	87.7		10 - 130	07/24/25 19:55	07/25/25 12:19	1
13C3 PFBS	103		40 - 135	07/24/25 19:55	07/25/25 12:19	1
13C3 PFHxS	103		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C8 PFOS	95.6		40 - 130	07/24/25 19:55	07/25/25 12:19	1
13C8 FOSA	86.1		40 - 130	07/24/25 19:55	07/25/25 12:19	1
d3-NMeFOSAA	82.8		40 - 170	07/24/25 19:55	07/25/25 12:19	1
d5-NEtFOSAA	78.3		25 - 135	07/24/25 19:55	07/25/25 12:19	1
M2-4:2 FTS	133		40 - 200	07/24/25 19:55	07/25/25 12:19	1
M2-6:2 FTS	106		40 - 200	07/24/25 19:55	07/25/25 12:19	1
M2-8:2 FTS	105		40 - 300	07/24/25 19:55	07/25/25 12:19	1
13C3 HFPO-DA	107		40 - 130	07/24/25 19:55	07/25/25 12:19	1
d7-N-MeFOSE-M	71.2		10 - 130	07/24/25 19:55	07/25/25 12:19	1
d9-N-EtFOSE-M	71.5		10 - 130	07/24/25 19:55	07/25/25 12:19	1
d5-NEtPFOSA	70.0		10 - 130	07/24/25 19:55	07/25/25 12:19	1
d3-NMePFOSA	73.6		10 - 130	07/24/25 19:55	07/25/25 12:19	1

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-271997-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-865633/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoropentanoic acid (PFPeA)	<0.23		2.0	0.23	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorobutanesulfonic acid (PFBS)	<0.54		2.0	0.54	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/24/25 19:55	07/25/25 10:40	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/24/25 19:55	07/25/25 10:40	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/24/25 19:55	07/25/25 10:40	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/24/25 19:55	07/25/25 10:40	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/24/25 19:55	07/25/25 10:40	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/24/25 19:55	07/25/25 10:40	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/24/25 19:55	07/25/25 10:40	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/24/25 19:55	07/25/25 10:40	1
NMeFOSE	<2.3		10	2.3	ng/L		07/24/25 19:55	07/25/25 10:40	1
NEtFOSE	<2.4		10	2.4	ng/L		07/24/25 19:55	07/25/25 10:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/24/25 19:55	07/25/25 10:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/24/25 19:55	07/25/25 10:40	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/24/25 19:55	07/25/25 10:40	1
F-53B Major	<0.58		2.0	0.58	ng/L		07/24/25 19:55	07/25/25 10:40	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/24/25 19:55	07/25/25 10:40	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/24/25 19:55	07/25/25 10:40	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/24/25 19:55	07/25/25 10:40	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/24/25 19:55	07/25/25 10:40	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-865633/1-A **Client Sample ID: Method Blank**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/24/25 19:55	07/25/25 10:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*5 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C5 PFPeA	*117*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C5 PFHxA	*102*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C4 PFHpA	*110*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C8 PFOA	*105*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C9 PFNA	*104*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C6 PFDA	*103*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C7 PFUnA	*102*		*30 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C2 PFDoA	*92.9*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C2 PFTeDA	*101*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C3 PFBS	*105*		*40 - 135*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C3 PFHxS	*103*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C8 PFOS	*97.9*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C8 FOSA	*89.3*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d3-NMeFOSAA	*89.6*		*40 - 170*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d5-NEtFOSAA	*89.8*		*25 - 135*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
M2-4:2 FTS	*142*		*40 - 200*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
M2-6:2 FTS	*108*		*40 - 200*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
M2-8:2 FTS	*119*		*40 - 300*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
13C3 HFPO-DA	*102*		*40 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d7-N-MeFOSE-M	*78.5*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d9-N-EtFOSE-M	*81.8*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d5-NEtPFOSA	*77.2*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*
d3-NMePFOSA	*76.5*		*10 - 130*	*07/24/25 19:55*	*07/25/25 10:40*	*1*

Lab Sample ID: LCS 320-865633/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	77.2		ng/L		96	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	38.0		ng/L		95	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	38.5		ng/L		96	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	38.1		ng/L		95	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	36.5		ng/L		91	70 - 150
Perfluorononanoic acid (PFNA)	40.0	38.9		ng/L		97	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.6		ng/L		97	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	39.5		ng/L		99	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	40.7		ng/L		102	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	37.2		ng/L		93	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	37.7		ng/L		94	60 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865633/3-A
Matrix: Water
Analysis Batch: 865691

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865633

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	34.5		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.2		ng/L		94	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	32.6		ng/L		89	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.0		ng/L		100	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	34.1		ng/L		92	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	36.3		ng/L		94	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	34.8		ng/L		90	50 - 145
4:2 FTS	75.0	69.6		ng/L		93	70 - 145
6:2 FTS	76.2	77.3		ng/L		102	65 - 155
8:2 FTS	76.8	71.1		ng/L		93	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	40.8		ng/L		102	70 - 145
NMeFOSA	40.0	39.9		ng/L		100	60 - 150
NEtFOSA	40.0	41.2		ng/L		103	65 - 145
NMeFOSAA	40.0	35.2		ng/L		88	50 - 140
NEtFOSAA	40.0	39.6		ng/L		99	70 - 145
NMeFOSE	200	194		ng/L		97	70 - 145
NEtFOSE	200	183		ng/L		91	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	27.8		ng/L		93	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	40.1		ng/L		106	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	34.4		ng/L		86	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	36.3		ng/L		91	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	35.3		ng/L		88	50 - 150
F-53B Major	37.4	36.6		ng/L		98	70 - 155
F-53B Minor	37.8	39.9		ng/L		106	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	38.7		ng/L		109	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	77.9		ng/L		97	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	187		ng/L		94	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	181		ng/L		90	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*102*		*5 - 130*
13C5 PFPeA	*120*		*40 - 130*
13C5 PFHxA	*107*		*40 - 130*
13C4 PFHpA	*107*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865633/3-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*111*		*40 - 130*
13C9 PFNA	*100*		*40 - 130*
13C6 PFDA	*102*		*40 - 130*
13C7 PFUnA	*98.3*		*30 - 130*
13C2 PFDoA	*90.1*		*10 - 130*
13C2 PFTeDA	*94.0*		*10 - 130*
13C3 PFBS	*106*		*40 - 135*
13C3 PFHxS	*107*		*40 - 130*
13C8 PFOS	*97.7*		*40 - 130*
13C8 FOSA	*89.0*		*40 - 130*
d3-NMeFOSAA	*93.1*		*40 - 170*
d5-NEtFOSAA	*89.8*		*25 - 135*
M2-4:2 FTS	*133*		*40 - 200*
M2-6:2 FTS	*107*		*40 - 200*
M2-8:2 FTS	*120*		*40 - 300*
13C3 HFPO-DA	*102*		*40 - 130*
d7-N-MeFOSE-M	*74.6*		*10 - 130*
d9-N-EtFOSE-M	*76.0*		*10 - 130*
d5-NEtPFOSA	*71.9*		*10 - 130*
d3-NMePFOSA	*74.9*		*10 - 130*

Lab Sample ID: LCSD 320-865633/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	80.5		ng/L		101	70 - 140	4	30
Perfluoropentanoic acid (PFPeA)	40.0	38.5		ng/L		96	65 - 135	1	30
Perfluorohexanoic acid (PFHxA)	40.0	40.4		ng/L		101	70 - 145	5	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.0		ng/L		105	70 - 150	10	30
Perfluorooctanoic acid (PFOA)	40.0	36.9		ng/L		92	70 - 150	1	30
Perfluorononanoic acid (PFNA)	40.0	37.0		ng/L		92	70 - 150	5	30
Perfluorodecanoic acid (PFDA)	40.0	38.3		ng/L		96	70 - 140	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	40.4		ng/L		101	70 - 145	2	30
Perfluorododecanoic acid (PFDoA)	40.0	42.1		ng/L		105	70 - 140	3	30
Perfluorotridecanoic acid (PFTriA)	40.0	36.2		ng/L		91	65 - 140	3	30
Perfluorotetradecanoic acid (PFTeA)	40.0	38.0		ng/L		95	60 - 140	1	30
Perfluorobutanesulfonic acid (PFBS)	35.5	36.2		ng/L		102	60 - 145	5	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.5		ng/L		95	65 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	31.5		ng/L		86	65 - 145	3	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.7		ng/L		96	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)	37.2	33.5		ng/L		90	55 - 150	2	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865633/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.5	35.8		ng/L		93	65 - 145	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	34.4		ng/L		89	60 - 145	5	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	31.9		ng/L		82	50 - 145	9	30
4:2 FTS			75.0	73.4		ng/L		98	70 - 145	5	30
6:2 FTS			76.2	80.1		ng/L		105	65 - 155	3	30
8:2 FTS			76.8	73.0		ng/L		95	60 - 150	3	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.4		ng/L		106	70 - 145	4	30
NMeFOSA			40.0	42.8		ng/L		107	60 - 150	7	30
NEtFOSA			40.0	42.5		ng/L		106	65 - 145	3	30
NMeFOSAA			40.0	36.8		ng/L		92	50 - 140	4	30
NEtFOSAA			40.0	39.1		ng/L		98	70 - 145	1	30
NMeFOSE			200	204		ng/L		102	70 - 145	5	30
NEtFOSE			200	194		ng/L		97	70 - 135	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	24.8		ng/L		83	70 - 140	11	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	37.4		ng/L		99	65 - 145	7	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	39.1		ng/L		98	55 - 140	13	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	40.5		ng/L		101	60 - 150	11	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	42.9		ng/L		107	50 - 150	19	30
F-53B Major			37.4	35.0		ng/L		94	70 - 155	5	30
F-53B Minor			37.8	37.0		ng/L		98	55 - 160	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	39.0		ng/L		109	70 - 140	1	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	84.2		ng/L		105	65 - 130	8	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	192		ng/L		96	70 - 135	2	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	188		ng/L		94	50 - 145	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*99.9*		*5 - 130*
13C5 PFPeA	*113*		*40 - 130*
13C5 PFHxA	*106*		*40 - 130*
13C4 PFHpA	*105*		*40 - 130*
13C8 PFOA	*107*		*40 - 130*
13C9 PFNA	*106*		*40 - 130*
13C6 PFDA	*104*		*40 - 130*
13C7 PFUnA	*91.7*		*30 - 130*
13C2 PFDoA	*86.1*		*10 - 130*
13C2 PFTeDA	*92.1*		*10 - 130*
13C3 PFBS	*104*		*40 - 135*
13C3 PFHxS	*107*		*40 - 130*
13C8 PFOS	*98.3*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865633/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*86.1*		*40 - 130*
d3-NMeFOSAA	*92.0*		*40 - 170*
d5-NEtFOSAA	*87.3*		*25 - 135*
M2-4:2 FTS	*138*		*40 - 200*
M2-6:2 FTS	*104*		*40 - 200*
M2-8:2 FTS	*116*		*40 - 300*
13C3 HFPO-DA	*107*		*40 - 130*
d7-N-MeFOSE-M	*73.4*		*10 - 130*
d9-N-EtFOSE-M	*76.0*		*10 - 130*
d5-NEtPFOSA	*68.5*		*10 - 130*
d3-NMePFOSA	*70.4*		*10 - 130*

Lab Sample ID: LLCS 320-865633/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.64		ng/L		108	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.21		ng/L		105	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.06		ng/L		101	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.95		ng/L		99	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.91		ng/L		98	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.82		ng/L		95	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.86		ng/L		97	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.35		ng/L		109	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	3.90		ng/L		97	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.94		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.42		ng/L		110	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.96		ng/L		112	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.46		ng/L		92	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.61		ng/L		99	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.56		ng/L		93	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.93		ng/L		106	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.70		ng/L		96	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	4.13		ng/L		107	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.41		ng/L		88	50 - 145
4:2 FTS	7.50	8.04		ng/L		107	70 - 145
6:2 FTS	7.62	8.18		ng/L		107	65 - 155
8:2 FTS	7.68	7.27		ng/L		95	60 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865633/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	4.00	4.29		ng/L		107	70 - 145
NMeFOSA	4.00	4.42		ng/L		111	60 - 150
NEtFOSA	4.00	4.41		ng/L		110	65 - 145
NMeFOSAA	4.00	3.74		ng/L		93	50 - 140
NEtFOSAA	4.00	4.13		ng/L		103	70 - 145
NMeFOSE	20.0	19.9		ng/L		100	70 - 145
NEtFOSE	20.0	19.3		ng/L		96	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.98		ng/L		99	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	4.04		ng/L		107	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.73		ng/L		93	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	3.97		ng/L		99	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.13		ng/L		103	50 - 150
F-53B Major	3.74	3.73		ng/L		100	70 - 155
F-53B Minor	3.78	4.24		ng/L		112	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	4.06		ng/L		114	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	8.50		ng/L		106	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	19.7		ng/L		98	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	19.2		ng/L		96	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*95.6*		*5 - 130*
13C5 PFPeA	*119*		*40 - 130*
13C5 PFHxA	*113*		*40 - 130*
13C4 PFHpA	*109*		*40 - 130*
13C8 PFOA	*102*		*40 - 130*
13C9 PFNA	*105*		*40 - 130*
13C6 PFDA	*104*		*40 - 130*
13C7 PFUnA	*96.7*		*30 - 130*
13C2 PFDoA	*92.2*		*10 - 130*
13C2 PFTeDA	*94.3*		*10 - 130*
13C3 PFBS	*107*		*40 - 135*
13C3 PFHxS	*105*		*40 - 130*
13C8 PFOS	*96.6*		*40 - 130*
13C8 FOSA	*88.0*		*40 - 130*
d3-NMeFOSAA	*93.5*		*40 - 170*
d5-NEtFOSAA	*87.6*		*25 - 135*
M2-4:2 FTS	*135*		*40 - 200*
M2-6:2 FTS	*107*		*40 - 200*
M2-8:2 FTS	*118*		*40 - 300*
13C3 HFPO-DA	*103*		*40 - 130*
d7-N-MeFOSE-M	*76.0*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865633/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 865691 **Prep Batch: 865633**

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
d9-N-EtFOSE-M	*80.6*		*10 - 130*
d5-NEtPFOSA	*70.6*		*10 - 130*
d3-NMePFOSA	*71.8*		*10 - 130*

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Client Sample ID: V-200-A

Lab Sample ID: 500-271997-1

Date Collected: 07/21/25 10:20
Matrix: Water
Date Received: 07/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			865633	CJS	EET SAC	07/24/25 19:55
Total/NA	Analysis	1633A		1	865691	S1M	EET SAC	07/25/25 12:03

Client Sample ID: V-900-A

Lab Sample ID: 500-271997-2

Date Collected: 07/21/25 10:45
Matrix: Water
Date Received: 07/23/25 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			865633	CJS	EET SAC	07/24/25 19:55
Total/NA	Analysis	1633A		1	865691	S1M	EET SAC	07/25/25 12:19

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-271997-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins TestA ica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916 373 5600 fax 303.467.7248

Chai f Custody Record

eurofins

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-21-25	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time: ☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only: Walk-in Client: Lab Sampling:
Phone	TAT if different from Below ____			
FAX	☐ 2 weeks			
Project Name: Marinette, WI	☑ 1 week			Lab Project Number: 50015522
Site: Marinette, WI	☐ 2 days			
P O # 30284780.4.1.1 (WPDES)	☐ 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)	PFAS EPA 1633 (40 Compounds)	Sample Specific Notes
V-200-A	7-21-25	10:20	G	W	2	N	N	X	System Influent
V-900-A	↓	10:45	G	W	2	N	N	X	System Effluent

500-271997 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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

7-Day TAT Max or Prelim Report by Day 7
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact: ☑ Yes ☐ No | Custody Seal No.: 1749594 | Cooler Temp. (°C): Obs'd 2.8 Corr'd 2.8 Therm ID No.: 6/6

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jacob Raminger	Barley Excavating	7-21-25/1310	Fed Ex		
Relinquished by:	Company:	Date/Time:	Received by:	Company: EEBen	Date/Time: 7/23/25 920
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev 4.23, dated 4/16/2019

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-271997-1

Login Number: 271997
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 07/23/25 02:40 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	1749594
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	2.8C
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?	False	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-271997-1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
500-271997-1	V-200-A	95.8	103	97.8	95.2	105	104	100	88.9
500-271997-2	V-900-A	98.6	118	111	107	107	104	102	93.5
LCS 320-865633/3-A	Lab Control Sample	102	120	107	107	111	100	102	98.3
LCSD 320-865633/4-A	Lab Control Sample Dup	99.9	113	106	105	107	106	104	91.7
LLCS 320-865633/2-A	Lab Control Sample	95.6	119	113	109	102	105	104	96.7
MB 320-865633/1-A	Method Blank	100	117	102	110	105	104	103	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
500-271997-1	V-200-A	80.3	82.0	103	106	97.3	88.2	81.2	76.8
500-271997-2	V-900-A	83.7	87.7	103	103	95.6	86.1	82.8	78.3
LCS 320-865633/3-A	Lab Control Sample	90.1	94.0	106	107	97.7	89.0	93.1	89.8
LCSD 320-865633/4-A	Lab Control Sample Dup	86.1	92.1	104	107	98.3	86.1	92.0	87.3
LLCS 320-865633/2-A	Lab Control Sample	92.2	94.3	107	105	96.6	88.0	93.5	87.6
MB 320-865633/1-A	Method Blank	92.9	101	105	103	97.9	89.3	89.6	89.8

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA
Lab Sample ID	Client Sample ID	(40-200)	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)
500-271997-1	V-200-A	167	108	100	93.5	69.6	71.2	69.5	70.1
500-271997-2	V-900-A	133	106	105	107	71.2	71.5	70.0	73.6
LCS 320-865633/3-A	Lab Control Sample	133	107	120	102	74.6	76.0	71.9	74.9
LCSD 320-865633/4-A	Lab Control Sample Dup	138	104	116	107	73.4	76.0	68.5	70.4
LLCS 320-865633/2-A	Lab Control Sample	135	107	118	103	76.0	80.6	70.6	71.8
MB 320-865633/1-A	Method Blank	142	108	119	102	78.5	81.8	77.2	76.5

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-271997-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

d3NMFSA = d3-NMePFOSA

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ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

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JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 WPDES

JOB NUMBER

500-272285-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 5
Sample Summary 6
Client Sample Results 7
Definitions 11
QC Sample Results 12
Chronicle 20
Certification Summary 21
Chain of Custody 22
Receipt Checklists 24
Isotope Dilution Summary 25

Job Narrative
500-272285-1

Receipt
The samples were received on 7/29/2025 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.7º C.

LCMS
Method 1633: The "C" 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. The associated analytes have been flagged: 500-272285-1.

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

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-272285-1	V-200-A	Water	07/28/25 11:00	07/29/25 09:00
500-272285-2	V-900-A	Water	07/28/25 11:05	07/29/25 09:00

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Client Sample ID: V-200-A

Date Collected: 07/28/25 11:00
Date Received: 07/29/25 09:00

Lab Sample ID: 500-272285-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**		3.0	0.28	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoropentanoic acid (PFPeA)	**37**		1.5	0.18	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorohexanoic acid (PFHxA)	**29**		1.5	0.21	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoroheptanoic acid (PFHpA)	**24**		1.5	0.26	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorooctanoic acid (PFOA)	**100**		1.5	0.30	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorononanoic acid (PFNA)	**6.5**		1.5	0.35	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorodecanoic acid (PFDA)	**5.9**		1.5	0.34	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoroundecanoic acid (PFUnA)	**3.6**		1.5	0.17	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorododecanoic acid (PFDoA)	**0.74**	**J**	1.5	0.42	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorotridecanoic acid (PFTriA)	<0.44		1.5	0.44	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.62		1.5	0.62	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorobutanesulfonic acid (PFBS)	**0.79**	**J**	1.5	0.41	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoropentanesulfonic acid (PFPeS)	**0.18**	**J C**	1.5	0.16	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorohexanesulfonic acid (PFHxS)	**4.9**		1.5	0.19	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.28**	**J**	1.5	0.13	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorooctanesulfonic acid (PFOS)	**32**		1.5	0.21	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.5	0.24	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.5	0.24	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.40		1.5	0.40	ng/L		07/30/25 20:01	07/31/25 23:36	1
4:2 FTS	<0.33		3.0	0.33	ng/L		07/30/25 20:01	07/31/25 23:36	1
6:2 FTS	**89**		3.0	0.31	ng/L		07/30/25 20:01	07/31/25 23:36	1
8:2 FTS	**72**		3.0	0.68	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluorooctanesulfonamide (FOSA)	**3.1**		1.5	0.17	ng/L		07/30/25 20:01	07/31/25 23:36	1
NMeFOSA	<0.29		1.5	0.29	ng/L		07/30/25 20:01	07/31/25 23:36	1
NEtFOSA	<0.34		1.5	0.34	ng/L		07/30/25 20:01	07/31/25 23:36	1
NMeFOSAA	<0.27		1.5	0.27	ng/L		07/30/25 20:01	07/31/25 23:36	1
NEtFOSAA	<0.34		1.5	0.34	ng/L		07/30/25 20:01	07/31/25 23:36	1
NMeFOSE	<1.7		7.6	1.7	ng/L		07/30/25 20:01	07/31/25 23:36	1
NEtFOSE	<1.9		7.6	1.9	ng/L		07/30/25 20:01	07/31/25 23:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.30		1.1	0.30	ng/L		07/30/25 20:01	07/31/25 23:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.30		1.5	0.30	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.14		1.5	0.14	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.5	0.20	ng/L		07/30/25 20:01	07/31/25 23:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.55		1.5	0.55	ng/L		07/30/25 20:01	07/31/25 23:36	1
F-53B Major	<0.44		1.5	0.44	ng/L		07/30/25 20:01	07/31/25 23:36	1
F-53B Minor	<0.23		1.5	0.23	ng/L		07/30/25 20:01	07/31/25 23:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.19		1.5	0.19	ng/L		07/30/25 20:01	07/31/25 23:36	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Client Sample ID: V-200-A

Date Collected: 07/28/25 11:00
Date Received: 07/29/25 09:00

Lab Sample ID: 500-272285-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	0.90	J	3.0	0.55	ng/L		07/30/25 20:01	07/31/25 23:36	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	3.7	J	7.6	1.3	ng/L		07/30/25 20:01	07/31/25 23:36	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	1.4	J	7.6	0.95	ng/L		07/30/25 20:01	07/31/25 23:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.4*		*5 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C5 PFPeA	*112*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C5 PFHxA	*103*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C4 PFHpA	*97.3*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C8 PFOA	*96.2*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C9 PFNA	*90.5*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C6 PFDA	*92.8*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C7 PFUnA	*101*		*30 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C2 PFDoA	*81.0*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C2 PFTeDA	*84.2*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C3 PFBS	*98.7*		*40 - 135*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C3 PFHxS	*95.5*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C8 PFOS	*97.6*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C8 FOSA	*76.3*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d3-NMeFOSAA	*72.4*		*40 - 170*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d5-NEtFOSAA	*73.8*		*25 - 135*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
M2-4:2 FTS	*128*		*40 - 200*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
M2-6:2 FTS	*83.8*		*40 - 200*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
M2-8:2 FTS	*75.1*		*40 - 300*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
13C3 HFPO-DA	*99.0*		*40 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d7-N-MeFOSE-M	*70.5*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d9-N-EtFOSE-M	*72.5*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d5-NEtPFOSA	*71.7*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*
d3-NMePFOSA	*72.0*		*10 - 130*	*07/30/25 20:01*	*07/31/25 23:36*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Client Sample ID: V-900-A

Date Collected: 07/28/25 11:05
Date Received: 07/29/25 09:00

Lab Sample ID: 500-272285-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.3**		3.1	0.29	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoropentanoic acid (PFPeA)	**1.3**	**J**	1.6	0.18	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorohexanoic acid (PFHxA)	<0.21		1.6	0.21	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoroheptanoic acid (PFHpA)	<0.27		1.6	0.27	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorooctanoic acid (PFOA)	<0.31		1.6	0.31	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorononanoic acid (PFNA)	<0.35		1.6	0.35	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorodecanoic acid (PFDA)	<0.35		1.6	0.35	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoroundecanoic acid (PFUnA)	<0.18		1.6	0.18	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorododecanoic acid (PFDoA)	<0.43		1.6	0.43	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorotridecanoic acid (PFTriA)	<0.45		1.6	0.45	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.6	0.63	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorobutanesulfonic acid (PFBS)	<0.42		1.6	0.42	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoropentanesulfonic acid (PFPeS)	<0.17		1.6	0.17	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorohexanesulfonic acid (PFHxS)	<0.19		1.6	0.19	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.14		1.6	0.14	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorooctanesulfonic acid (PFOS)	**0.27**	**J**	1.6	0.22	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorononanesulfonic acid (PFNS)	<0.24		1.6	0.24	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorodecanesulfonic acid (PFDS)	<0.24		1.6	0.24	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorododecanesulfonic acid (PFDoS)	<0.41		1.6	0.41	ng/L		07/30/25 20:01	07/31/25 23:53	1
4:2 FTS	<0.34		3.1	0.34	ng/L		07/30/25 20:01	07/31/25 23:53	1
6:2 FTS	<0.32		3.1	0.32	ng/L		07/30/25 20:01	07/31/25 23:53	1
8:2 FTS	<0.70		3.1	0.70	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluorooctanesulfonamide (FOSA)	<0.18		1.6	0.18	ng/L		07/30/25 20:01	07/31/25 23:53	1
NMeFOSA	<0.30		1.6	0.30	ng/L		07/30/25 20:01	07/31/25 23:53	1
NEtFOSA	<0.35		1.6	0.35	ng/L		07/30/25 20:01	07/31/25 23:53	1
NMeFOSAA	<0.27		1.6	0.27	ng/L		07/30/25 20:01	07/31/25 23:53	1
NEtFOSAA	<0.34		1.6	0.34	ng/L		07/30/25 20:01	07/31/25 23:53	1
NMeFOSE	<1.8		7.8	1.8	ng/L		07/30/25 20:01	07/31/25 23:53	1
NEtFOSE	<1.9		7.8	1.9	ng/L		07/30/25 20:01	07/31/25 23:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.31		1.2	0.31	ng/L		07/30/25 20:01	07/31/25 23:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.31		1.6	0.31	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.15		1.6	0.15	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.20		1.6	0.20	ng/L		07/30/25 20:01	07/31/25 23:53	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.56		1.6	0.56	ng/L		07/30/25 20:01	07/31/25 23:53	1
F-53B Major	<0.45		1.6	0.45	ng/L		07/30/25 20:01	07/31/25 23:53	1
F-53B Minor	<0.23		1.6	0.23	ng/L		07/30/25 20:01	07/31/25 23:53	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.20		1.6	0.20	ng/L		07/30/25 20:01	07/31/25 23:53	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.56		3.1	0.56	ng/L		07/30/25 20:01	07/31/25 23:53	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.3		7.8	1.3	ng/L		07/30/25 20:01	07/31/25 23:53	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<0.97		7.8	0.97	ng/L		07/30/25 20:01	07/31/25 23:53	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Client Sample ID: V-900-A

Date Collected: 07/28/25 11:05
Date Received: 07/29/25 09:00

Lab Sample ID: 500-272285-2

Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	92.6		5 - 130	07/30/25 20:01	07/31/25 23:53	1
13C5 PFPeA	118		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C5 PFHxA	112		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C4 PFHpA	109		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C8 PFOA	94.3		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C9 PFNA	91.9		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C6 PFDA	95.0		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C7 PFUnA	96.3		30 - 130	07/30/25 20:01	07/31/25 23:53	1
13C2 PFDoA	83.7		10 - 130	07/30/25 20:01	07/31/25 23:53	1
13C2 PFTeDA	83.1		10 - 130	07/30/25 20:01	07/31/25 23:53	1
13C3 PFBS	101		40 - 135	07/30/25 20:01	07/31/25 23:53	1
13C3 PFHxS	98.7		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C8 PFOS	93.2		40 - 130	07/30/25 20:01	07/31/25 23:53	1
13C8 FOSA	74.3		40 - 130	07/30/25 20:01	07/31/25 23:53	1
d3-NMeFOSAA	70.7		40 - 170	07/30/25 20:01	07/31/25 23:53	1
d5-NEtFOSAA	71.8		25 - 135	07/30/25 20:01	07/31/25 23:53	1
M2-4:2 FTS	125		40 - 200	07/30/25 20:01	07/31/25 23:53	1
M2-6:2 FTS	85.8		40 - 200	07/30/25 20:01	07/31/25 23:53	1
M2-8:2 FTS	79.6		40 - 300	07/30/25 20:01	07/31/25 23:53	1
13C3 HFPO-DA	110		40 - 130	07/30/25 20:01	07/31/25 23:53	1
d7-N-MeFOSE-M	65.8		10 - 130	07/30/25 20:01	07/31/25 23:53	1
d9-N-EtFOSE-M	71.0		10 - 130	07/30/25 20:01	07/31/25 23:53	1
d5-NEtPFOSA	65.7		10 - 130	07/30/25 20:01	07/31/25 23:53	1
d3-NMePFOSA	65.4		10 - 130	07/30/25 20:01	07/31/25 23:53	1

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-272285-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
C	See Case Narrative
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-866939/1-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 866939

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.37		4.0	0.37	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoropentanoic acid (PFPeA)	<0.23		2.0	0.23	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorohexanoic acid (PFHxA)	<0.27		2.0	0.27	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoroheptanoic acid (PFHpA)	<0.35		2.0	0.35	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorooctanoic acid (PFOA)	<0.39		2.0	0.39	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorononanoic acid (PFNA)	<0.45		2.0	0.45	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorodecanoic acid (PFDA)	<0.44		2.0	0.44	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoroundecanoic acid (PFUnA)	<0.23		2.0	0.23	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorotridecanoic acid (PFTriA)	<0.58		2.0	0.58	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorotetradecanoic acid (PFTeA)	<0.81		2.0	0.81	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorobutanesulfonic acid (PFBS)	<0.54		2.0	0.54	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoropentanesulfonic acid (PFPeS)	<0.21		2.0	0.21	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorohexanesulfonic acid (PFHxS)	<0.25		2.0	0.25	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		2.0	0.18	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorooctanesulfonic acid (PFOS)	<0.28		2.0	0.28	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorononanesulfonic acid (PFNS)	<0.31		2.0	0.31	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorodecanesulfonic acid (PFDS)	<0.31		2.0	0.31	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorododecanesulfonic acid (PFDoS)	<0.53		2.0	0.53	ng/L		07/30/25 20:01	07/31/25 21:24	1
4:2 FTS	<0.44		4.0	0.44	ng/L		07/30/25 20:01	07/31/25 21:24	1
6:2 FTS	<0.41		4.0	0.41	ng/L		07/30/25 20:01	07/31/25 21:24	1
8:2 FTS	<0.90		4.0	0.90	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluorooctanesulfonamide (FOSA)	<0.23		2.0	0.23	ng/L		07/30/25 20:01	07/31/25 21:24	1
NMeFOSA	<0.39		2.0	0.39	ng/L		07/30/25 20:01	07/31/25 21:24	1
NEtFOSA	<0.45		2.0	0.45	ng/L		07/30/25 20:01	07/31/25 21:24	1
NMeFOSAA	<0.35		2.0	0.35	ng/L		07/30/25 20:01	07/31/25 21:24	1
NEtFOSAA	<0.44		2.0	0.44	ng/L		07/30/25 20:01	07/31/25 21:24	1
NMeFOSE	<2.3		10	2.3	ng/L		07/30/25 20:01	07/31/25 21:24	1
NEtFOSE	<2.4		10	2.4	ng/L		07/30/25 20:01	07/31/25 21:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<0.39		1.5	0.39	ng/L		07/30/25 20:01	07/31/25 21:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.19		2.0	0.19	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.26		2.0	0.26	ng/L		07/30/25 20:01	07/31/25 21:24	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.72		2.0	0.72	ng/L		07/30/25 20:01	07/31/25 21:24	1
F-53B Major	<0.58		2.0	0.58	ng/L		07/30/25 20:01	07/31/25 21:24	1
F-53B Minor	<0.30		2.0	0.30	ng/L		07/30/25 20:01	07/31/25 21:24	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	0.25	ng/L		07/30/25 20:01	07/31/25 21:24	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<0.72		4.0	0.72	ng/L		07/30/25 20:01	07/31/25 21:24	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<1.7		10	1.7	ng/L		07/30/25 20:01	07/31/25 21:24	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-866939/1-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 866939

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<1.2		10	1.2	ng/L		07/30/25 20:01	07/31/25 21:24	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93.8*		*5 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C5 PFPeA	*112*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C5 PFHxA	*109*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C4 PFHpA	*99.1*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C8 PFOA	*95.9*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C9 PFNA	*93.5*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C6 PFDA	*97.2*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C7 PFUnA	*95.7*		*30 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C2 PFDoA	*73.9*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C2 PFTeDA	*83.9*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C3 PFBS	*91.2*		*40 - 135*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C3 PFHxS	*96.2*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C8 PFOS	*93.6*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C8 FOSA	*71.3*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d3-NMeFOSAA	*74.8*		*40 - 170*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d5-NEtFOSAA	*74.7*		*25 - 135*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
M2-4:2 FTS	*114*		*40 - 200*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
M2-6:2 FTS	*85.9*		*40 - 200*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
M2-8:2 FTS	*75.3*		*40 - 300*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
13C3 HFPO-DA	*91.5*		*40 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d7-N-MeFOSE-M	*69.1*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d9-N-EtFOSE-M	*72.9*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d5-NEtPFOSA	*69.7*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*
d3-NMePFOSA	*67.2*		*10 - 130*	*07/30/25 20:01*	*07/31/25 21:24*	*1*

Lab Sample ID: LCS 320-866939/3-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	79.9		ng/L		100	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	37.7		ng/L		94	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	38.1		ng/L		95	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	40.0		ng/L		100	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.3		ng/L		96	70 - 150
Perfluorononanoic acid (PFNA)	40.0	34.4		ng/L		86	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	37.8		ng/L		94	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	37.6		ng/L		94	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	40.6		ng/L		102	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	37.9		ng/L		95	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	39.0		ng/L		98	60 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-866939/3-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	35.2		ng/L		99	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.1		ng/L		93	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	31.8		ng/L		87	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	34.5		ng/L		90	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	34.1		ng/L		92	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	33.6		ng/L		87	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	35.2		ng/L		91	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	30.6		ng/L		79	50 - 145
4:2 FTS	75.0	71.3		ng/L		95	70 - 145
6:2 FTS	76.2	72.4		ng/L		95	65 - 155
8:2 FTS	76.8	68.4		ng/L		89	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	38.2		ng/L		96	70 - 145
NMeFOSA	40.0	40.8		ng/L		102	60 - 150
NEtFOSA	40.0	38.7		ng/L		97	65 - 145
NMeFOSAA	40.0	38.9		ng/L		97	50 - 140
NEtFOSAA	40.0	36.7		ng/L		92	70 - 145
NMeFOSE	200	202		ng/L		101	70 - 145
NEtFOSE	200	195		ng/L		98	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	27.0		ng/L		90	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.3		ng/L		99	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	35.4		ng/L		88	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	38.0		ng/L		95	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	36.4		ng/L		91	50 - 150
F-53B Major	37.4	32.9		ng/L		88	70 - 155
F-53B Minor	37.8	35.0		ng/L		93	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	35.9		ng/L		101	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	61.8		ng/L		77	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	156		ng/L		78	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	152		ng/L		76	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*92.4*		*5 - 130*
13C5 PFPeA	*115*		*40 - 130*
13C5 PFHxA	*103*		*40 - 130*
13C4 PFHpA	*99.7*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-866939/3-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*101*		*40 - 130*
13C9 PFNA	*93.8*		*40 - 130*
13C6 PFDA	*95.3*		*40 - 130*
13C7 PFUnA	*93.1*		*30 - 130*
13C2 PFDoA	*80.1*		*10 - 130*
13C2 PFTeDA	*82.1*		*10 - 130*
13C3 PFBS	*87.7*		*40 - 135*
13C3 PFHxS	*92.3*		*40 - 130*
13C8 PFOS	*98.1*		*40 - 130*
13C8 FOSA	*76.6*		*40 - 130*
d3-NMeFOSAA	*79.2*		*40 - 170*
d5-NEtFOSAA	*79.0*		*25 - 135*
M2-4:2 FTS	*116*		*40 - 200*
M2-6:2 FTS	*77.2*		*40 - 200*
M2-8:2 FTS	*77.0*		*40 - 300*
13C3 HFPO-DA	*99.7*		*40 - 130*
d7-N-MeFOSE-M	*74.6*		*10 - 130*
d9-N-EtFOSE-M	*78.3*		*10 - 130*
d5-NEtPFOSA	*75.0*		*10 - 130*
d3-NMePFOSA	*70.1*		*10 - 130*

Lab Sample ID: LCSD 320-866939/4-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 866939

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	80.1		ng/L		100	70 - 140	0	30
Perfluoropentanoic acid (PFPeA)	40.0	37.2		ng/L		93	65 - 135	1	30
Perfluorohexanoic acid (PFHxA)	40.0	34.3		ng/L		86	70 - 145	11	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.6		ng/L		101	70 - 150	1	30
Perfluorooctanoic acid (PFOA)	40.0	39.6		ng/L		99	70 - 150	3	30
Perfluorononanoic acid (PFNA)	40.0	36.7		ng/L		92	70 - 150	7	30
Perfluorodecanoic acid (PFDA)	40.0	34.9		ng/L		87	70 - 140	8	30
Perfluoroundecanoic acid (PFUnA)	40.0	37.0		ng/L		93	70 - 145	2	30
Perfluorododecanoic acid (PFDoA)	40.0	42.0		ng/L		105	70 - 140	3	30
Perfluorotridecanoic acid (PFTriA)	40.0	38.6		ng/L		96	65 - 140	2	30
Perfluorotetradecanoic acid (PFTeA)	40.0	40.2		ng/L		101	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	35.5	33.3		ng/L		94	60 - 145	6	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.7		ng/L		98	65 - 140	5	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	31.8		ng/L		87	65 - 145	0	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.0		ng/L		94	70 - 150	4	30
Perfluorooctanesulfonic acid (PFOS)	37.2	33.7		ng/L		91	55 - 150	1	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-866939/4-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 867141 **Prep Batch: 866939**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.5	35.3		ng/L		92	65 - 145	5	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.5		ng/L		92	60 - 145	1	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	31.0		ng/L		80	50 - 145	1	30
4:2 FTS			75.0	73.2		ng/L		98	70 - 145	3	30
6:2 FTS			76.2	73.1		ng/L		96	65 - 155	1	30
8:2 FTS			76.8	74.6		ng/L		97	60 - 150	9	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.0		ng/L		105	70 - 145	9	30
NMeFOSA			40.0	42.0		ng/L		105	60 - 150	3	30
NEtFOSA			40.0	39.2		ng/L		98	65 - 145	1	30
NMeFOSAA			40.0	38.4		ng/L		96	50 - 140	1	30
NEtFOSAA			40.0	37.9		ng/L		95	70 - 145	3	30
NMeFOSE			200	216		ng/L		108	70 - 145	6	30
NEtFOSE			200	198		ng/L		99	70 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	32.3		ng/L		108	70 - 140	18	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	38.7		ng/L		102	65 - 145	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	38.2		ng/L		95	55 - 140	8	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	41.3		ng/L		103	60 - 150	8	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	30.7		ng/L		77	50 - 150	17	30
F-53B Major			37.4	35.2		ng/L		94	70 - 155	7	30
F-53B Minor			37.8	38.6		ng/L		102	55 - 160	10	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	31.6		ng/L		88	70 - 140	13	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	67.2		ng/L		84	65 - 130	8	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	139		ng/L		70	70 - 135	11	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	128		ng/L		64	50 - 145	17	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*101*		*5 - 130*
13C5 PFPeA	*113*		*40 - 130*
13C5 PFHxA	*124*		*40 - 130*
13C4 PFHpA	*103*		*40 - 130*
13C8 PFOA	*95.6*		*40 - 130*
13C9 PFNA	*88.3*		*40 - 130*
13C6 PFDA	*99.1*		*40 - 130*
13C7 PFUnA	*102*		*30 - 130*
13C2 PFDoA	*85.5*		*10 - 130*
13C2 PFTeDA	*88.2*		*10 - 130*
13C3 PFBS	*95.6*		*40 - 135*
13C3 PFHxS	*92.8*		*40 - 130*
13C8 PFOS	*95.7*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-866939/4-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 866939

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*74.6*		*40 - 130*
d3-NMeFOSAA	*75.4*		*40 - 170*
d5-NEtFOSAA	*76.0*		*25 - 135*
M2-4:2 FTS	*111*		*40 - 200*
M2-6:2 FTS	*79.8*		*40 - 200*
M2-8:2 FTS	*72.7*		*40 - 300*
13C3 HFPO-DA	*99.2*		*40 - 130*
d7-N-MeFOSE-M	*72.2*		*10 - 130*
d9-N-EtFOSE-M	*77.4*		*10 - 130*
d5-NEtPFOSA	*70.0*		*10 - 130*
d3-NMePFOSA	*67.0*		*10 - 130*

Lab Sample ID: LLCS 320-866939/2-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.33		ng/L		104	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	3.97		ng/L		99	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	3.76		ng/L		94	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.43		ng/L		86	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.02		ng/L		101	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.46		ng/L		87	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.53		ng/L		88	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	3.67		ng/L		92	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.42		ng/L		110	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.94		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.45		ng/L		111	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.65		ng/L		103	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.50		ng/L		93	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.03		ng/L		83	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.57		ng/L		94	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.56		ng/L		96	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.38		ng/L		88	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.79		ng/L		98	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	2.66		ng/L		69	50 - 145
4:2 FTS	7.50	7.61		ng/L		101	70 - 145
6:2 FTS	7.62	7.29		ng/L		96	65 - 155
8:2 FTS	7.68	7.42		ng/L		97	60 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-866939/2-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	4.00	4.46		ng/L		111	70 - 145
NMeFOSA	4.00	4.02		ng/L		100	60 - 150
NEtFOSA	4.00	4.17		ng/L		104	65 - 145
NMeFOSAA	4.00	3.89		ng/L		97	50 - 140
NEtFOSAA	4.00	3.74		ng/L		94	70 - 145
NMeFOSE	20.0	21.8		ng/L		109	70 - 145
NEtFOSE	20.0	18.7		ng/L		94	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	3.01		ng/L		100	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.82		ng/L		101	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.56		ng/L		89	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	3.78		ng/L		94	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	3.36		ng/L		84	50 - 150
F-53B Major	3.74	3.25		ng/L		87	70 - 155
F-53B Minor	3.78	3.64		ng/L		96	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.47		ng/L		97	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	6.53		ng/L		82	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	15.6		ng/L		78	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	14.7		ng/L		74	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*95.1*		*5 - 130*
13C5 PFPeA	*115*		*40 - 130*
13C5 PFHxA	*110*		*40 - 130*
13C4 PFHpA	*116*		*40 - 130*
13C8 PFOA	*97.3*		*40 - 130*
13C9 PFNA	*93.2*		*40 - 130*
13C6 PFDA	*98.0*		*40 - 130*
13C7 PFUnA	*100*		*30 - 130*
13C2 PFDoA	*81.0*		*10 - 130*
13C2 PFTeDA	*85.5*		*10 - 130*
13C3 PFBS	*98.1*		*40 - 135*
13C3 PFHxS	*98.9*		*40 - 130*
13C8 PFOS	*97.6*		*40 - 130*
13C8 FOSA	*75.3*		*40 - 130*
d3-NMeFOSAA	*77.3*		*40 - 170*
d5-NEtFOSAA	*79.1*		*25 - 135*
M2-4:2 FTS	*120*		*40 - 200*
M2-6:2 FTS	*84.4*		*40 - 200*
M2-8:2 FTS	*77.7*		*40 - 300*
13C3 HFPO-DA	*101*		*40 - 130*
d7-N-MeFOSE-M	*71.7*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-866939/2-A
Matrix: Water
Analysis Batch: 867141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866939

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
d9-N-EtFOSE-M	*80.3*		*10 - 130*
d5-NEtPFOSA	*70.8*		*10 - 130*
d3-NMePFOSA	*71.7*		*10 - 130*

Lab Chronicle

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Job ID: 500-272285-1

Client Sample ID: V-200-A

Lab Sample ID: 500-272285-1

Date Collected: 07/28/25 11:00
Matrix: Water
Date Received: 07/29/25 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			866939	CJS	EET SAC	07/30/25 20:01
Total/NA	Analysis	1633A		1	867141	C1P	EET SAC	07/31/25 23:36

Client Sample ID: V-900-A

Lab Sample ID: 500-272285-2

Date Collected: 07/28/25 11:05
Matrix: Water
Date Received: 07/29/25 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			866939	CJS	EET SAC	07/30/25 20:01
Total/NA	Analysis	1633A		1	867141	C1P	EET SAC	07/31/25 23:53

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-272285-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins TestA. .ica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chai f Custody Record

eurofins
Environment Testing
TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: N/A	Date: 7-28-25	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time: ☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only: Walk-in Client: Lab Sampling:
Phone	TAT if different from Below ____ ☐ 2 weeks ☑ 1 week ☐ 2 days ☐ 1 day			Lab Project Number: 50015522
FAX				
Project Name: Marinette, WI				
Site: Marinette, WI				
P O # 30284780.4.1.1 (WPDES)				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS EPA 1633 (40 Compounds)	Sample Specific Notes:
V-200-A	7-28-25	11:00	G	W	2	N	N	X	System Influent
V-900-A	↓	11:05	G	W	2	N	N	X	System Effluent

500-272285 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

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

7-Day TAT Max or Prelim Report by Day 7
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 2.7 Corr'd: 2.7 | Therm ID No.:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jacob Flaminger	Barley Excavating	7-28-25/12:00	Fed Ex		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
				EESAC	7/29/25 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.23, dated 4/16/2019

eurofins Environment Testing	Document Title: Sample Receiving Notes		
	Eurofins Document Reference : S-SR-FRM72109	Revision: 2	Historical Reference: QA-812
	Effective date : 03 Jul 2025		Issued by: XE8X

Loc: 500
272285

Tracking #: 4450 7474 4161

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: 109 Corr. Factor: (+/-) _____ °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 1749597

Cooler ID: _____

Temp Observed: 2.7 °C Corrected: 2.7 °C

From: Temp Blank ☐ Sandwich ☑ Sidewall ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: FSH Date: 7/29/25

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

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

Initials: [illegible] Date: 7-29-25

Notes: _____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s): _____

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

Initials: [illegible] Date: 7-29-25

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-272285-1

Login Number: 272285
List Number: 1
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 07/29/25 05:18 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	1749597
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	2.7c
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?	N/A	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-272285-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	13C5PHA	C4PFHA	C8PFOA	C9PFNA	C6PFDA	13C7PUA
Lab Sample ID	Client Sample ID	(5-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(40-130)	(30-130)
500-272285-1	V-200-A	94.4	112	103	97.3	96.2	90.5	92.8	101
500-272285-2	V-900-A	92.6	118	112	109	94.3	91.9	95.0	96.3
LCS 320-866939/3-A	Lab Control Sample	92.4	115	103	99.7	101	93.8	95.3	93.1
LCSD 320-866939/4-A	Lab Control Sample Dup	101	113	124	103	95.6	88.3	99.1	102
LLCS 320-866939/2-A	Lab Control Sample	95.1	115	110	116	97.3	93.2	98.0	100
MB 320-866939/1-A	Method Blank	93.8	112	109	99.1	95.9	93.5	97.2	95.7

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	C3PFBS	C3PFHS	C8PFOS	PFOSA	d3NMFOS	d5NEFOS
Lab Sample ID	Client Sample ID	(10-130)	(10-130)	(40-135)	(40-130)	(40-130)	(40-130)	(40-170)	(25-135)
500-272285-1	V-200-A	81.0	84.2	98.7	95.5	97.6	76.3	72.4	73.8
500-272285-2	V-900-A	83.7	83.1	101	98.7	93.2	74.3	70.7	71.8
LCS 320-866939/3-A	Lab Control Sample	80.1	82.1	87.7	92.3	98.1	76.6	79.2	79.0
LCSD 320-866939/4-A	Lab Control Sample Dup	85.5	88.2	95.6	92.8	95.7	74.6	75.4	76.0
LLCS 320-866939/2-A	Lab Control Sample	81.0	85.5	98.1	98.9	97.6	75.3	77.3	79.1
MB 320-866939/1-A	Method Blank	73.9	83.9	91.2	96.2	93.6	71.3	74.8	74.7

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS	M262FTS	M282FTS	HFPODA	NMFM	NEFM	d5NPFSA	d3NMFSA
Lab Sample ID	Client Sample ID	(40-200)	(40-200)	(40-300)	(40-130)	(10-130)	(10-130)	(10-130)	(10-130)
500-272285-1	V-200-A	128	83.8	75.1	99.0	70.5	72.5	71.7	72.0
500-272285-2	V-900-A	125	85.8	79.6	110	65.8	71.0	65.7	65.4
LCS 320-866939/3-A	Lab Control Sample	116	77.2	77.0	99.7	74.6	78.3	75.0	70.1
LCSD 320-866939/4-A	Lab Control Sample Dup	111	79.8	72.7	99.2	72.2	77.4	70.0	67.0
LLCS 320-866939/2-A	Lab Control Sample	120	84.4	77.7	101	71.7	80.3	70.8	71.7
MB 320-866939/1-A	Method Blank	114	85.9	75.3	91.5	69.1	72.9	69.7	67.2

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA

Isotope Dilution Summary

Client: Arcadis US Inc.
Job ID: 500-272285-1
Project/Site: Marinette, WI 30284780.4.1.1 WPDES

d3NMFSA = d3-NMePFOSA

Appendix C

Ditch A Flow Monitoring and Reporting Methods

Ditch A Flow Monitoring and Reporting Methods – Revised October 2023

Background

Per the Wisconsin Department of Natural Resources' (WDNR's) request in a letter dated April 20, 2021, Tyco Fire Products LP (Tyco) will collect the data outlined below as part of the Operation, Maintenance, and Long-Term Monitoring Plan (OM&M Plan). Calculation methods for each parameter are provided herein.

- Record or estimate the stream flow in Ditch A during each weekly monitoring event.
- Record or estimate the duration of Ditch A check dam overtopping events and the depth of flow above the check dam.
- Collect a per- and polyfluoroalkyl substances (PFAS) sample from the surface water in Ditch A at location downstream of the treatment system at least once per month. Use the 36 PFAS analyte list Tyco is required to report.

Tyco submitted the OM&M Plan for the Ditch A treatment system on July 19, 2021. Revisions to Appendix B: Ditch A Flow Monitoring and Reporting Methods were requested by WDNR in a letter dated October 29, 2021. The requested revisions were incorporated into a submittal dated November 18, 2021. Subsequent revisions made to the data tabulated in the Semi-Annual Operation, Maintenance, and Optimization Progress Reports (October 2022 revision) and flow descriptions (April 2023 and September 2023 revisions) are included herein. This document serves as a replacement for Appendix B of the Ditch A treatment system OM&M Plan.

Ditch A Treatment System Flow Rate

Electromagnetic flow meters FIT-05 and FIT-07 are installed immediately upstream of the two granular activated carbon (GAC) treatment trains (herein referred to as the 100-train and 200-train, respectively) that serve as the primary method of PFAS removal in the Ditch A Treatment System. The flow rates and totalizer readings from these flow meters are recorded by the supervisory control and data acquisition (SCADA) system on an hourly basis. The Ditch A treatment system flow rate calculation is described by Equation 1, where V_{System} is the total daily volume processed by the Ditch A treatment system in gallons, V_{100} is the daily totalized volume recorded by FIT-05 in gallons, and V_{200} is the daily totalized volume recorded by FIT-07 in gallons. The daily values will be summed and reported on a weekly basis in the Semi-Annual Operation, Maintenance, and Optimization Progress Reports. The flow rate will be reported on a daily basis in the monthly electronic discharge monitoring reports (eDMRs).

$$V_{System} = V_{100} + V_{200} \quad (1)$$

Ditch A Stream Flow Rate

A permeable check dam constructed of Wisconsin Department of Transportation heavy rip rap (D_{50} = 1.33 feet) and sandbags to create a uniform elevation along the top is installed in Ditch A between the system intake and outfall. Pressure transducers installed in stilling wells located upstream and downstream of the check dam record surface water levels on an hourly basis by the SCADA system. The Ditch A stream flow rate will be estimated as

described below. The daily values will be summed and reported on a weekly basis in the Semi-Annual Operation, Maintenance, and Optimization Progress Reports.

Condition 1: Normal Operation (No Overtopping of Check Dam)

The Ditch A treatment system operates at 100 gallons per minute under normal operating conditions. However, the system may be operated at lower flow rates during low flow or freezing conditions. While the upstream surface water level is below the height of the check dam (as measured by the upstream stilling well), the Ditch A stream flow rate will be estimated to be equal to the system operating flow rate. This relationship is described by Equation 2, where V_{Stream} is the estimated Ditch A daily stream flow volume in gallons and V_{System} is as described in Equation 1.

$$V_{Stream} = V_{System} \tag{2}$$

Condition 2: Overtopping of Check Dam

Overtopping of the Ditch A check dam occurs infrequently throughout the year (seven occurrences in 2020) and is typically resolved within 24 hours. In the event that the upstream surface water level rises above the height of the check dam and the downstream surface water level elevation (as indicated by the levels in the stilling wells), the duration of the overtopping event and the depth of flow above the check dam will be recorded. Overtopping events have historically been infrequent and for short durations. Therefore, flow estimates will be recorded as greater than the Ditch A treatment system flow rate, as described by Equation 3, where V_{Stream} is the estimated Ditch A daily stream flow volume in gallons and V_{System} is as described in Equation 1.

$$V_{Stream} > V_{System} \tag{3}$$

Low Flow Adjustments

The treatment system flow rate will be decreased as necessary during low flow conditions to maintain continuous operation of the treatment system. In the event that Ditch A is dewatered to the extent that continuous operation cannot be maintained, the treatment system will be disabled via the human-machine interface (HMI). Water levels will be monitored on a daily basis and the treatment system will be re-enabled once sufficient flow is present to resume normal operation.

Appendix D

Ditch A Downstream Surface Water Analytical Results

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Lisa Rutkowski
Arcadis US Inc.
790 North Milwaukee Street, Suite 100A
Milwaukee, Wisconsin 53202

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JOB DESCRIPTION

Marinette, WI 30284780.4.1.1 Ditch A SW

JOB NUMBER

500-271837-1

Eurofins Chicago
18410 Crossing Drive
Suite E
Tinley Park IL 60487

See page two for job notes and contact information.

my EOL

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.

Compliance Statement

The LOD and LOQ reported are adjusted by the dilution factor when a dilution factor greater than 1 is needed. Additionally, where results are indicated as being reported on a dry weight basis, the LOD and LOQ are adjusted for moisture content as well.

Definitions of Limits
- LOD = Limit of Detection = MDL as defined by 40 CFR part 136 Appendix B
- LOQ = Limit of Quantitation = 3.33 x LOD as defined by Wisconsin
- RL = Report Limit = a concentration supported by a standard in the calibration curves

Authorization

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

Table of Contents

Cover Page 1
Table of Contents 3
Case Narrative 4
Method Summary 6
Sample Summary 7
Client Sample Results 8
Definitions 18
QC Sample Results 19
Chronicle 41
Certification Summary 42
Chain of Custody 43
Receipt Checklists 44
Isotope Dilution Summary 45

Job Narrative
500-271837-1

Receipt
The samples were received on 7/18/2025 8:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.0º C.

LCMS
Method 1633: The continuing calibration verification low level (CCVL) associated with batch 320-864878 recovered above the upper control limit for isotope dilution analyte (IDA) 13C2 4:2 FTS, The associated target analyte, 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) was within control limits in the CCVL. The client samples were in control for the affected IDA. The method blank associated with this CCV was non-detect, the low level laboratory control sample/laboratory control sample/laboratory control sample duplicate recoveries were in control for the associated target analyte; therefore, the data have been reported. The associated samples are impacted: 500-271837-1, 500-271837-2, 500-271837-3, CCVL 320-864878/2, LCS 320-864704/3-A, LCSD 320-864704/4-A, LLCS 320-864704/2-A and MB 320-864704/1-A.

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-865377 recovered above the upper control limit for isotope dilution analyte (IDA): M2-4:2 FTS. The associated target analytes were within control limits in the CCVL. The samples and method blank (MB) associated with this CCVL were non-detects, the low level laboratory control sample (LLCS), laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) were within control limits for the affected target analyte(s); therefore, the data have been reported. The associated samples are impacted: 500-271837-4, CCVL 320-865377/2, LCS 320-865312/3-A, LCSD 320-865312/4-A, LLCS 320-865312/2-A and MB 320-865312/1-A.

Method 1633: The continuing calibration verification (CCV) associated with batch 320-865050 recovered above the upper control limit for the following isotope dilution analyte (IDA): 13C2 4:2 FTS. The associated target analyte, 4:2 FTS, was within control limits in the CCV. The client samples were in control for the affected IDA. The method blank associated with this CCV was non-detect, the low level laboratory control sample/laboratory control sample/laboratory control sample duplicate recoveries were in control for the associated target analyte; therefore, the data have been reported. The associated samples are impacted: 500-271837-1, 500-271837-2, 500-271837-3, CCV 320-865050/1, CCV 320-865050/13, LCS 320-864704/3-A, LCSD 320-864704/4-A, LLCS 320-864704/2-A and MB 320-864704/1-A.

Method 1633: The following field blank contained a detection above the method detection limit (MDL) for Perfluorobutanoic acid (PFBA) and Perfluorohexanoic acid (PFHxA): 500-271837-4. The sample was re-extracted with non-detect results. Both sets of data are reported.

Method 1633: The transition mass ratio was outside of the established ratio limit for Perfluorooctanesulfonamide (FOSA) in CCVL 320-866436/2 associated to this data set. This is indicated by the "R" flag in the raw data. As the flagged data is in control in the CCVL, there is no adverse impact to the data.

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-866436 recovered above the upper control limit for isotope dilution analyte (IDA) M2-4:2 FTS, The associated target analyte, 4:2 FTS, was within control limits in the CCVL. The samples and method blank (MB) associated with this CCV were non-detects, the low level laboratory control sample, laboratory control sample, and laboratory control sample duplicate (LLCS/LCS/LCSD) were within control limits for the affected analyte; therefore, the data have been reported: 500-271837-4, CCVL 320-866436/2, LCS 320-866365/3-A, LCSD 320-866365/4-A, LLCS 320-866365/2-A and MB 320-866365/1-A.

Method 1633: The low level laboratory control sample (LLCS) for preparation batch 320-866365 and analytical batch 320-866481 recovered outside control limits for the following analytes: Perfluorooctanesulfonic acid (PFOS) and 6:2 FTS. These analytes were biased high in the LLCS and were not detected in the associated samples; therefore, the data have been reported:500-271837-4 and LLCS 320-866365/2-A.

Method 1633: The following Field Blank (FB) sample: 500-271837-4 was re-extracted past holding time due to suspected lab contamination for Perfluorobutanoic acid (PFBA) and Perfluorohexanoic acid (PFHxA) detected above the RL. The re-extraction data analysis was non-detect. Therefore both sets of data were reported.

Method 1633: The following sample was re-extracted due to positive concentrations in the original prep of the field blank. 500-271837-4

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

Organic Prep

Job ID: 500-271837-1 (Continued) Eurofins Chicago

Method 1633: The following sample was received a 250 mL bottle that is not compatible with our standard operating procedure: 500-271837-4. Per client request, the sample was transferred into new 125 mL bottle. After transferring into a new container, the sample was fortified with Isotope Dilution Analyte (IDA) then extracted.

Method 1633: The following sample was received in a 250 mL bottle that is not compatible with our standard operating procedure: 500-271837-4. Per client request, the sample was transferred into new 125 mL bottle. After transferring into new container, the sample was fortified with Isotope Dilution Analyte (IDA) then extracted.

Method 1633: The following sample was re-prepared outside of preparation holding time to confirm detections: 500-271837-4.

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

Method Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Method	Method Description	Protocol	Laboratory
1633A	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid Phase Extraction of PFAS	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-271837-1	SW-40 (7-17-25)	Water	07/17/25 06:00	07/18/25 08:30
500-271837-2	SW-26A (7-17-25)	Water	07/17/25 06:10	07/18/25 08:30
500-271837-3	DUP-01-A (7-17-25)	Water	07/17/25 00:00	07/18/25 08:30
500-271837-4	Field Blank-A (7-17-25)	Water	07/17/25 06:05	07/18/25 08:30

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Client Sample ID: SW-40 (7-17-25)

Date Collected: 07/17/25 06:00
Date Received: 07/18/25 08:30

Lab Sample ID: 500-271837-1

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.7**		3.2	0.30	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoropentanoic acid (PFPeA)	**11**		1.6	0.18	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorohexanoic acid (PFHxA)	**8.1**		1.6	0.21	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoroheptanoic acid (PFHpA)	**7.0**		1.6	0.28	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorooctanoic acid (PFOA)	**39**		1.6	0.31	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorononanoic acid (PFNA)	**2.5**		1.6	0.36	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorodecanoic acid (PFDA)	**2.4**		1.6	0.35	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoroundecanoic acid (PFUnA)	**2.2**		1.6	0.18	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorododecanoic acid (PFDoA)	<1.6		1.6	0.44	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorotridecanoic acid (PFTriA)	<1.6		1.6	0.46	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorotetradecanoic acid (PFTeA)	<1.6		1.6	0.64	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorobutanesulfonic acid (PFBS)	<1.6		1.6	0.43	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoropentanesulfonic acid (PFPeS)	<1.6		1.6	0.17	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	**1.4**	**J**	1.6	0.20	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.6		1.6	0.14	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorooctanesulfonic acid (PFOS)	**14**		1.6	0.22	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorononanesulfonic acid (PFNS)	<1.6		1.6	0.25	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorodecanesulfonic acid (PFDS)	<1.6		1.6	0.25	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorododecanesulfonic acid (PFDoS)	<1.6		1.6	0.42	ng/L		07/22/25 04:17	07/24/25 02:11	1
4:2 FTS	<3.2		3.2	0.35	ng/L		07/22/25 04:17	07/24/25 02:11	1
6:2 FTS	**36**		3.2	0.32	ng/L		07/22/25 04:17	07/24/25 02:11	1
8:2 FTS	**37**		3.2	0.71	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluorooctanesulfonamide (FOSA)	<1.6		1.6	0.18	ng/L		07/22/25 04:17	07/24/25 02:11	1
NMeFOSA	<1.6		1.6	0.31	ng/L		07/22/25 04:17	07/24/25 02:11	1
NEtFOSA	<1.6		1.6	0.35	ng/L		07/22/25 04:17	07/24/25 02:11	1
NMeFOSAA	<1.6		1.6	0.28	ng/L		07/22/25 04:17	07/24/25 02:11	1
NEtFOSAA	<1.6		1.6	0.35	ng/L		07/22/25 04:17	07/24/25 02:11	1
NMeFOSE	<8.0		8.0	1.8	ng/L		07/22/25 04:17	07/24/25 02:11	1
NEtFOSE	<8.0		8.0	1.9	ng/L		07/22/25 04:17	07/24/25 02:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.2		1.2	0.31	ng/L		07/22/25 04:17	07/24/25 02:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.6		1.6	0.32	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.6		1.6	0.15	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.6		1.6	0.21	ng/L		07/22/25 04:17	07/24/25 02:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.6		1.6	0.57	ng/L		07/22/25 04:17	07/24/25 02:11	1
F-53B Major	<1.6		1.6	0.46	ng/L		07/22/25 04:17	07/24/25 02:11	1
F-53B Minor	<1.6		1.6	0.24	ng/L		07/22/25 04:17	07/24/25 02:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.6		1.6	0.20	ng/L		07/22/25 04:17	07/24/25 02:11	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<3.2		3.2	0.57	ng/L		07/22/25 04:17	07/24/25 02:11	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<8.0		8.0	1.4	ng/L		07/22/25 04:17	07/24/25 02:11	1

Client Sample ID: SW-40 (7-17-25)
Lab Sample ID: 500-271837-1

Date Collected: 07/17/25 06:00
Matrix: Water
Date Received: 07/18/25 08:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<8.0		8.0	0.99	ng/L		07/22/25 04:17	07/24/25 02:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95.3*		*5 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C5 PFPeA	*107*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C5 PFHxA	*106*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C4 PFHpA	*103*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C8 PFOA	*101*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C9 PFNA	*102*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C6 PFDA	*102*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C7 PFUnA	*88.7*		*30 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C2 PFDoA	*75.0*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C2 PFTeDA	*72.1*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C3 PFBS	*99.1*		*40 - 135*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C3 PFHxS	*92.0*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C8 PFOS	*81.6*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C8 FOSA	*67.0*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d3-NMeFOSAA	*71.2*		*40 - 170*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d5-NEtFOSAA	*68.0*		*25 - 135*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
M2-4:2 FTS	*132*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
M2-6:2 FTS	*91.1*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
M2-8:2 FTS	*92.9*		*40 - 300*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
13C3 HFPO-DA	*96.2*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d7-N-MeFOSE-M	*60.2*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d9-N-EtFOSE-M	*59.8*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d5-NEtPFOSA	*61.7*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*
d3-NMePFOSA	*65.0*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:11*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Client Sample ID: SW-26A (7-17-25)

Date Collected: 07/17/25 06:10
Date Received: 07/18/25 08:30

Lab Sample ID: 500-271837-2

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**		3.7	0.34	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoropentanoic acid (PFPeA)	**42**		1.8	0.21	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorohexanoic acid (PFHxA)	**34**		1.8	0.25	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoroheptanoic acid (PFHpA)	**27**		1.8	0.32	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorooctanoic acid (PFOA)	**160**		1.8	0.36	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorononanoic acid (PFNA)	**8.8**		1.8	0.42	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorodecanoic acid (PFDA)	**5.6**		1.8	0.40	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoroundecanoic acid (PFUnA)	**2.4**		1.8	0.21	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.51	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	0.53	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.74	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorobutanesulfonic acid (PFBS)	**1.0**	**J**	1.8	0.49	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.20	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorohexanesulfonic acid (PFHxS)	**5.8**		1.8	0.22	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.42**	**J**	1.8	0.16	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorooctanesulfonic acid (PFOS)	**40**		1.8	0.25	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.29	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.49	ng/L		07/22/25 04:17	07/24/25 02:27	1
4:2 FTS	**0.73**	**J**	3.7	0.40	ng/L		07/22/25 04:17	07/24/25 02:27	1
6:2 FTS	**150**		3.7	0.37	ng/L		07/22/25 04:17	07/24/25 02:27	1
8:2 FTS	**91**		3.7	0.82	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluorooctanesulfonamide (FOSA)	**1.6**	**J**	1.8	0.21	ng/L		07/22/25 04:17	07/24/25 02:27	1
NMeFOSA	<1.8		1.8	0.35	ng/L		07/22/25 04:17	07/24/25 02:27	1
NEtFOSA	<1.8		1.8	0.41	ng/L		07/22/25 04:17	07/24/25 02:27	1
NMeFOSAA	<1.8		1.8	0.32	ng/L		07/22/25 04:17	07/24/25 02:27	1
NEtFOSAA	<1.8		1.8	0.40	ng/L		07/22/25 04:17	07/24/25 02:27	1
NMeFOSE	<9.2		9.2	2.1	ng/L		07/22/25 04:17	07/24/25 02:27	1
NEtFOSE	<9.2		9.2	2.2	ng/L		07/22/25 04:17	07/24/25 02:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.4		1.4	0.36	ng/L		07/22/25 04:17	07/24/25 02:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.37	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.8		1.8	0.17	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.8		1.8	0.24	ng/L		07/22/25 04:17	07/24/25 02:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.8		1.8	0.66	ng/L		07/22/25 04:17	07/24/25 02:27	1
F-53B Major	<1.8		1.8	0.53	ng/L		07/22/25 04:17	07/24/25 02:27	1
F-53B Minor	<1.8		1.8	0.27	ng/L		07/22/25 04:17	07/24/25 02:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.8		1.8	0.23	ng/L		07/22/25 04:17	07/24/25 02:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<3.7		3.7	0.66	ng/L		07/22/25 04:17	07/24/25 02:27	1

Client Sample Results

Client: Arcadis US Inc.
Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Client Sample ID: SW-26A (7-17-25)
Lab Sample ID: 500-271837-2

Date Collected: 07/17/25 06:10
Matrix: Water
Date Received: 07/18/25 08:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	**3.2**	**J**	9.2	1.6	ng/L		07/22/25 04:17	07/24/25 02:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.2		9.2	1.1	ng/L		07/22/25 04:17	07/24/25 02:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94.5*		*5 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C5 PFPeA	*97.4*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C5 PFHxA	*95.1*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C4 PFHpA	*99.0*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C8 PFOA	*103*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C9 PFNA	*98.4*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C6 PFDA	*84.3*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C7 PFUnA	*75.4*		*30 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C2 PFDoA	*65.3*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C2 PFTeDA	*60.7*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C3 PFBS	*98.5*		*40 - 135*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C3 PFHxS	*93.1*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C8 PFOS	*79.9*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C8 FOSA	*64.7*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d3-NMeFOSAA	*66.3*		*40 - 170*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d5-NEtFOSAA	*62.1*		*25 - 135*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
M2-4:2 FTS	*120*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
M2-6:2 FTS	*93.9*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
M2-8:2 FTS	*91.5*		*40 - 300*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
13C3 HFPO-DA	*90.7*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d7-N-MeFOSE-M	*52.5*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d9-N-EtFOSE-M	*47.6*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d5-NEtPFOSA	*50.9*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*
d3-NMePFOSA	*55.8*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:27*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Client Sample ID: DUP-01-A (7-17-25)

Date Collected: 07/17/25 00:00
Date Received: 07/18/25 08:30

Lab Sample ID: 500-271837-3

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.0**		3.6	0.34	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoropentanoic acid (PFPeA)	**11**		1.8	0.21	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorohexanoic acid (PFHxA)	**8.3**		1.8	0.24	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoroheptanoic acid (PFHpA)	**7.2**		1.8	0.31	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorooctanoic acid (PFOA)	**41**		1.8	0.35	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorononanoic acid (PFNA)	**3.5**		1.8	0.41	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorodecanoic acid (PFDA)	**7.6**		1.8	0.40	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoroundecanoic acid (PFUnA)	**10**		1.8	0.20	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorododecanoic acid (PFDoA)	**1.6**	**J**	1.8	0.50	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorotridecanoic acid (PFTriA)	**0.52**	**J**	1.8	0.52	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.73	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.49	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.19	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorohexanesulfonic acid (PFHxS)	**1.3**	**J**	1.8	0.22	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	0.16	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorooctanesulfonic acid (PFOS)	**30**		1.8	0.25	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.28	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.48	ng/L		07/22/25 04:17	07/24/25 02:44	1
4:2 FTS	<3.6		3.6	0.40	ng/L		07/22/25 04:17	07/24/25 02:44	1
6:2 FTS	**36**		3.6	0.37	ng/L		07/22/25 04:17	07/24/25 02:44	1
8:2 FTS	**100**		3.6	0.81	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluorooctanesulfonamide (FOSA)	**1.7**	**J**	1.8	0.20	ng/L		07/22/25 04:17	07/24/25 02:44	1
NMeFOSA	<1.8		1.8	0.35	ng/L		07/22/25 04:17	07/24/25 02:44	1
NEtFOSA	<1.8		1.8	0.40	ng/L		07/22/25 04:17	07/24/25 02:44	1
NMeFOSAA	<1.8		1.8	0.32	ng/L		07/22/25 04:17	07/24/25 02:44	1
NEtFOSAA	**0.83**	**J**	1.8	0.40	ng/L		07/22/25 04:17	07/24/25 02:44	1
NMeFOSE	<9.0		9.0	2.1	ng/L		07/22/25 04:17	07/24/25 02:44	1
NEtFOSE	<9.0		9.0	2.2	ng/L		07/22/25 04:17	07/24/25 02:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.4		1.4	0.35	ng/L		07/22/25 04:17	07/24/25 02:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.36	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.8		1.8	0.17	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.8		1.8	0.23	ng/L		07/22/25 04:17	07/24/25 02:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.8		1.8	0.65	ng/L		07/22/25 04:17	07/24/25 02:44	1
F-53B Major	<1.8		1.8	0.52	ng/L		07/22/25 04:17	07/24/25 02:44	1
F-53B Minor	<1.8		1.8	0.27	ng/L		07/22/25 04:17	07/24/25 02:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.8		1.8	0.23	ng/L		07/22/25 04:17	07/24/25 02:44	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<3.6		3.6	0.65	ng/L		07/22/25 04:17	07/24/25 02:44	1

Client Sample ID: DUP-01-A (7-17-25)
Lab Sample ID: 500-271837-3

Date Collected: 07/17/25 00:00
Matrix: Water
Date Received: 07/18/25 08:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<9.0		9.0	1.6	ng/L		07/22/25 04:17	07/24/25 02:44	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.0		9.0	1.1	ng/L		07/22/25 04:17	07/24/25 02:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92.1*		*5 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C5 PFPeA	*110*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C5 PFHxA	*109*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C4 PFHpA	*106*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C8 PFOA	*107*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C9 PFNA	*104*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C6 PFDA	*96.0*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C7 PFUnA	*85.5*		*30 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C2 PFDoA	*75.2*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C2 PFTeDA	*82.8*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C3 PFBS	*103*		*40 - 135*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C3 PFHxS	*101*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C8 PFOS	*91.5*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C8 FOSA	*70.5*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d3-NMeFOSAA	*73.2*		*40 - 170*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d5-NEtFOSAA	*72.2*		*25 - 135*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
M2-4:2 FTS	*145*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
M2-6:2 FTS	*102*		*40 - 200*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
M2-8:2 FTS	*93.1*		*40 - 300*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
13C3 HFPO-DA	*109*		*40 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d7-N-MeFOSE-M	*66.3*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d9-N-EtFOSE-M	*71.1*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d5-NEtPFOSA	*60.1*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*
d3-NMePFOSA	*66.0*		*10 - 130*	*07/22/25 04:17*	*07/24/25 02:44*	*1*

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Client Sample ID: Field Blank-A (7-17-25)

Lab Sample ID: 500-271837-4

Date Collected: 07/17/25 06:05
Date Received: 07/18/25 08:30

Matrix: Water

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.41**	**J**	3.7	0.34	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.21	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorohexanoic acid (PFHxA)	**0.66**	**J**	1.8	0.25	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.32	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.36	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.41	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.40	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.21	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.51	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	0.53	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.74	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.49	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.19	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.22	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	0.16	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.25	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.28	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.48	ng/L		07/23/25 19:41	07/24/25 15:39	1
4:2 FTS	<3.7		3.7	0.40	ng/L		07/23/25 19:41	07/24/25 15:39	1
6:2 FTS	<3.7		3.7	0.37	ng/L		07/23/25 19:41	07/24/25 15:39	1
8:2 FTS	<3.7		3.7	0.82	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.21	ng/L		07/23/25 19:41	07/24/25 15:39	1
NMeFOSA	<1.8		1.8	0.35	ng/L		07/23/25 19:41	07/24/25 15:39	1
NEtFOSA	<1.8		1.8	0.41	ng/L		07/23/25 19:41	07/24/25 15:39	1
NMeFOSAA	<1.8		1.8	0.32	ng/L		07/23/25 19:41	07/24/25 15:39	1
NEtFOSAA	<1.8		1.8	0.40	ng/L		07/23/25 19:41	07/24/25 15:39	1
NMeFOSE	<9.1		9.1	2.1	ng/L		07/23/25 19:41	07/24/25 15:39	1
NEtFOSE	<9.1		9.1	2.2	ng/L		07/23/25 19:41	07/24/25 15:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.4		1.4	0.36	ng/L		07/23/25 19:41	07/24/25 15:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.37	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.8		1.8	0.17	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.8		1.8	0.24	ng/L		07/23/25 19:41	07/24/25 15:39	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.8		1.8	0.66	ng/L		07/23/25 19:41	07/24/25 15:39	1
F-53B Major	<1.8		1.8	0.53	ng/L		07/23/25 19:41	07/24/25 15:39	1
F-53B Minor	<1.8		1.8	0.27	ng/L		07/23/25 19:41	07/24/25 15:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.8		1.8	0.23	ng/L		07/23/25 19:41	07/24/25 15:39	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<3.7		3.7	0.66	ng/L		07/23/25 19:41	07/24/25 15:39	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<9.1		9.1	1.6	ng/L		07/23/25 19:41	07/24/25 15:39	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.1		9.1	1.1	ng/L		07/23/25 19:41	07/24/25 15:39	1

Client Sample Results

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Client Sample ID: Field Blank-A (7-17-25)

Lab Sample ID: 500-271837-4

Date Collected: 07/17/25 06:05
Date Received: 07/18/25 08:30

Matrix: Water

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*91.8*		*5 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C5 PFPeA	*111*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C5 PFHxA	*104*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C4 PFHpA	*102*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C8 PFOA	*104*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C9 PFNA	*105*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C6 PFDA	*97.6*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C7 PFUnA	*93.4*		*30 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C2 PFDoA	*88.0*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C2 PFTeDA	*95.3*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C3 PFBS	*105*		*40 - 135*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C3 PFHxS	*100*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C8 PFOS	*92.5*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C8 FOSA	*69.5*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d3-NMeFOSAA	*76.5*		*40 - 170*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d5-NEtFOSAA	*75.0*		*25 - 135*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
M2-4:2 FTS	*169*		*40 - 200*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
M2-6:2 FTS	*106*		*40 - 200*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
M2-8:2 FTS	*109*		*40 - 300*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
13C3 HFPO-DA	*100*		*40 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d7-N-MeFOSE-M	*68.3*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d9-N-EtFOSE-M	*75.7*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d5-NEtPFOSA	*64.6*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*
d3-NMePFOSA	*64.6*		*10 - 130*	*07/23/25 19:41*	*07/24/25 15:39*	*1*

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<3.6	H	3.6	0.33	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoropentanoic acid (PFPeA)	<1.8	H	1.8	0.21	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorohexanoic acid (PFHxA)	<1.8	H	1.8	0.24	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoroheptanoic acid (PFHpA)	<1.8	H	1.8	0.31	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorooctanoic acid (PFOA)	<1.8	H	1.8	0.35	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorononanoic acid (PFNA)	<1.8	H	1.8	0.41	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorodecanoic acid (PFDA)	<1.8	H	1.8	0.39	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoroundecanoic acid (PFUnA)	<1.8	H	1.8	0.20	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorododecanoic acid (PFDoA)	<1.8	H	1.8	0.50	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorotridecanoic acid (PFTriA)	<1.8	H	1.8	0.52	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorotetradecanoic acid (PFTeA)	<1.8	H	1.8	0.72	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorobutanesulfonic acid (PFBS)	<1.8	H	1.8	0.48	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8	H	1.8	0.19	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8	H	1.8	0.22	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8	H	1.8	0.16	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorooctanesulfonic acid (PFOS)	<1.8	H *+	1.8	0.25	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorononanesulfonic acid (PFNS)	<1.8	H	1.8	0.28	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorodecanesulfonic acid (PFDS)	<1.8	H	1.8	0.28	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8	H	1.8	0.47	ng/L		07/28/25 19:59	07/29/25 11:27	1
4:2 FTS	<3.6	H	3.6	0.39	ng/L		07/28/25 19:59	07/29/25 11:27	1
6:2 FTS	<3.6	H *+	3.6	0.36	ng/L		07/28/25 19:59	07/29/25 11:27	1

Client Sample ID: Field Blank-A (7-17-25)
Lab Sample ID: 500-271837-4

Date Collected: 07/17/25 06:05
Matrix: Water
Date Received: 07/18/25 08:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
8:2 FTS	<3.6	H	3.6	0.80	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluorooctanesulfonamide (FOSA)	<1.8	H	1.8	0.20	ng/L		07/28/25 19:59	07/29/25 11:27	1
NMeFOSA	<1.8	H	1.8	0.34	ng/L		07/28/25 19:59	07/29/25 11:27	1
NEtFOSA	<1.8	H	1.8	0.40	ng/L		07/28/25 19:59	07/29/25 11:27	1
NMeFOSAA	<1.8	H	1.8	0.31	ng/L		07/28/25 19:59	07/29/25 11:27	1
NEtFOSAA	<1.8	H	1.8	0.39	ng/L		07/28/25 19:59	07/29/25 11:27	1
NMeFOSE	<9.0	H	9.0	2.0	ng/L		07/28/25 19:59	07/29/25 11:27	1
NEtFOSE	<9.0	H	9.0	2.2	ng/L		07/28/25 19:59	07/29/25 11:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3	H	1.3	0.35	ng/L		07/28/25 19:59	07/29/25 11:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8	H	1.8	0.36	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<1.8	H	1.8	0.17	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<1.8	H	1.8	0.23	ng/L		07/28/25 19:59	07/29/25 11:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<1.8	H	1.8	0.64	ng/L		07/28/25 19:59	07/29/25 11:27	1
F-53B Major	<1.8	H	1.8	0.52	ng/L		07/28/25 19:59	07/29/25 11:27	1
F-53B Minor	<1.8	H	1.8	0.27	ng/L		07/28/25 19:59	07/29/25 11:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<1.8	H	1.8	0.22	ng/L		07/28/25 19:59	07/29/25 11:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<3.6	H	3.6	0.64	ng/L		07/28/25 19:59	07/29/25 11:27	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<9.0	H	9.0	1.5	ng/L		07/28/25 19:59	07/29/25 11:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<9.0	H	9.0	1.1	ng/L		07/28/25 19:59	07/29/25 11:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97.6*		*5 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C5 PFPeA	*116*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C5 PFHxA	*114*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C4 PFHpA	*100*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C8 PFOA	*97.6*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C9 PFNA	*101*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C6 PFDA	*107*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C7 PFUnA	*103*		*30 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C2 PFDoA	*88.5*		*10 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C2 PFTeDA	*88.0*		*10 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C3 PFBS	*107*		*40 - 135*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C3 PFHxS	*110*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C8 PFOS	*96.8*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C8 FOSA	*77.3*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
d3-NMeFOSAA	*84.8*		*40 - 170*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
d5-NEtFOSAA	*88.6*		*25 - 135*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
M2-4:2 FTS	*185*		*40 - 200*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
M2-6:2 FTS	*116*		*40 - 200*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
M2-8:2 FTS	*117*		*40 - 300*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
13C3 HFPO-DA	*102*		*40 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
d7-N-MeFOSE-M	*66.1*		*10 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*
d9-N-EtFOSE-M	*66.5*		*10 - 130*	*07/28/25 19:59*	*07/29/25 11:27*	*1*

Client: Arcadis US Inc.
Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Client Sample ID: Field Blank-A (7-17-25)
Lab Sample ID: 500-271837-4

Date Collected: 07/17/25 06:05
Matrix: Water
Date Received: 07/18/25 08:30

Method: EPA 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RE (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtPFOSA	65.9		10 - 130	07/28/25 19:59	07/29/25 11:27	1
d3-NMePFOSA	66.8		10 - 130	07/28/25 19:59	07/29/25 11:27	1

Definitions/Glossary

Client: Arcadis US Inc.
Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-864704/1-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 864704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.0		4.0	0.37	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.23	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.27	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.35	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.39	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.45	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.44	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	0.23	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	0.58	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.81	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.54	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.21	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.25	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.18	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.28	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.31	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.31	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.53	ng/L		07/22/25 04:17	07/23/25 22:36	1
4:2 FTS	<4.0		4.0	0.44	ng/L		07/22/25 04:17	07/23/25 22:36	1
6:2 FTS	<4.0		4.0	0.41	ng/L		07/22/25 04:17	07/23/25 22:36	1
8:2 FTS	<4.0		4.0	0.90	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.23	ng/L		07/22/25 04:17	07/23/25 22:36	1
NMeFOSA	<2.0		2.0	0.39	ng/L		07/22/25 04:17	07/23/25 22:36	1
NEtFOSA	<2.0		2.0	0.45	ng/L		07/22/25 04:17	07/23/25 22:36	1
NMeFOSAA	<2.0		2.0	0.35	ng/L		07/22/25 04:17	07/23/25 22:36	1
NEtFOSAA	<2.0		2.0	0.44	ng/L		07/22/25 04:17	07/23/25 22:36	1
NMeFOSE	<10		10	2.3	ng/L		07/22/25 04:17	07/23/25 22:36	1
NEtFOSE	<10		10	2.4	ng/L		07/22/25 04:17	07/23/25 22:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		1.5	0.39	ng/L		07/22/25 04:17	07/23/25 22:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	0.19	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	0.26	ng/L		07/22/25 04:17	07/23/25 22:36	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	0.72	ng/L		07/22/25 04:17	07/23/25 22:36	1
F-53B Major	<2.0		2.0	0.58	ng/L		07/22/25 04:17	07/23/25 22:36	1
F-53B Minor	<2.0		2.0	0.30	ng/L		07/22/25 04:17	07/23/25 22:36	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	0.25	ng/L		07/22/25 04:17	07/23/25 22:36	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<4.0		4.0	0.72	ng/L		07/22/25 04:17	07/23/25 22:36	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<10		10	1.7	ng/L		07/22/25 04:17	07/23/25 22:36	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-864704/1-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 864704

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<10		10	1.2	ng/L		07/22/25 04:17	07/23/25 22:36	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96.2*		*5 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C5 PFPeA	*102*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C5 PFHxA	*109*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C4 PFHpA	*100*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C8 PFOA	*101*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C9 PFNA	*102*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C6 PFDA	*100*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C7 PFUnA	*94.1*		*30 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C2 PFDoA	*81.9*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C2 PFTeDA	*98.0*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C3 PFBS	*97.3*		*40 - 135*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C3 PFHxS	*103*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C8 PFOS	*96.5*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C8 FOSA	*64.0*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d3-NMeFOSAA	*81.3*		*40 - 170*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d5-NEtFOSAA	*78.6*		*25 - 135*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
M2-4:2 FTS	*139*		*40 - 200*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
M2-6:2 FTS	*102*		*40 - 200*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
M2-8:2 FTS	*113*		*40 - 300*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
13C3 HFPO-DA	*96.0*		*40 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d7-N-MeFOSE-M	*70.3*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d9-N-EtFOSE-M	*79.0*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d5-NEtPFOSA	*61.0*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*
d3-NMePFOSA	*58.6*		*10 - 130*	*07/22/25 04:17*	*07/23/25 22:36*	*1*

Lab Sample ID: LCS 320-864704/3-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864704

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	84.3		ng/L		105	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	41.9		ng/L		105	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	39.8		ng/L		100	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	41.2		ng/L		103	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.6		ng/L		97	70 - 150
Perfluorononanoic acid (PFNA)	40.0	38.1		ng/L		95	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	38.0		ng/L		95	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	40.2		ng/L		100	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	43.9		ng/L		110	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	39.3		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	40.7		ng/L		102	60 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-864704/3-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864704

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	35.5	35.8		ng/L		101	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.6		ng/L		103	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.1		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.6		ng/L		104	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	36.3		ng/L		98	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	38.4		ng/L		100	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	37.0		ng/L		96	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.6		ng/L		92	50 - 145
4:2 FTS	75.0	79.1		ng/L		105	70 - 145
6:2 FTS	76.2	81.2		ng/L		107	65 - 155
8:2 FTS	76.8	79.9		ng/L		104	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	42.7		ng/L		107	70 - 145
NMeFOSA	40.0	42.8		ng/L		107	60 - 150
NEtFOSA	40.0	42.5		ng/L		106	65 - 145
NMeFOSAA	40.0	37.5		ng/L		94	50 - 140
NEtFOSAA	40.0	39.7		ng/L		99	70 - 145
NMeFOSE	200	201		ng/L		100	70 - 145
NEtFOSE	200	186		ng/L		93	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	24.0		ng/L		80	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	38.9		ng/L		103	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	39.5		ng/L		99	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	39.3		ng/L		98	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	37.6		ng/L		94	50 - 150
F-53B Major	37.4	36.9		ng/L		99	70 - 155
F-53B Minor	37.8	40.2		ng/L		106	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	38.1		ng/L		107	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	72.5		ng/L		91	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	162		ng/L		81	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	149		ng/L		75	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96.6*		*5 - 130*
13C5 PFPeA	*107*		*40 - 130*
13C5 PFHxA	*108*		*40 - 130*
13C4 PFHpA	*106*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-864704/3-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864704

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 PFOA	*113*		*40 - 130*
13C9 PFNA	*104*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*96.6*		*30 - 130*
13C2 PFDoA	*84.9*		*10 - 130*
13C2 PFTeDA	*93.5*		*10 - 130*
13C3 PFBS	*103*		*40 - 135*
13C3 PFHxS	*98.4*		*40 - 130*
13C8 PFOS	*95.9*		*40 - 130*
13C8 FOSA	*63.9*		*40 - 130*
d3-NMeFOSAA	*86.0*		*40 - 170*
d5-NEtFOSAA	*83.0*		*25 - 135*
M2-4:2 FTS	*136*		*40 - 200*
M2-6:2 FTS	*103*		*40 - 200*
M2-8:2 FTS	*110*		*40 - 300*
13C3 HFPO-DA	*104*		*40 - 130*
d7-N-MeFOSE-M	*71.3*		*10 - 130*
d9-N-EtFOSE-M	*80.1*		*10 - 130*
d5-NEtPFOSA	*57.1*		*10 - 130*
d3-NMePFOSA	*54.1*		*10 - 130*

Lab Sample ID: LCSD 320-864704/4-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 864704

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	85.2		ng/L		107	70 - 140	1	30
Perfluoropentanoic acid (PFPeA)	40.0	42.7		ng/L		107	65 - 135	2	30
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	70 - 145	0	30
Perfluoroheptanoic acid (PFHpA)	40.0	42.1		ng/L		105	70 - 150	2	30
Perfluorooctanoic acid (PFOA)	40.0	38.9		ng/L		97	70 - 150	1	30
Perfluorononanoic acid (PFNA)	40.0	38.5		ng/L		96	70 - 150	1	30
Perfluorodecanoic acid (PFDA)	40.0	41.2		ng/L		103	70 - 140	8	30
Perfluoroundecanoic acid (PFUnA)	40.0	40.7		ng/L		102	70 - 145	1	30
Perfluorododecanoic acid (PFDoA)	40.0	43.9		ng/L		110	70 - 140	0	30
Perfluorotridecanoic acid (PFTriA)	40.0	39.2		ng/L		98	65 - 140	0	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.8		ng/L		100	60 - 140	2	30
Perfluorobutanesulfonic acid (PFBS)	35.5	37.3		ng/L		105	60 - 145	4	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	36.2		ng/L		96	65 - 140	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	34.3		ng/L		94	65 - 145	2	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	37.0		ng/L		97	70 - 150	7	30
Perfluorooctanesulfonic acid (PFOS)	37.2	37.9		ng/L		102	55 - 150	4	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-864704/4-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 864704

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanesulfonic acid (PFNS)			38.5	38.3		ng/L		99	65 - 145	0	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.8		ng/L		101	60 - 145	5	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	38.0		ng/L		98	50 - 145	6	30
4:2 FTS			75.0	74.2		ng/L		99	70 - 145	6	30
6:2 FTS			76.2	79.0		ng/L		104	65 - 155	3	30
8:2 FTS			76.8	77.3		ng/L		101	60 - 150	3	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.1		ng/L		105	70 - 145	2	30
NMeFOSA			40.0	40.7		ng/L		102	60 - 150	5	30
NEtFOSA			40.0	42.0		ng/L		105	65 - 145	1	30
NMeFOSAA			40.0	37.4		ng/L		93	50 - 140	0	30
NEtFOSAA			40.0	39.8		ng/L		99	70 - 145	0	30
NMeFOSE			200	210		ng/L		105	70 - 145	5	30
NEtFOSE			200	187		ng/L		93	70 - 135	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	27.3		ng/L		91	70 - 140	13	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	36.7		ng/L		97	65 - 145	6	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	40.1		ng/L		100	55 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	40.3		ng/L		101	60 - 150	3	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	38.1		ng/L		95	50 - 150	1	30
F-53B Major			37.4	34.4		ng/L		92	70 - 155	7	30
F-53B Minor			37.8	39.2		ng/L		104	55 - 160	2	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	38.9		ng/L		109	70 - 140	2	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	73.3		ng/L		92	65 - 130	1	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	159		ng/L		80	70 - 135	2	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	151		ng/L		75	50 - 145	1	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*95.7*		*5 - 130*
13C5 PFPeA	*108*		*40 - 130*
13C5 PFHxA	*110*		*40 - 130*
13C4 PFHpA	*107*		*40 - 130*
13C8 PFOA	*109*		*40 - 130*
13C9 PFNA	*105*		*40 - 130*
13C6 PFDA	*99.3*		*40 - 130*
13C7 PFUnA	*100*		*30 - 130*
13C2 PFDoA	*90.8*		*10 - 130*
13C2 PFTeDA	*106*		*10 - 130*
13C3 PFBS	*102*		*40 - 135*
13C3 PFHxS	*100*		*40 - 130*
13C8 PFOS	*96.0*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-864704/4-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 864704

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*69.0*		*40 - 130*
d3-NMeFOSAA	*86.1*		*40 - 170*
d5-NEtFOSAA	*84.1*		*25 - 135*
M2-4:2 FTS	*140*		*40 - 200*
M2-6:2 FTS	*107*		*40 - 200*
M2-8:2 FTS	*115*		*40 - 300*
13C3 HFPO-DA	*109*		*40 - 130*
d7-N-MeFOSE-M	*77.3*		*10 - 130*
d9-N-EtFOSE-M	*88.1*		*10 - 130*
d5-NEtPFOSA	*62.0*		*10 - 130*
d3-NMePFOSA	*61.1*		*10 - 130*

Lab Sample ID: LLCS 320-864704/2-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864704

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.80		ng/L		110	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.49		ng/L		112	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.46		ng/L		111	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	4.66		ng/L		116	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.12		ng/L		103	70 - 150
Perfluorononanoic acid (PFNA)	4.00	4.08		ng/L		102	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	4.24		ng/L		106	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.17		ng/L		104	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.49		ng/L		112	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	4.12		ng/L		103	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	4.06		ng/L		101	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	4.03		ng/L		113	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.94		ng/L		105	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.52		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	4.01		ng/L		105	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.85		ng/L		103	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.98		ng/L		104	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.68		ng/L		95	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.12		ng/L		80	50 - 145
4:2 FTS	7.50	7.78		ng/L		104	70 - 145
6:2 FTS	7.62	8.74		ng/L		115	65 - 155
8:2 FTS	7.68	7.80		ng/L		102	60 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-864704/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 865050
Prep Batch: 864704

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	4.00	4.39		ng/L		110	70 - 145
NMeFOSA	4.00	3.98		ng/L		99	60 - 150
NEtFOSA	4.00	3.67		ng/L		92	65 - 145
NMeFOSAA	4.00	4.04		ng/L		101	50 - 140
NEtFOSAA	4.00	3.87		ng/L		97	70 - 145
NMeFOSE	20.0	19.3		ng/L		97	70 - 145
NEtFOSE	20.0	18.3		ng/L		92	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	3.14		ng/L		105	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	4.11		ng/L		109	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.01		ng/L		100	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	3.99		ng/L		100	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.31		ng/L		108	50 - 150
F-53B Major	3.74	3.80		ng/L		102	70 - 155
F-53B Minor	3.78	4.01		ng/L		106	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	4.21		ng/L		118	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	7.77		ng/L		97	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	16.6		ng/L		83	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	14.8		ng/L		74	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*98.0*		*5 - 130*
13C5 PFPeA	*108*		*40 - 130*
13C5 PFHxA	*107*		*40 - 130*
13C4 PFHpA	*106*		*40 - 130*
13C8 PFOA	*117*		*40 - 130*
13C9 PFNA	*105*		*40 - 130*
13C6 PFDA	*103*		*40 - 130*
13C7 PFUnA	*99.6*		*30 - 130*
13C2 PFDoA	*85.9*		*10 - 130*
13C2 PFTeDA	*94.7*		*10 - 130*
13C3 PFBS	*107*		*40 - 135*
13C3 PFHxS	*108*		*40 - 130*
13C8 PFOS	*95.3*		*40 - 130*
13C8 FOSA	*63.5*		*40 - 130*
d3-NMeFOSAA	*86.3*		*40 - 170*
d5-NEtFOSAA	*81.0*		*25 - 135*
M2-4:2 FTS	*155*		*40 - 200*
M2-6:2 FTS	*110*		*40 - 200*
M2-8:2 FTS	*119*		*40 - 300*
13C3 HFPO-DA	*103*		*40 - 130*
d7-N-MeFOSE-M	*68.7*		*10 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-864704/2-A
Matrix: Water
Analysis Batch: 865050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 864704

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
d9-N-EtFOSE-M	*74.1*		*10 - 130*
d5-NEtPFOSA	*53.4*		*10 - 130*
d3-NMePFOSA	*52.7*		*10 - 130*

Lab Sample ID: MB 320-865312/1-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 865312

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.0		4.0	0.37	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.27	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.35	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.45	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	0.58	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.81	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.54	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.21	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.25	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.18	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.28	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.31	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.31	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.53	ng/L		07/23/25 19:41	07/24/25 08:47	1
4:2 FTS	<4.0		4.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
6:2 FTS	<4.0		4.0	0.41	ng/L		07/23/25 19:41	07/24/25 08:47	1
8:2 FTS	<4.0		4.0	0.90	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.23	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSA	<2.0		2.0	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSA	<2.0		2.0	0.45	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSAA	<2.0		2.0	0.35	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSAA	<2.0		2.0	0.44	ng/L		07/23/25 19:41	07/24/25 08:47	1
NMeFOSE	<10		10	2.3	ng/L		07/23/25 19:41	07/24/25 08:47	1
NEtFOSE	<10		10	2.4	ng/L		07/23/25 19:41	07/24/25 08:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		1.5	0.39	ng/L		07/23/25 19:41	07/24/25 08:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	0.19	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	0.26	ng/L		07/23/25 19:41	07/24/25 08:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	0.72	ng/L		07/23/25 19:41	07/24/25 08:47	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-865312/1-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 865312

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
F-53B Major	<2.0		2.0	0.58	ng/L		07/23/25 19:41	07/24/25 08:47	1
F-53B Minor	<2.0		2.0	0.30	ng/L		07/23/25 19:41	07/24/25 08:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	0.25	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<4.0		4.0	0.72	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<10		10	1.7	ng/L		07/23/25 19:41	07/24/25 08:47	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<10		10	1.2	ng/L		07/23/25 19:41	07/24/25 08:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98.6*		*5 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C5 PFPeA	*120*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C5 PFHxA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C4 PFHpA	*109*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 PFOA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C9 PFNA	*108*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C6 PFDA	*101*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C7 PFUnA	*86.8*		*30 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C2 PFDoA	*81.4*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C2 PFTeDA	*84.5*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 PFBS	*102*		*40 - 135*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 PFHxS	*99.6*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 PFOS	*97.0*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C8 FOSA	*66.7*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d3-NMeFOSAA	*80.8*		*40 - 170*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d5-NEtFOSAA	*76.7*		*25 - 135*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-4:2 FTS	*144*		*40 - 200*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-6:2 FTS	*99.9*		*40 - 200*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
M2-8:2 FTS	*110*		*40 - 300*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
13C3 HFPO-DA	*103*		*40 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d7-N-MeFOSE-M	*64.1*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d9-N-EtFOSE-M	*67.3*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d5-NEtPFOSA	*57.0*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*
d3-NMePFOSA	*60.2*		*10 - 130*	*07/23/25 19:41*	*07/24/25 08:47*	*1*

Lab Sample ID: LCS 320-865312/3-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	83.1		ng/L		104	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	39.7		ng/L		99	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	44.2		ng/L		111	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	40.1		ng/L		100	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.2		ng/L		96	70 - 150
Perfluorononanoic acid (PFNA)	40.0	42.4		ng/L		106	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	39.0		ng/L		98	70 - 140

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865312/3-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	40.0	38.5		ng/L		96	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	45.5		ng/L		114	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	38.5		ng/L		96	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	40.7		ng/L		102	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	37.5		ng/L		105	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	35.5		ng/L		94	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.0		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	35.5		ng/L		93	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	34.5		ng/L		93	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	36.1		ng/L		94	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	38.7		ng/L		100	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.2		ng/L		91	50 - 145
4:2 FTS	75.0	80.3		ng/L		107	70 - 145
6:2 FTS	76.2	85.5		ng/L		112	65 - 155
8:2 FTS	76.8	77.9		ng/L		101	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	42.2		ng/L		105	70 - 145
NMeFOSA	40.0	42.8		ng/L		107	60 - 150
NEtFOSA	40.0	43.4		ng/L		108	65 - 145
NMeFOSAA	40.0	37.1		ng/L		93	50 - 140
NEtFOSAA	40.0	39.9		ng/L		100	70 - 145
NMeFOSE	200	211		ng/L		106	70 - 145
NEtFOSE	200	193		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	29.1		ng/L		97	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.3		ng/L		104	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	39.0		ng/L		98	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	42.2		ng/L		106	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	42.7		ng/L		107	50 - 150
F-53B Major	37.4	41.6		ng/L		111	70 - 155
F-53B Minor	37.8	50.7		ng/L		134	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	40.3		ng/L		113	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	71.7		ng/L		90	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	164		ng/L		82	70 - 135

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-865312/3-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	154		ng/L		77	50 - 145		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*89.6*		*5 - 130*
13C5 PFPeA	*101*		*40 - 130*
13C5 PFHxA	*95.3*		*40 - 130*
13C4 PFHpA	*96.4*		*40 - 130*
13C8 PFOA	*97.3*		*40 - 130*
13C9 PFNA	*96.7*		*40 - 130*
13C6 PFDA	*99.6*		*40 - 130*
13C7 PFUnA	*96.9*		*30 - 130*
13C2 PFDoA	*87.9*		*10 - 130*
13C2 PFTeDA	*101*		*10 - 130*
13C3 PFBS	*95.1*		*40 - 135*
13C3 PFHxS	*97.9*		*40 - 130*
13C8 PFOS	*97.1*		*40 - 130*
13C8 FOSA	*66.6*		*40 - 130*
d3-NMeFOSAA	*83.5*		*40 - 170*
d5-NEtFOSAA	*83.5*		*25 - 135*
M2-4:2 FTS	*125*		*40 - 200*
M2-6:2 FTS	*93.1*		*40 - 200*
M2-8:2 FTS	*103*		*40 - 300*
13C3 HFPO-DA	*91.3*		*40 - 130*
d7-N-MeFOSE-M	*71.0*		*10 - 130*
d9-N-EtFOSE-M	*77.2*		*10 - 130*
d5-NEtPFOSA	*68.3*		*10 - 130*
d3-NMePFOSA	*69.4*		*10 - 130*

Lab Sample ID: LCSD 320-865312/4-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 865312

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			80.0	84.9		ng/L		106	70 - 140	2	30
Perfluoropentanoic acid (PFPeA)			40.0	37.8		ng/L		94	65 - 135	5	30
Perfluorohexanoic acid (PFHxA)			40.0	40.3		ng/L		101	70 - 145	9	30
Perfluoroheptanoic acid (PFHpA)			40.0	40.9		ng/L		102	70 - 150	2	30
Perfluorooctanoic acid (PFOA)			40.0	37.6		ng/L		94	70 - 150	2	30
Perfluorononanoic acid (PFNA)			40.0	40.8		ng/L		102	70 - 150	4	30
Perfluorodecanoic acid (PFDA)			40.0	38.3		ng/L		96	70 - 140	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.5		ng/L		99	70 - 145	3	30
Perfluorododecanoic acid (PFDoA)			40.0	43.8		ng/L		109	70 - 140	4	30
Perfluorotridecanoic acid (PFTriA)			40.0	36.4		ng/L		91	65 - 140	6	30
Perfluorotetradecanoic acid (PFTeA)			40.0	37.3		ng/L		93	60 - 140	9	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865312/4-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 865312

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)			35.5	37.2		ng/L		105	60 - 145	1	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	35.1		ng/L		93	65 - 140	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.0		ng/L		93	65 - 145	3	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	37.4		ng/L		98	70 - 150	5	30
Perfluorooctanesulfonic acid (PFOS)			37.2	35.2		ng/L		95	55 - 150	2	30
Perfluorononanesulfonic acid (PFNS)			38.5	40.4		ng/L		105	65 - 145	11	30
Perfluorodecanesulfonic acid (PFDS)			38.6	37.0		ng/L		96	60 - 145	4	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	33.6		ng/L		87	50 - 145	5	30
4:2 FTS			75.0	76.6		ng/L		102	70 - 145	5	30
6:2 FTS			76.2	77.3		ng/L		102	65 - 155	10	30
8:2 FTS			76.8	73.4		ng/L		96	60 - 150	6	30
Perfluorooctanesulfonamide (FOSA)			40.0	39.9		ng/L		100	70 - 145	5	30
NMeFOSA			40.0	43.0		ng/L		108	60 - 150	1	30
NEtFOSA			40.0	41.4		ng/L		104	65 - 145	5	30
NMeFOSAA			40.0	41.4		ng/L		104	50 - 140	11	30
NEtFOSAA			40.0	41.2		ng/L		103	70 - 145	3	30
NMeFOSE			200	203		ng/L		101	70 - 145	4	30
NEtFOSE			200	191		ng/L		95	70 - 135	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			30.0	24.8		ng/L		83	70 - 140	16	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	38.5		ng/L		102	65 - 145	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)			40.0	37.4		ng/L		94	55 - 140	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)			40.0	40.6		ng/L		101	60 - 150	4	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)			40.0	37.8		ng/L		95	50 - 150	12	30
F-53B Major			37.4	39.8		ng/L		107	70 - 155	4	30
F-53B Minor			37.8	45.1		ng/L		119	55 - 160	12	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)			35.7	39.5		ng/L		111	70 - 140	2	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)			80.0	69.2		ng/L		86	65 - 130	4	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)			200	159		ng/L		80	70 - 135	3	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)			200	158		ng/L		79	50 - 145	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*91.5*		*5 - 130*
13C5 PFPeA	*114*		*40 - 130*
13C5 PFHxA	*104*		*40 - 130*
13C4 PFHpA	*105*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-865312/4-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 865312

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 PFOA	*98.3*		*40 - 130*
13C9 PFNA	*101*		*40 - 130*
13C6 PFDA	*89.0*		*40 - 130*
13C7 PFUnA	*87.2*		*30 - 130*
13C2 PFDoA	*77.8*		*10 - 130*
13C2 PFTeDA	*85.2*		*10 - 130*
13C3 PFBS	*97.3*		*40 - 135*
13C3 PFHxS	*98.9*		*40 - 130*
13C8 PFOS	*94.2*		*40 - 130*
13C8 FOSA	*69.0*		*40 - 130*
d3-NMeFOSAA	*83.3*		*40 - 170*
d5-NEtFOSAA	*81.5*		*25 - 135*
M2-4:2 FTS	*131*		*40 - 200*
M2-6:2 FTS	*99.4*		*40 - 200*
M2-8:2 FTS	*108*		*40 - 300*
13C3 HFPO-DA	*102*		*40 - 130*
d7-N-MeFOSE-M	*71.4*		*10 - 130*
d9-N-EtFOSE-M	*73.2*		*10 - 130*
d5-NEtPFOSA	*69.1*		*10 - 130*
d3-NMePFOSA	*69.6*		*10 - 130*

Lab Sample ID: LLCS 320-865312/2-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.89		ng/L		111	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	3.97		ng/L		99	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.42		ng/L		111	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	3.93		ng/L		98	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.42		ng/L		110	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.97		ng/L		99	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.70		ng/L		92	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	4.11		ng/L		103	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.50		ng/L		113	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.97		ng/L		99	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	3.74		ng/L		94	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.64		ng/L		102	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.65		ng/L		97	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.50		ng/L		96	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.81		ng/L		100	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	3.81		ng/L		102	55 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865312/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 865377
Prep Batch: 865312

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	3.85	3.72		ng/L		97	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.59		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.82		ng/L		98	50 - 145
4:2 FTS	7.50	7.35		ng/L		98	70 - 145
6:2 FTS	7.62	8.63		ng/L		113	65 - 155
8:2 FTS	7.68	7.85		ng/L		102	60 - 150
Perfluorooctanesulfonamide (FOSA)	4.00	4.06		ng/L		101	70 - 145
NMeFOSA	4.00	4.41		ng/L		110	60 - 150
NEtFOSA	4.00	4.66		ng/L		116	65 - 145
NMeFOSAA	4.00	3.38		ng/L		85	50 - 140
NEtFOSAA	4.00	4.11		ng/L		103	70 - 145
NMeFOSE	20.0	20.1		ng/L		100	70 - 145
NEtFOSE	20.0	19.3		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.34		ng/L		78	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.81		ng/L		101	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.71		ng/L		93	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.00		ng/L		100	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.29		ng/L		107	50 - 150
F-53B Major	3.74	3.88		ng/L		104	70 - 155
F-53B Minor	3.78	4.70		ng/L		124	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	4.15		ng/L		116	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	6.86		ng/L		86	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	16.2		ng/L		81	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	15.8		ng/L		79	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*88.5*		*5 - 130*
13C5 PFPeA	*115*		*40 - 130*
13C5 PFHxA	*106*		*40 - 130*
13C4 PFHpA	*109*		*40 - 130*
13C8 PFOA	*111*		*40 - 130*
13C9 PFNA	*102*		*40 - 130*
13C6 PFDA	*101*		*40 - 130*
13C7 PFUnA	*96.5*		*30 - 130*
13C2 PFDoA	*86.9*		*10 - 130*
13C2 PFTeDA	*97.9*		*10 - 130*
13C3 PFBS	*103*		*40 - 135*
13C3 PFHxS	*98.6*		*40 - 130*
13C8 PFOS	*103*		*40 - 130*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-865312/2-A
Matrix: Water
Analysis Batch: 865377

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 865312

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C8 FOSA	*72.4*		*40 - 130*
d3-NMeFOSAA	*90.1*		*40 - 170*
d5-NEtFOSAA	*86.2*		*25 - 135*
M2-4:2 FTS	*148*		*40 - 200*
M2-6:2 FTS	*98.2*		*40 - 200*
M2-8:2 FTS	*111*		*40 - 300*
13C3 HFPO-DA	*106*		*40 - 130*
d7-N-MeFOSE-M	*77.8*		*10 - 130*
d9-N-EtFOSE-M	*80.0*		*10 - 130*
d5-NEtPFOSA	*68.7*		*10 - 130*
d3-NMePFOSA	*72.1*		*10 - 130*

Lab Sample ID: MB 320-866365/1-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 866365

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.0		4.0	0.37	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.23	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.27	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.35	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.39	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.45	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.44	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	0.23	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	0.58	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.81	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.54	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.21	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.25	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.18	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.28	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.31	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.31	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.53	ng/L		07/28/25 19:59	07/29/25 10:21	1
4:2 FTS	<4.0		4.0	0.44	ng/L		07/28/25 19:59	07/29/25 10:21	1
6:2 FTS	<4.0		4.0	0.41	ng/L		07/28/25 19:59	07/29/25 10:21	1
8:2 FTS	<4.0		4.0	0.90	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.23	ng/L		07/28/25 19:59	07/29/25 10:21	1
NMeFOSA	<2.0		2.0	0.39	ng/L		07/28/25 19:59	07/29/25 10:21	1
NEtFOSA	<2.0		2.0	0.45	ng/L		07/28/25 19:59	07/29/25 10:21	1
NMeFOSAA	<2.0		2.0	0.35	ng/L		07/28/25 19:59	07/29/25 10:21	1
NEtFOSAA	<2.0		2.0	0.44	ng/L		07/28/25 19:59	07/29/25 10:21	1
NMeFOSE	<10		10	2.3	ng/L		07/28/25 19:59	07/29/25 10:21	1
NEtFOSE	<10		10	2.4	ng/L		07/28/25 19:59	07/29/25 10:21	1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-866365/1-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 866365

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		1.5	0.39	ng/L		07/28/25 19:59	07/29/25 10:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	0.19	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	0.26	ng/L		07/28/25 19:59	07/29/25 10:21	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	0.72	ng/L		07/28/25 19:59	07/29/25 10:21	1
F-53B Major	<2.0		2.0	0.58	ng/L		07/28/25 19:59	07/29/25 10:21	1
F-53B Minor	<2.0		2.0	0.30	ng/L		07/28/25 19:59	07/29/25 10:21	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	0.25	ng/L		07/28/25 19:59	07/29/25 10:21	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<4.0		4.0	0.72	ng/L		07/28/25 19:59	07/29/25 10:21	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<10		10	1.7	ng/L		07/28/25 19:59	07/29/25 10:21	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<10		10	1.2	ng/L		07/28/25 19:59	07/29/25 10:21	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*5 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C5 PFPeA	*124*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C5 PFHxA	*114*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C4 PFHpA	*110*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C8 PFOA	*99.4*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C9 PFNA	*97.4*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C6 PFDA	*102*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C7 PFUnA	*103*		*30 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C2 PFDoA	*88.8*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C2 PFTeDA	*91.1*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C3 PFBS	*104*		*40 - 135*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C3 PFHxS	*106*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C8 PFOS	*96.2*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C8 FOSA	*73.0*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d3-NMeFOSAA	*83.4*		*40 - 170*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d5-NEtFOSAA	*92.1*		*25 - 135*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
M2-4:2 FTS	*145*		*40 - 200*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
M2-6:2 FTS	*119*		*40 - 200*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
M2-8:2 FTS	*115*		*40 - 300*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
13C3 HFPO-DA	*102*		*40 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d7-N-MeFOSE-M	*63.2*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d9-N-EtFOSE-M	*72.7*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d5-NEtPFOSA	*64.9*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*
d3-NMePFOSA	*64.7*		*10 - 130*	*07/28/25 19:59*	*07/29/25 10:21*	*1*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-866365/3-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866365

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	80.0	82.7		ng/L		103	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	39.1		ng/L		98	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	37.3		ng/L		93	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	35.6		ng/L		89	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	38.2		ng/L		96	70 - 150
Perfluorononanoic acid (PFNA)	40.0	35.9		ng/L		90	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	33.0		ng/L		83	70 - 140
Perfluoroundecanoic acid (PFUnA)	40.0	34.3		ng/L		86	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	42.4		ng/L		106	70 - 140
Perfluorotridecanoic acid (PFTriA)	40.0	35.9		ng/L		90	65 - 140
Perfluorotetradecanoic acid (PFTeA)	40.0	39.9		ng/L		100	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	33.5		ng/L		94	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	31.4		ng/L		84	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	30.7		ng/L		84	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.6		ng/L		96	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	33.7		ng/L		91	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	35.3		ng/L		92	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	35.9		ng/L		93	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	33.3		ng/L		86	50 - 145
4:2 FTS	75.0	68.4		ng/L		91	70 - 145
6:2 FTS	76.2	71.7		ng/L		94	65 - 155
8:2 FTS	76.8	72.5		ng/L		94	60 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	39.1		ng/L		98	70 - 145
NMeFOSA	40.0	41.9		ng/L		105	60 - 150
NEtFOSA	40.0	39.3		ng/L		98	65 - 145
NMeFOSAA	40.0	35.8		ng/L		90	50 - 140
NEtFOSAA	40.0	35.2		ng/L		88	70 - 145
NMeFOSE	200	207		ng/L		104	70 - 145
NEtFOSE	200	193		ng/L		96	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	26.9		ng/L		90	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	35.1		ng/L		93	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	35.2		ng/L		88	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	37.2		ng/L		93	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	31.8		ng/L		80	50 - 150
F-53B Major	37.4	32.1		ng/L		86	70 - 155

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-866365/3-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866365

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
F-53B Minor	37.8	35.3		ng/L		93	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	37.2		ng/L		104	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	67.9		ng/L		85	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	168		ng/L		84	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	160		ng/L		80	50 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*94.8*		*5 - 130*
13C5 PFPeA	*125*		*40 - 130*
13C5 PFHxA	*112*		*40 - 130*
13C4 PFHpA	*122*		*40 - 130*
13C8 PFOA	*97.8*		*40 - 130*
13C9 PFNA	*98.4*		*40 - 130*
13C6 PFDA	*105*		*40 - 130*
13C7 PFUnA	*109*		*30 - 130*
13C2 PFDoA	*86.3*		*10 - 130*
13C2 PFTeDA	*96.5*		*10 - 130*
13C3 PFBS	*102*		*40 - 135*
13C3 PFHxS	*103*		*40 - 130*
13C8 PFOS	*91.2*		*40 - 130*
13C8 FOSA	*76.3*		*40 - 130*
d3-NMeFOSAA	*93.3*		*40 - 170*
d5-NEtFOSAA	*95.8*		*25 - 135*
M2-4:2 FTS	*143*		*40 - 200*
M2-6:2 FTS	*113*		*40 - 200*
M2-8:2 FTS	*113*		*40 - 300*
13C3 HFPO-DA	*116*		*40 - 130*
d7-N-MeFOSE-M	*68.9*		*10 - 130*
d9-N-EtFOSE-M	*72.4*		*10 - 130*
d5-NEtPFOSA	*68.2*		*10 - 130*
d3-NMePFOSA	*68.8*		*10 - 130*

Lab Sample ID: LCSD 320-866365/4-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 866365

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	76.1		ng/L		95	70 - 140	8	30
Perfluoropentanoic acid (PFPeA)	40.0	39.3		ng/L		98	65 - 135	0	30
Perfluorohexanoic acid (PFHxA)	40.0	34.8		ng/L		87	70 - 145	7	30
Perfluoroheptanoic acid (PFHpA)	40.0	39.4		ng/L		98	70 - 150	10	30
Perfluorooctanoic acid (PFOA)	40.0	34.4		ng/L		86	70 - 150	10	30
Perfluorononanoic acid (PFNA)	40.0	35.2		ng/L		88	70 - 150	2	30
Perfluorodecanoic acid (PFDA)	40.0	31.5		ng/L		79	70 - 140	5	30
Perfluoroundecanoic acid (PFUnA)	40.0	36.8		ng/L		92	70 - 145	7	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCSD 320-866365/4-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 866365

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorododecanoic acid (PFDoA)	40.0	39.6		ng/L		99	70 - 140	7	30
Perfluorotridecanoic acid (PFTriA)	40.0	33.4		ng/L		83	65 - 140	7	30
Perfluorotetradecanoic acid (PFTeA)	40.0	38.7		ng/L		97	60 - 140	3	30
Perfluorobutanesulfonic acid (PFBS)	35.5	33.0		ng/L		93	60 - 145	1	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	34.2		ng/L		91	65 - 140	8	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	31.5		ng/L		86	65 - 145	3	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	33.5		ng/L		88	70 - 150	9	30
Perfluorooctanesulfonic acid (PFOS)	37.2	32.8		ng/L		88	55 - 150	3	30
Perfluorononanesulfonic acid (PFNS)	38.5	34.2		ng/L		89	65 - 145	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	33.2		ng/L		86	60 - 145	8	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	32.2		ng/L		83	50 - 145	3	30
4:2 FTS	75.0	70.1		ng/L		93	70 - 145	2	30
6:2 FTS	76.2	71.0		ng/L		93	65 - 155	1	30
8:2 FTS	76.8	72.9		ng/L		95	60 - 150	1	30
Perfluorooctanesulfonamide (FOSA)	40.0	39.7		ng/L		99	70 - 145	2	30
NMeFOSA	40.0	42.0		ng/L		105	60 - 150	0	30
NEtFOSA	40.0	38.8		ng/L		97	65 - 145	1	30
NMeFOSAA	40.0	34.9		ng/L		87	50 - 140	3	30
NEtFOSAA	40.0	34.1		ng/L		85	70 - 145	3	30
NMeFOSE	200	194		ng/L		97	70 - 145	7	30
NEtFOSE	200	187		ng/L		94	70 - 135	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	27.9		ng/L		93	70 - 140	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	38.3		ng/L		101	65 - 145	9	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	35.0		ng/L		87	55 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	37.1		ng/L		93	60 - 150	0	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	27.9		ng/L		70	50 - 150	13	30
F-53B Major	37.4	36.6		ng/L		98	70 - 155	13	30
F-53B Minor	37.8	37.8		ng/L		100	55 - 160	7	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	35.6		ng/L		100	70 - 140	5	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	70.4		ng/L		88	65 - 130	4	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	154		ng/L		77	70 - 135	9	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	153		ng/L		76	50 - 145	5	30

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	101		5 - 130
13C5 PFPeA	120		40 - 130
13C5 PFHxA	115		40 - 130
13C4 PFHpA	108		40 - 130
13C8 PFOA	107		40 - 130
13C9 PFNA	103		40 - 130
13C6 PFDA	108		40 - 130
13C7 PFUnA	108		30 - 130
13C2 PFDoA	90.7		10 - 130
13C2 PFTeDA	99.7		10 - 130
13C3 PFBS	110		40 - 135
13C3 PFHxS	110		40 - 130
13C8 PFOS	101		40 - 130
13C8 FOSA	76.4		40 - 130
d3-NMeFOSAA	96.3		40 - 170
d5-NEtFOSAA	99.0		25 - 135
M2-4:2 FTS	140		40 - 200
M2-6:2 FTS	122		40 - 200
M2-8:2 FTS	123		40 - 300
13C3 HFPO-DA	104		40 - 130
d7-N-MeFOSE-M	65.6		10 - 130
d9-N-EtFOSE-M	69.7		10 - 130
d5-NEtPFOSA	67.4		10 - 130
d3-NMePFOSA	63.5		10 - 130

Lab Sample ID: LLCS 320-866365/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 866481
Prep Batch: 866365

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	8.80		ng/L		110	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.32		ng/L		108	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	4.07		ng/L		102	70 - 145
Perfluoroheptanoic acid (PFHpA)	4.00	4.28		ng/L		107	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.93		ng/L		98	70 - 150
Perfluorononanoic acid (PFNA)	4.00	3.75		ng/L		94	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.49		ng/L		87	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	3.42		ng/L		85	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	4.04		ng/L		101	70 - 140
Perfluorotridecanoic acid (PFTriA)	4.00	3.94		ng/L		98	65 - 140
Perfluorotetradecanoic acid (PFTeA)	4.00	3.12		ng/L		78	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.44		ng/L		97	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	3.13		ng/L		83	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.06		ng/L		84	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.61		ng/L		95	70 - 150

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-866365/2-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866365

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	3.72	9.69	*+	ng/L		260	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.97		ng/L		103	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.42		ng/L		89	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	3.10		ng/L		80	50 - 145
4:2 FTS	7.50	7.47		ng/L		100	70 - 145
6:2 FTS	7.62	13.6	*+	ng/L		178	65 - 155
8:2 FTS	7.68	7.07		ng/L		92	60 - 150
Perfluorooctanesulfonamide (FOSA)	4.00	4.14		ng/L		103	70 - 145
NMeFOSA	4.00	3.84		ng/L		96	60 - 150
NEtFOSA	4.00	4.03		ng/L		101	65 - 145
NMeFOSAA	4.00	3.75		ng/L		94	50 - 140
NEtFOSAA	4.00	3.58		ng/L		90	70 - 145
NMeFOSE	20.0	18.9		ng/L		94	70 - 145
NEtFOSE	20.0	19.4		ng/L		97	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.31		ng/L		77	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.77		ng/L		100	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	3.52		ng/L		88	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	3.53		ng/L		88	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	3.29		ng/L		82	50 - 150
F-53B Major	3.74	3.58		ng/L		96	70 - 155
F-53B Minor	3.78	3.63		ng/L		96	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	3.57	3.75		ng/L		105	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	6.86		ng/L		86	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	16.2		ng/L		81	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	14.0		ng/L		70	50 - 145

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C4 PFBA	*91.5*		*5 - 130*
13C5 PFPeA	*125*		*40 - 130*
13C5 PFHxA	*117*		*40 - 130*
13C4 PFHpA	*111*		*40 - 130*
13C8 PFOA	*99.7*		*40 - 130*
13C9 PFNA	*99.8*		*40 - 130*
13C6 PFDA	*98.9*		*40 - 130*
13C7 PFUnA	*103*		*30 - 130*
13C2 PFDoA	*84.1*		*10 - 130*
13C2 PFTeDA	*91.3*		*10 - 130*
13C3 PFBS	*95.9*		*40 - 135*

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-866365/2-A
Matrix: Water
Analysis Batch: 866481

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 866365

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits
13C3 PFHxS	101		40 - 130
13C8 PFOS	91.3		40 - 130
13C8 FOSA	71.2		40 - 130
d3-NMeFOSAA	85.3		40 - 170
d5-NEtFOSAA	89.8		25 - 135
M2-4:2 FTS	149		40 - 200
M2-6:2 FTS	115		40 - 200
M2-8:2 FTS	105		40 - 300
13C3 HFPO-DA	109		40 - 130
d7-N-MeFOSE-M	68.8		10 - 130
d9-N-EtFOSE-M	67.7		10 - 130
d5-NEtPFOSA	62.8		10 - 130
d3-NMePFOSA	62.1		10 - 130

Lab Chronicle

Client: Arcadis US Inc.
Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Client Sample ID: SW-40 (7-17-25)
Lab Sample ID: 500-271837-1

Date Collected: 07/17/25 06:00
Matrix: Water
Date Received: 07/18/25 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			864704	RMF	EET SAC	07/22/25 04:17
Total/NA	Analysis	1633A		1	865050	P1P	EET SAC	07/24/25 02:11

Client Sample ID: SW-26A (7-17-25)
Lab Sample ID: 500-271837-2

Date Collected: 07/17/25 06:10
Matrix: Water
Date Received: 07/18/25 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			864704	RMF	EET SAC	07/22/25 04:17
Total/NA	Analysis	1633A		1	865050	P1P	EET SAC	07/24/25 02:27

Client Sample ID: DUP-01-A (7-17-25)
Lab Sample ID: 500-271837-3

Date Collected: 07/17/25 00:00
Matrix: Water
Date Received: 07/18/25 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			864704	RMF	EET SAC	07/22/25 04:17
Total/NA	Analysis	1633A		1	865050	P1P	EET SAC	07/24/25 02:44

Client Sample ID: Field Blank-A (7-17-25)
Lab Sample ID: 500-271837-4

Date Collected: 07/17/25 06:05
Matrix: Water
Date Received: 07/18/25 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	1633			865312	CJS	EET SAC	07/23/25 19:41
Total/NA	Analysis	1633A		1	865377	JTD	EET SAC	07/24/25 15:39
Total/NA	Prep	1633	RE		866365	CJS	EET SAC	07/28/25 19:59
Total/NA	Analysis	1633A	RE	1	866481	S1M	EET SAC	07/29/25 11:27

Laboratory References:

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

Accreditation/Certification Summary

Client: Arcadis US Inc.
Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-25

Eurofins Tes. .erica, Sacramento
880 Riverside Parkway

West Sacramento CA 95605-1500
phone 916.373 5600 fax 303.467 7248

Chai. .f Custody Record

eurofins

Regulatory Program ☐ DW ☐ NPDES ☐ RCRA ☐ Other·

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

Client Contact	Project Manager· Lisa Rutkowski	Site Contact:	Date· 7-17-25	COC No: 1
Arcadis U.S. Inc.	Email N/A	Lab Contact: Sandie Fredrick	Carrier· Fed Ex	1 of 1 COCs
790 North Milwaukee St, Suite 100A	Tel/Fax: N/A			TALS Project #: 50019256
Milwaukee, WI 53202	Analysis Turnaround Time			Sampler·
Phone	☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
FAX	TAT if different from Below Standard			Walk-in Client:
Project Name: Ditch A Surface Water	☐ 2 weeks			Lab Sampling:
Site: Marinette, WI	☐ 1 week			
P O # 30284780.4 1 1	☐ 2 days			Job / SDG No.
	☐ 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)	PFAS 1633 (40 Compounds)	Sample Specific Notes:
SW-40 (7-17-25)	7-17-25	6 00	G	W	2	N	N	X	Downstream 1
SW-26A (7-17-25)	↓	6.10	G	W	2	N	N	X	Downstream 2
DUP-01-A (7-17-25)		—	G	W	2	N	N	X	Duplicate
Field Blank-A (7-17 25)	↓	6.05	G	W	2	N	N	X	Field Blank

500-271837 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 ☐ Poison B ☐ Unknown

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

☐ Return to Client ☑ Disposal by Lab ☐ Archive for Months

Special Instructions/QC Requirements & Comments
Questions call Lisa Rutkowski, Liz Hover
Extract within 7 days per the holding time exceptions for Method 1633A.

Custody Seals Intact. ☑ Yes ☐ No	Custody Seal No. 1749593	Cooler Temp. (°C): Obs'd. 7.0 Corr'd: 7.0	Therm ID No.: 660
Relinquished by· Jacob Raminger	Company· Barley Excavating	Date/Time: 7-17-25/1620	Received by: Fed Ex
Relinquished by·	Company·	Date/Time:	Received by:
Relinquished by·	Company·	Date/Time:	Received in Laboratory by·

Company:	Date/Time.
Company:	Date/Time: 7/18/25 830
Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.26, dated 7/25/2019

Login Sample Receipt Checklist

Client: Arcadis US Inc.

Job Number: 500-271837-1

Login Number: 271837
List Number: 1
Creator: Simmons, Jason C

List Source: Eurofins Sacramento
List Creation: 07/18/25 03:40 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	1949593
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	2.0c
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?	N/A	
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	

Isotope Dilution Summary

Client: Arcadis US Inc.
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Job ID: 500-271837-1

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
500-271837-1	SW-40 (7-17-25)	95.3	107	106	103	101	102	102	88.7
500-271837-2	SW-26A (7-17-25)	94.5	97.4	95.1	99.0	103	98.4	84.3	75.4
500-271837-3	DUP-01-A (7-17-25)	92.1	110	109	106	107	104	96.0	85.5
500-271837-4	Field Blank-A (7-17-25)	91.8	111	104	102	104	105	97.6	93.4
500-271837-4 - RE	Field Blank-A (7-17-25)	97.6	116	114	100	97.6	101	107	103
LCS 320-864704/3-A	Lab Control Sample	96.6	107	108	106	113	104	103	96.6
LCS 320-865312/3-A	Lab Control Sample	89.6	101	95.3	96.4	97.3	96.7	99.6	96.9
LCS 320-866365/3-A	Lab Control Sample	94.8	125	112	122	97.8	98.4	105	109
LCSD 320-864704/4-A	Lab Control Sample Dup	95.7	108	110	107	109	105	99.3	100
LCSD 320-865312/4-A	Lab Control Sample Dup	91.5	114	104	105	98.3	101	89.0	87.2
LCSD 320-866365/4-A	Lab Control Sample Dup	101	120	115	108	107	103	108	108
LLCS 320-864704/2-A	Lab Control Sample	98.0	108	107	106	117	105	103	99.6
LLCS 320-865312/2-A	Lab Control Sample	88.5	115	106	109	111	102	101	96.5
LLCS 320-866365/2-A	Lab Control Sample	91.5	125	117	111	99.7	99.8	98.9	103
MB 320-864704/1-A	Method Blank	96.2	102	109	100	101	102	100	94.1
MB 320-865312/1-A	Method Blank	98.6	120	108	109	108	108	101	86.8
MB 320-866365/1-A	Method Blank	100	124	114	110	99.4	97.4	102	103

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
500-271837-1	SW-40 (7-17-25)	75.0	72.1	99.1	92.0	81.6	67.0	71.2	68.0
500-271837-2	SW-26A (7-17-25)	65.3	60.7	98.5	93.1	79.9	64.7	66.3	62.1
500-271837-3	DUP-01-A (7-17-25)	75.2	82.8	103	101	91.5	70.5	73.2	72.2
500-271837-4	Field Blank-A (7-17-25)	88.0	95.3	105	100	92.5	69.5	76.5	75.0
500-271837-4 - RE	Field Blank-A (7-17-25)	88.5	88.0	107	110	96.8	77.3	84.8	88.6
LCS 320-864704/3-A	Lab Control Sample	84.9	93.5	103	98.4	95.9	63.9	86.0	83.0
LCS 320-865312/3-A	Lab Control Sample	87.9	101	95.1	97.9	97.1	66.6	83.5	83.5
LCS 320-866365/3-A	Lab Control Sample	86.3	96.5	102	103	91.2	76.3	93.3	95.8
LCSD 320-864704/4-A	Lab Control Sample Dup	90.8	106	102	100	96.0	69.0	86.1	84.1
LCSD 320-865312/4-A	Lab Control Sample Dup	77.8	85.2	97.3	98.9	94.2	69.0	83.3	81.5
LCSD 320-866365/4-A	Lab Control Sample Dup	90.7	99.7	110	110	101	76.4	96.3	99.0
LLCS 320-864704/2-A	Lab Control Sample	85.9	94.7	107	108	95.3	63.5	86.3	81.0
LLCS 320-865312/2-A	Lab Control Sample	86.9	97.9	103	98.6	103	72.4	90.1	86.2
LLCS 320-866365/2-A	Lab Control Sample	84.1	91.3	95.9	101	91.3	71.2	85.3	89.8
MB 320-864704/1-A	Method Blank	81.9	98.0	97.3	103	96.5	64.0	81.3	78.6
MB 320-865312/1-A	Method Blank	81.4	84.5	102	99.6	97.0	66.7	80.8	76.7
MB 320-866365/1-A	Method Blank	88.8	91.1	104	106	96.2	73.0	83.4	92.1

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
500-271837-1	SW-40 (7-17-25)	132	91.1	92.9	96.2	60.2	59.8	61.7	65.0
500-271837-2	SW-26A (7-17-25)	120	93.9	91.5	90.7	52.5	47.6	50.9	55.8
500-271837-3	DUP-01-A (7-17-25)	145	102	93.1	109	66.3	71.1	60.1	66.0
500-271837-4	Field Blank-A (7-17-25)	169	106	109	100	68.3	75.7	64.6	64.6
500-271837-4 - RE	Field Blank-A (7-17-25)	185	116	117	102	66.1	66.5	65.9	66.8
LCS 320-864704/3-A	Lab Control Sample	136	103	110	104	71.3	80.1	57.1	54.1
LCS 320-865312/3-A	Lab Control Sample	125	93.1	103	91.3	71.0	77.2	68.3	69.4
LCS 320-866365/3-A	Lab Control Sample	143	113	113	116	68.9	72.4	68.2	68.8
LCSD 320-864704/4-A	Lab Control Sample Dup	140	107	115	109	77.3	88.1	62.0	61.1

Isotope Dilution Summary

Client: Arcadis US Inc. Job ID: 500-271837-1
Project/Site: Marinette, WI 30284780.4.1.1 Ditch A SW

Method: 1633A - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
LCSD 320-865312/4-A	Lab Control Sample Dup	131	99.4	108	102	71.4	73.2	69.1	69.6
LCSD 320-866365/4-A	Lab Control Sample Dup	140	122	123	104	65.6	69.7	67.4	63.5
LLCS 320-864704/2-A	Lab Control Sample	155	110	119	103	68.7	74.1	53.4	52.7
LLCS 320-865312/2-A	Lab Control Sample	148	98.2	111	106	77.8	80.0	68.7	72.1
LLCS 320-866365/2-A	Lab Control Sample	149	115	105	109	68.8	67.7	62.8	62.1
MB 320-864704/1-A	Method Blank	139	102	113	96.0	70.3	79.0	61.0	58.6
MB 320-865312/1-A	Method Blank	144	99.9	110	103	64.1	67.3	57.0	60.2
MB 320-866365/1-A	Method Blank	145	119	115	102	63.2	72.7	64.9	64.7

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
d5NPFSA = d5-NEtPFOSA
d3NMFSA = d3-NMePFOSA

Appendix E

Waste Management Documentation

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WIT560011850
2. Page 1 of 1
3. Emergency Response Phone: (800)-424-9300
4. Waste Tracking Number: W026-001-25-11

5. Generator's Name and Mailing Address
JCI/Tyco
1 Stanton Street
Marinette WI 54143
Att: Ryan Suennen
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: WIR000182972

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
Facility's Phone: 414 858-2104
U.S. EPA ID Number: License 4959

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. Non-RCRA, Non-DOT	0056	DF	16,800	P
2. Non-RCRA, Non-DOT	—	DF	—	G
3. Non-RCRA, Non-DOT	—	DM	—	P
4. Non-RCRA, Non-DOT	—	DM	—	P

13. Special Handling Instructions and Additional Information
1. Bag Filters, Jute Filter, BoomsProfile# 05162022TIP-03
2. Surface Water Foam Profile# 05162022TIP-01
3. Bag House Dust Profile# 05162022TIP-05
4. Steel Shot Profile# 05162022TIP-02-RCY

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: X Jacob Reminger
Signature: X Jacob Reminger
Month 12 Day 02 Year 2025

INT'L

15. International Shipments ☑ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Steven Bachtell
Signature: St Bachtell
Month 12 Day 2 Year 25
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

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: Fred J Ringle
Signature: Fred J Ringle
Month 12 Day 03 Year 25

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	WIT560011850	1	(800)-424-9300	W026-001-25-09

GENERATOR

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

Att: Ryan Suennen

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: WIR000182972

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
Facility's Phone: 414 858-2104
U.S. EPA ID Number: License 4959

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-RCRA, Non-DOT	0056	DF	3080	G	
2.	Non-RCRA, Non-DOT	0001	DF	0002	G	
3.	Non-RCRA, Non-DOT	—	DM	—	P	
4.	Non-RCRA, Non-DOT	—	DM	—	P	

13. Special Handling Instructions and Additional Information
1. Bag Filters, Jute Filter, BoomsProfile# 05162022TIP-03
2. Surface Water Foam Profile# 05162022TIP-01
3. Bag House Dust Profile# 05162022TIP-05
4. Steel Shot Profile# 05162022TIP-02-RCY

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: X Tim Hanson
Signature: X Tim Hanson
Month Day Year: 8 27 25

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Steven Bachtell
Signature: St Bachtell
Month Day Year: 8 27 25
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year:

DESIGNATED FACILITY

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: Fred J Ringle
Signature: Fred J Ringle
Month Day Year: 08 28 25

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WIT560011850
2. Page 1 of 1
3. Emergency Response Phone: (800)-424-9300
4. Waste Tracking Number: W026-001-25-07

5. Generator's Name and Mailing Address
JCI/Tyco
1 Stanton Street
Marinette WI 54143
Att: Ryan Suennen
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: WIR000182972

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
Facility's Phone: 414 858-2104
U.S. EPA ID Number: License 4959

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. Non-RCRA, Non-DOT	0056	DF	3080	G
2. Non-RCRA, Non-DOT	—	DF	—	G
3. Non-RCRA, Non-DOT	—	DM	—	P
4. Non-RCRA, Non-DOT	0003	DM		P

13. Special Handling Instructions and Additional Information
1. Bag Filters, Jute Filter, BoomsProfile# 05162022TIP-03
2. Surface Water Foam Profile# 05162022TIP-01
3. Bag House Dust Profile# 05162022TIP-05
4. ~~Steel Shot Profile# 05162022TIP-02-RCY~~
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/Offeror's Printed/Typed Name: x Jacob Raminger
Signature: x
Month 08 Day 01 Year 2025

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Steven Bachtell
Signature: Ste Bachtell
Month 8 Day 1 Year 25
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: Fred Ringle
Signature: Fred Ringle
Month 08 Day 04 Year 25

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

tetraSOLV FILTRATION

CERTIFICATE OF RECYCLING

This document certifies all materials from below listed site and service order designation has been re-activated for beneficial re-use in accordance with all applicable state and federal laws pertaining to handling and treatment of waste materials.

Site Location: TYCO ANSUL FTC Site 2700 Industrial Parkway South Marinette, WI 54143

Dates and dry volumes below: **Generator**: TYCO

DATE		Amount Sent (lbs)
7/1/2025	Delivery/Pick-up	20,000
	Pick-Up	20,000
7/22/2025	Delivery/Pick-up	20,000
	Pick-Up	20,000
8/5/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
8/19/2025	Delivery/Pick-Up	20,000
9/3/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
9/16/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
9/30/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
10/7/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
10/21/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
11/4/2025	Delivery/Pick-Up	20,000
	Pick-Up	20,000
11/18/2025	Delivery/Pick-up	20,000
12/9/2025	Delivery/Pick-up	20,000
	Pick-Up	20,000
12/22/2025	Delivery/Pick-Up	20,000

Steve Jordan 2/19/2025

Signature Date

Arcadis U.S., Inc.
790 North Milwaukee Street
Suite 100A
Milwaukee, Wisconsin 53202
Tel 414 276 7742
Fax 414 276 7603

www.arcadis.com