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

Form 4400-237 (R 12/18)

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 Open 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
126 N Jefferson Street, Suite 400			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
126 N Jefferson Street, Suite 400			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).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this fo

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 (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

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

4/26/2024
Date Signed

Senior Environmental Specialist
Title

(312) 575-3732
Telephone Number (include area code)

Section 8. DNR Contacts and Addresses 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.

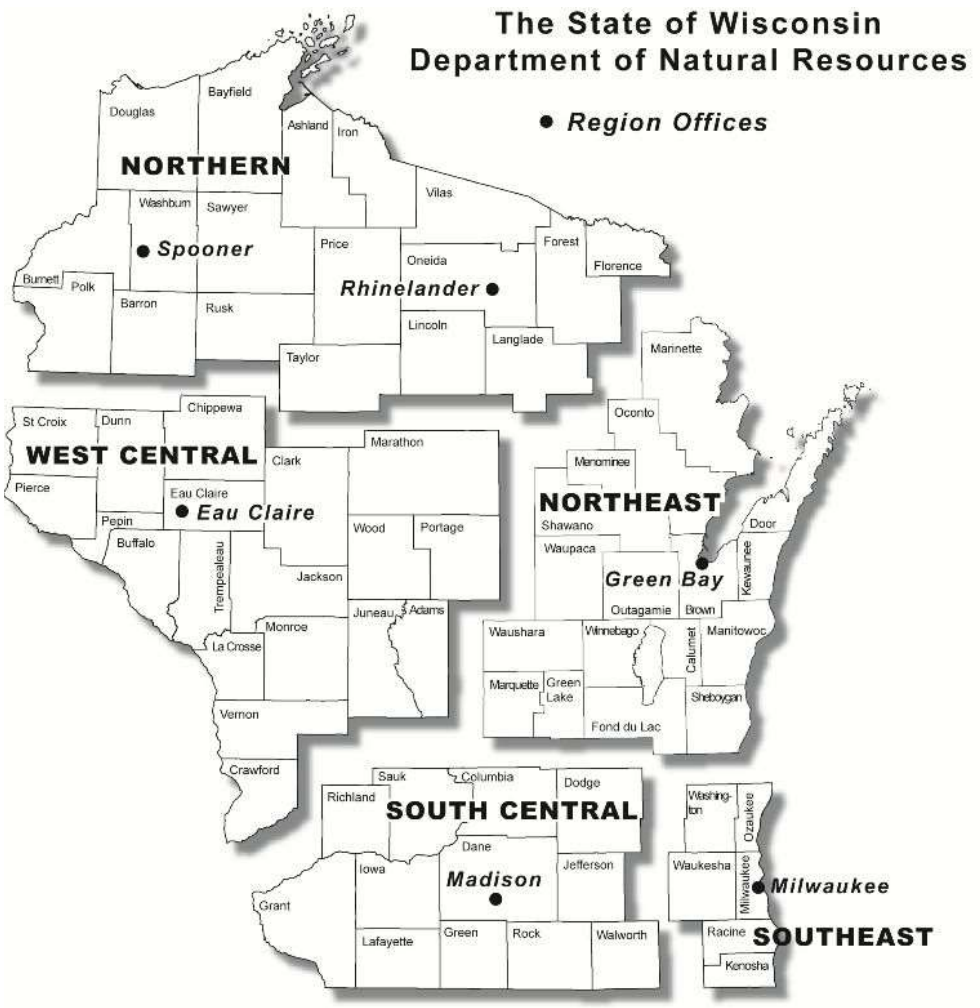
DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

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
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

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

Semi-Annual Operation, Maintenance, and Optimization Progress Report #10

Tyco Fire Technology Center
Ditch A Interim Action Treatment System
BRRTS# 02-38-580694
July 1, 2023 – December 31, 2023

April 2024

Semi-Annual Operation, Maintenance, and Optimization Progress Report #10

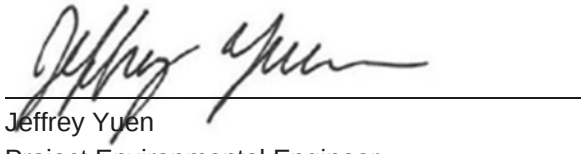
Tyco Fire Technology Center
Ditch A Interim Action Treatment System
BRRTS# 02-38-580694
July 1, 2023 – December 31, 2023

April 26, 2024

Prepared By:
Arcadis U.S., Inc.
126 North Jefferson Street, Suite 400
Milwaukee
Wisconsin 53202
Phone: 414 276 7742
Fax: 414 276 7603

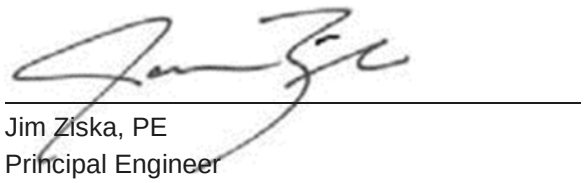
Prepared For:
Tyco Fire Products LP
2700 Industrial Parkway South
Marinette
Wisconsin 54143

Our Ref.:
30171092.4.1.1



Jeffrey Yuen
Project Environmental Engineer

Joe Darby
Technical Expert - Engineer



Jim Ziska, PE
Principal Engineer

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Executive Summary

Arcadis U.S., Inc. (Arcadis) has prepared this *Semi-Annual Operation, Maintenance and Optimization Progress Report #10* (Progress Report #10) 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, 2023 to December 31, 2023 reporting period. Progress Report #10 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 throughout the reporting period with limited downtime for system maintenance activities and did not require operation for several months due to dry/frozen channel conditions in Ditch A. The Ditch A System operated for a total of 9 days during the reporting period. During this reporting period, 480,090 gallons of surface water were treated and PFOA and PFOS were removed from the Ditch A influent at 100% efficiency. The system removed approximately 0.001 pounds of PFOA and 0.001 pounds of PFOS during the reporting period, and approximately 0.89 pounds of PFOA and 0.46 pounds of PFOS since startup in January 2019.

Surface water flow in Ditch A was intermittent during the reporting period and no overtopping of the check dam was observed. Dry conditions were intermittently observed in Ditch A between July and August 2023. Dry and/or frozen conditions persisted in Ditch A between September and December 2023. PFOA and PFOS concentrations upstream of the Ditch A System have fluctuated since system sampling began in January 2019 and have largely been below baseline concentrations since August 2020. A slightly elevated PFOS concentration was observed in the surface water samples collected in July at SW-40; however, the Ditch A system discharge concentrations were consistently below the WPDES permit and applicable surface water limits for PFOA and PFOS over this timeframe. Per WDNR request, a second downstream sampling location (SW-26) was added to the sampling program in August 2023. This location was dry during the August sampling event, therefore, no sample was collected.

The Ditch A System was operated in accordance with the Operation, Maintenance, and Long-Term Monitoring Plan (submitted on July 22, 2021) during the reporting period. All discharges from the treatment system were in compliance with the applicable Wisconsin Pollutant Discharge Elimination System permit limits.

The Ditch A System is effective as an interim action and removes PFOA and PFOS from surface water. The Ditch A System reduces the surface water concentrations of PFOA and PFOS to below the applicable surface water standards in Ditch A downstream of the system under normal operating conditions. Tyco is evaluating additional options to optimize PFAS removal from groundwater near the Ditch A treatment system. These remedy

optimization activities will be discussed in future reporting for the site's groundwater extraction and treatment system (GETS).

1 Introduction

Arcadis U.S., Inc. (Arcadis) prepared this *Semi-Annual Operation, Maintenance and Optimization Progress Report #10* (Progress Report #10) 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 #10 summarizes system design and construction details; operations, maintenance, and monitoring activities; and an evaluation of system performance over the reporting period (July 1, 2023 through December 31, 2023).

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. Seasonal variability in flow conditions were expected and initial estimates were made using United States Geological Survey Streamstats. 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 permeable 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 is evaluating additional options to optimize PFAS removal from groundwater near the Ditch A system. These remedy optimization activities will be discussed in future reporting for the site's groundwater extraction and treatment system (GETS).

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 9 days over the reporting period, treating and discharging 480,090 gallons of water. System utilization over the reporting period, as calculated per WDNR Form 4400-194 daily, was 5%. Dry and/or frozen channel conditions were present throughout the reporting period. The system operated when surface water flow conditions were sufficient to support system operation. There was no surface water bypass of the treatment system during the reporting period, i.e., 100% of surface water in Ditch A was treated before flowing off Site.

System utilization calculated on an hourly basis and accounting for adequate stream flow conditions in Ditch A was 100%. All alarm-related shutdowns were responded to within one day.

The system was designed to operate at up to 100 gpm (144,000 gallons per day [gpd]). The average system flow rate, as calculated per WDNR Form 4400-194 daily, was 53,343 gpd. The treatment system operated at an average daily rate of 121,670 gpd, greater than the flow rate in the ditch, enabling treatment of 100% of the water in the ditch. The system operated within the design specifications over the reporting period.

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 did not overtop the check dam during the reporting period.

Ditch A was dry intermittently between July 1, 2023 and August 4, 2023 and dry/frozen between August 5, 2023 and December 31, 2023.

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 537 Modified
- 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 TestAmerica in University Park, Illinois (TestAmerica Chicago).
- PFAS: Eurofins TestAmerica in West Sacramento, California (TestAmerica 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 0.001 pounds of PFOA and 0.001 pounds of perfluorooctanesulfonic acid (PFOS) over the reporting period. The system has removed approximately 0.89 pounds of PFOA and 0.46 pounds of PFOS since startup in January 2019. On average, the system removed PFOA and PFOS at 100% efficiency from the Ditch A System influent over the reporting period, as shown in **Table 4.**

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 then 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 (December 2023) 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. For example, during normal baseflow conditions, the PFAS concentration is primarily driven by groundwater entering the ditch from the bottom and sides. However, during periods of high flow generated by storm events, the hydraulic pressure of the increased surface water loading minimizes groundwater seepage and the PFAS concentration is driven primarily by the various non-groundwater sources. As shown in **Figure 5**, PFOA and PFOS concentrations in Ditch A have fluctuated since system sampling began in January 2019, with PFOA and PFOS largely below baseline concentrations in Ditch A since August 2020.

5.2 Downstream of Treatment System

Monthly surface water sample collection immediately downstream of the Ditch A 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. The locations of SW-40 and SW-26 are shown in **Figure 6**. During the reporting period, monthly samples were collected on July 7 and August 4 at SW-40. The area around SW-26 was dry during the August 2023 sampling event, therefore, no sample was collected. No natural flow was observed in Ditch A between September and December 2023; 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 TestAmerica Sacramento under standard chain-of-custody procedures for analysis of PFAS by U.S. EPA Method 537 Modified. Analytical results of the downstream surface water samples collected during the reporting period are presented in **Table 6** and **Figure 7**. 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 and PFOS concentrations were below both the applicable WPDES permit limits and surface water standards for those compounds in the downstream sample collected from SW-40 on August 4 (**Table 6**). The sample collected at SW-40 on July 7 contained a PFOS concentration slightly higher than the 8 ng/L surface water criterion. As shown in **Table 2**, the Ditch A treatment system effluent PFOS concentration was below the WPDES permit limit and surface water criteria during this time period. Natural flow was not observed in Ditch A between July 3 and July 6 and the Ditch A treatment system was offline. The Ditch A treatment system was restarted at approximately 9:00 AM on July 7 due to the resumption of flow after a rain event. The downstream surface water sample was collected at approximately 11:35 AM. The short duration between system startup and downstream surface water sampling likely resulted in the slightly elevated PFOS concentration. As shown in **Table 6** and **Figure 6**, the subsequent downstream surface water sample collected in August 2023 was below the applicable surface water standards for PFOA and PFOS.

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 #10, 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 is evaluating additional options to optimize PFAS removal from groundwater near the Ditch A treatment system. These remedy optimization activities will be discussed in future reporting for the site's groundwater extraction and treatment system (GETS).

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 System is consolidated with similar material from the Ditch B System and transported to Tetrasolv Filtration, Inc. for reactivation at a facility operated by Norit Activated Carbon in Pryor, Oklahoma. Certificates of recycling confirming proper re-activation of spent carbon generated by the Ditch A and Ditch B systems are included in **Appendix E**. During the reporting period, 320,000 pounds of spent GAC generated from the Ditch A and Ditch B systems were re-activated for re-use in the Ditch A and Ditch B Systems.

7 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 9 days and treated 480,090 gallons of surface water while removing PFOA and PFOS from the Ditch A influent at 100% efficiency. The system removed approximately 0.001 pounds of PFOA and 0.001 pounds of PFOS over the reporting period. The system has removed approximately 0.89 pounds of PFOA and 0.46 pounds of PFOS since startup in January 2019.

Surface water flow in Ditch A was intermittent during the reporting period and no overtopping of the check dam was observed. PFOA and PFOS concentrations upstream of the Ditch A System have fluctuated since system sampling began in January 2019 and have declined below baseline concentrations since August 2020. Surface water samples downstream of the Ditch A System were collected in July and August 2023. PFOS was observed in the surface water samples collected in July at SW-40; however, the Ditch A system discharge concentrations were consistently below the WPDES permit and applicable surface water limits for PFOA and PFOS over this timeframe. The subsequent sample from August 2023 at SW-40 had no detections of PFOS. Per WDNR request, a second farther downstream sampling location (SW-26) was added to the sampling program in August 2023, however, the area was dry during the August sampling event, therefore, no sample was collected.

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

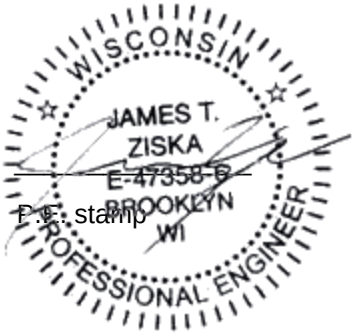
Overall, the Ditch A System is effective as an interim action and removes PFOA and PFOS efficiently from processed surface water. The Ditch A System is also effective at reducing the surface water concentrations of PFOA and PFOS to below the applicable surface water standards in Ditch A immediately downstream of the system under normal operating conditions. Tyco is evaluating additional options to optimize PFAS removal from groundwater near the Ditch A treatment system. These remedy optimization activities will be discussed in future reporting for the site's groundwater extraction and treatment system (GETS).

8 References

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

9 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

P.E. stamp

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	Utilization (Operating Hours with Adequate Stream Flow Conditions)[8]	Average System Flow Rate (Actual Operating Hours)[9] [GPD]	
Jul-23	459,530	31	7	90	7	23%	100%	14,824	65,647	90	100%	122,951	The system was offline 7/3/23 - 7/6/23, 7/8/23 - 7/10/23, and 7/15/23 - 7/31/23 due to dry conditions in Ditch A.
Aug-23	20,560	31	2	5	2	6%	100%	663	10,280	5	100%	98,688	The system was offline 8/1/23 - 8/2/23 and 8/5/23 - 8/31/23 due to dry conditions in Ditch A.
Sep-23	0	30	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 9/1/23 - 9/30/23 due to dry conditions in Ditch A.
Oct-23	0	31	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 10/1/23 - 10/31/23 due to dry/frozen conditions in Ditch A.
Nov-23	0	30	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 11/1/23 - 11/30/23 due to dry/frozen conditions in Ditch A.
Dec-23	0	31	0	0	0	0%	0%	0	0	0	0%	0	The system was offline 12/1/23 - 12/31/23 due to dry/frozen conditions in Ditch A.
Total:	**480,090**	**184**	**9**	**95**	**9**	**5%**	**100%**	**2,609**	**53,343**	**95**	**100%**	**121,670**	

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 = Utilization (Operating Hours) = 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	7/7/2023	< 1.9 U	< 1.4 U	< 0.4	0.0000	< 0.36	0.0000	< 0.00047 U	0.0000	< 0.00073 U	0.0000	7.11		X
V-900	7/11/2023	NS	NS	NS		NS		< 0.00048 U		< 0.00075 U		NS		X
V-900	8/4/2023	NS	NS	NS	NS	NS	NS	< 0.00048 U	0.0000	< 0.00076 U	0.0000	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

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 (%)
7/7/2023	0.033	< 0.00047 U	100.0	0.067	< 0.00073 U	100.0
7/11/2023	0.19	< 0.00048 U	100.0	0.3	< 0.00075 U	100.0
		Average:	**100.0**		**Average:**	**100.0**
8/4/2023	0.03	< 0.00048 U	100.0	0.024	< 0.00076 U	100.0
		Average:	**100.0**		**Average:**	**100.0**
		Overall Average:	**100.0**		**Overall Average:**	**100.0**

Notes:

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

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

Abbreviations:

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

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

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

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	--

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			
Sample ID			SW-40 (7-7-23)	DUP-01-A (7-7-23)	SW-40 (8-4-23)	DUP-01-A (8-4-23)
Sample Date			7/7/2023	7/7/2023	8/4/2023	8/4/2023
Units	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
Per- and Polyfluoroalkyl Substances						
PFBA	--	--	2.3 J	2.5 J	< 4.5 U	< 4.7 U
PFPeA	--	--	3.0	3.8	< 1.8 U	< 1.9 U
PFHxA	--	--	2.5	3.1	0.61 J	< 1.9 U
PFHpA	--	--	1.9	2.6	< 1.8 U	< 1.9 U
PFOA	95	--	8.4	10	< 1.8 U	< 1.9 U
PFNA	--	--	1.1 J	1.5 J	< 1.8 U	< 1.9 U
PFDA	--	--	4.1	3.2	< 1.8 U	< 1.9 U
PFUnA	--	--	5.4	3.9	< 1.8 U	< 1.9 U
PFDoA	--	--	1.3 J	1.0 J	< 1.8 U	< 1.9 U
PFTriA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
PFTeA	--	--	0.65 J	< 1.9 U	< 1.8 U	< 1.9 U
PFHxDA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 UJ
PFODA	--	--	< 1.8 U	< 1.9 U	< 1.8 UJ-	< 1.9 UJ-
PFBS	--	--	< 1.8 U	0.19 J	< 1.8 U	< 1.9 U
PFPeS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
PFHxS	--	--	< 1.8 U	0.69 J	< 1.8 U	< 1.9 U
PFHpS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
PFOS	--	8	**11**	**11**	< 1.8 U	< 1.9 U
PFNS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
PFDS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
PFDoS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
4:2 FTS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
6:2 FTS	--	--	4.0 J	4.9	< 4.5 U	< 4.7 U
8:2 FTS	--	--	37	36	< 1.8 U	< 1.9 U
10:2 FTS	--	--	11	7.7	2.0	1.4 J
FOSA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
NMeFOSA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
NEtFOSA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
NMeFOSAA	--	--	< 4.5 U	< 4.6 U	< 4.5 U	< 4.7 U
NEtFOSAA	--	--	< 4.5 U	< 4.6 U	< 4.5 U	< 4.7 U
NMeFOSE	--	--	< 3.6 U	< 3.7 U	< 3.6 U	< 3.8 U
NEtFOSE	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
HFPO-DA	--	--	< 3.6 U	< 3.7 U	< 3.6 U	< 3.8 U
DONA	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
9Cl-PF3ONS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U
11Cl-PF3OUdS	--	--	< 1.8 U	< 1.9 U	< 1.8 U	< 1.9 U

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

Notes:

-- = No Standard
< = Compound not detected at method detection limit
ng/L = Nanograms per liter
SW-40 is located downstream of the Ditch A System discharge
(1) = Surface water standards approved by the Wisconsin Legislature Joint Committee for Review of Administrative Rules (creation of NR 102.04 (8d) per WDNR proposal WY-23-19)

(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:

Yellow Highlight = Value exceeds proposed surface water quality criteria (Other Water Bodies)
Bold = Value exceeds proposed surface water quality criteria (All Waters With Exception)

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	PFDoS	Perfluorododecanesulfonic acid
PFPeA	Perfluoropentanoic acid	4:2 FTS	4:2 Fluorotelomer sulfonic acid
PFHxA	Perfluorohexanoic acid	6:2 FTS	6:2 Fluorotelomer sulfonic acid
PFHpA	Perfluoroheptanoic acid	8:2 FTS	8:2 Fluorotelomer sulfonic acid
PFOA	Perfluorooctanoic acid	10:2 FTS	10:2 Fluorotelomer sulfonic acid
PFNA	Perfluorononanoic acid	FOSA	Perfluorooctane sulfonamide
PFDA	Perfluorodecanoic acid	NMeFOSA	N-Methyl perfluorooctane sulfonamide
PFUnA	Perfluoroundecanoic acid	NEtFOSA	N-Ethyl perfluorooctane sulfonamide
PFDoA	Perfluorododecanoic acid	NMeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid
PFTriA	Perfluorotridecanoic acid	NEtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
PFTeA	Perfluorotetradecanoic acid	NMeFOSE	N-Methyl perfluorooctane sulfonamidoethanol
PFHxDA	Perfluorohexadecanoic acid	NEtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
PFODA	Perfluorooctadecanoic acid	HFPO-DA	Hexafluoropropylene oxide dimer acid
PFBS	Perfluorobutanesulfonic acid	DONA	4,8-Dioxa-3H-perfluorononanoic acid
PFPeS	Perfluoropentanesulfonic acid	9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
PFHxS	Perfluorohexanesulfonic acid	11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
PFHpS	Perfluoroheptanesulfonic acid		
PFOS	Perfluorooctanesulfonic acid		
PFNS	Perfluorononanesulfonic acid		
PFDS	Perfluorodecanesulfonic 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-26)		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-23	111.5	183.5	7/7/2023	11.0	10.0	NS	NS	SW-26 added to the sampling program in August 2023
Aug-23	30.0	24.0	8/4/2023	< 1.9	< 1.9	NS	NS	SW-26 was dry at the time of sampling, therefore, no sample was collected.
Sep-23	NS	NS	Sep-23	NS	NS	NS	NS	The system was offline from 9/1/23-9/30/23 due to dry conditions in Ditch A.
Oct-23	NS	NS	Oct-23	NS	NS	NS	NS	The system was offline from 10/1/23-10/31/23 due to dry/frozen conditions in Ditch A.
Nov-23	NS	NS	Nov-23	NS	NS	NS	NS	The system was offline from 11/1/23-11/30/23 due to dry/frozen conditions in Ditch A.
Dec-23	NS	NS	Dec-23	NS	NS	NS	NS	The system was offline from 12/1/23-12/31/23 due to dry/frozen conditions in Ditch A.

Abbreviations:

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:

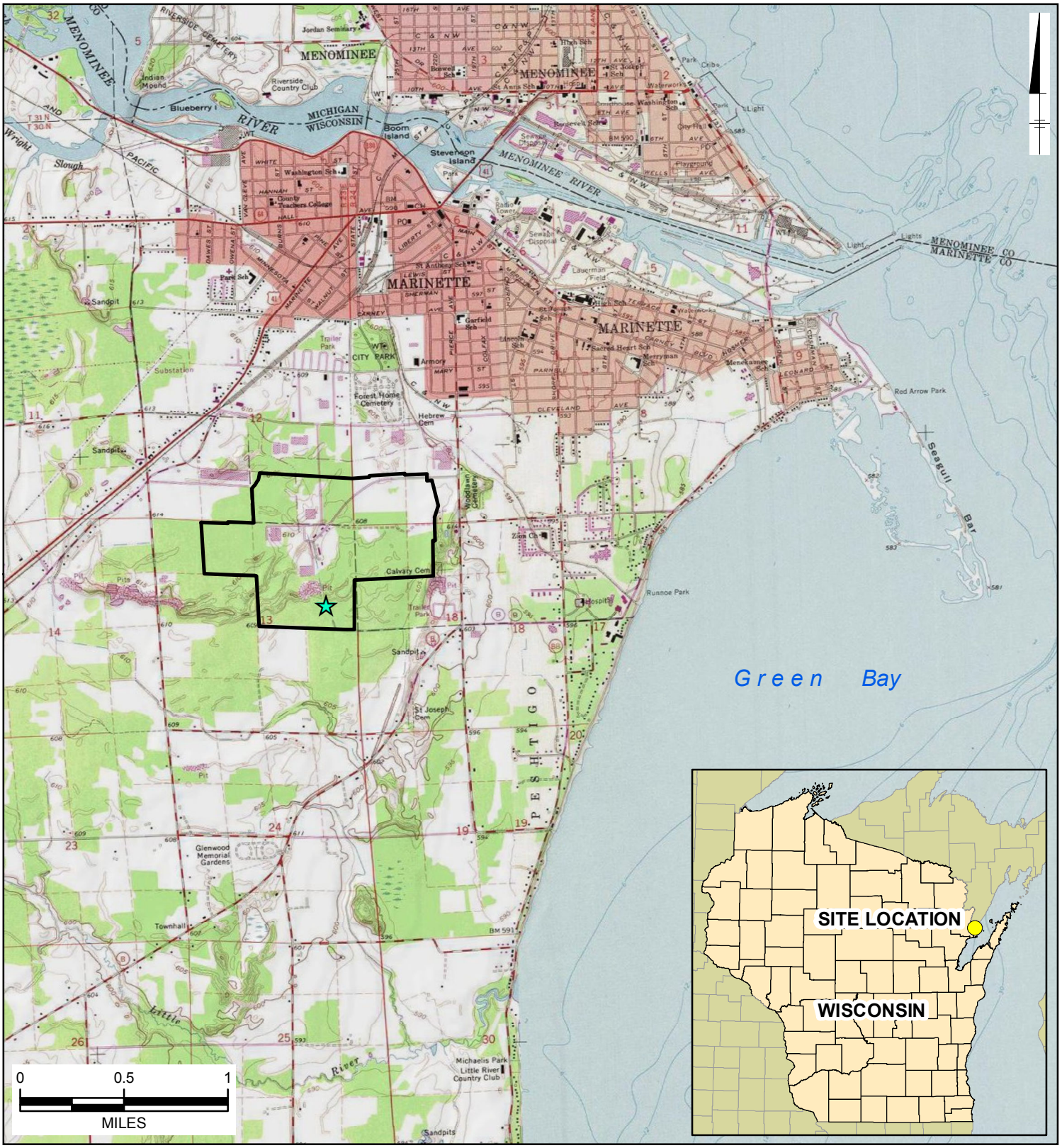
Monthly upstream values are calculated as the average of the weekly permit-required Ditch A System influent samples during periods in which natural stream flow is present.

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

Sample collection at SW-26 began in August 2023.

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.

N

LEGEND:

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

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

ARCADIS

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

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

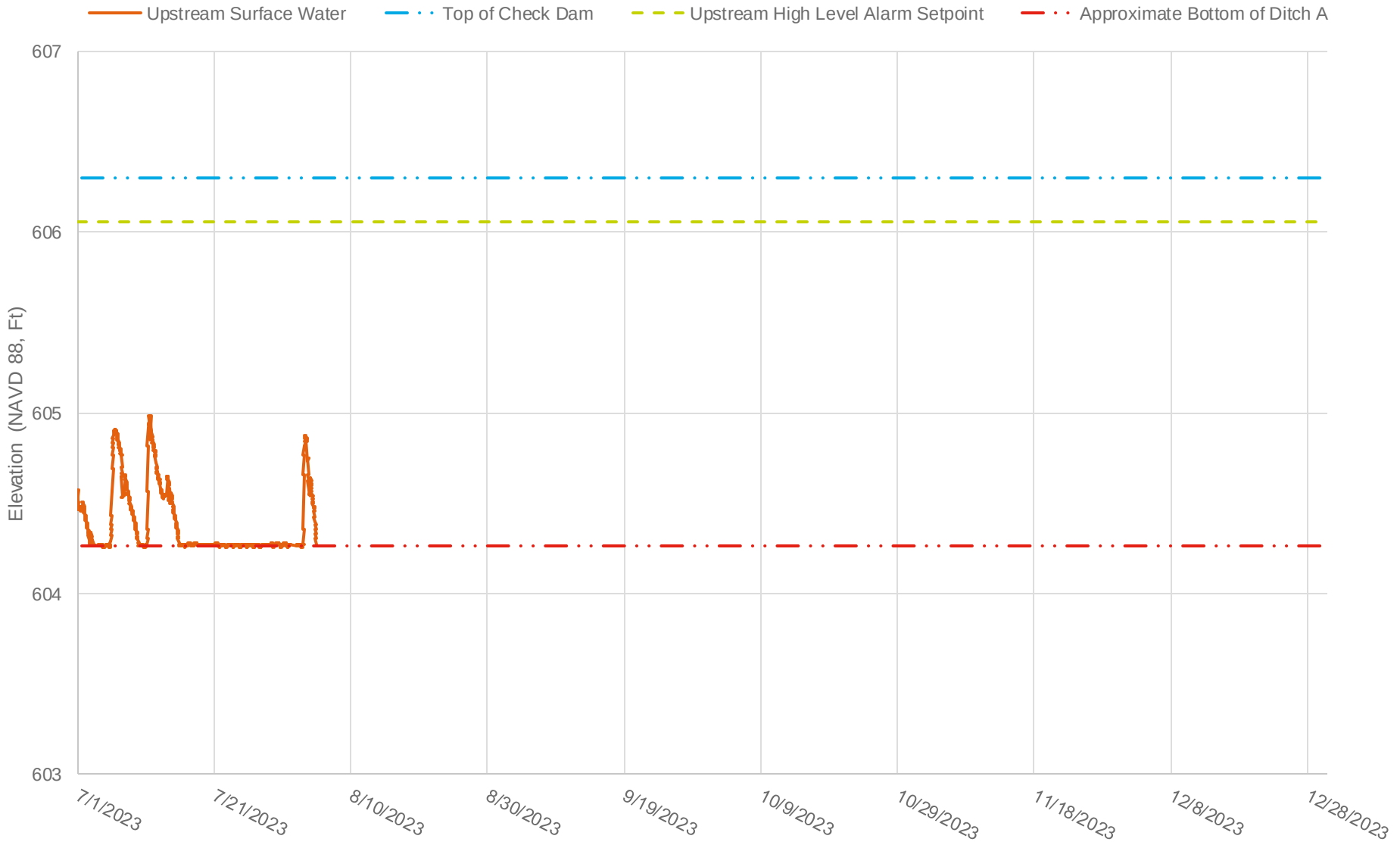
SHEET TITLE

DITCH A SITE PLAN

SCALE: 0 20 FEET

FIGURE 2

SHEET 1 OF 1



Abbreviations:
ft = Feet
NAVD = North American Vertical Datum

Ditch A Dry/Frozen:
7/3/23 – 7/6/23, 7/8/23 – 7/10/23, 7/15/23 – 8/2/23, and 8/5/23 – 12/31/23

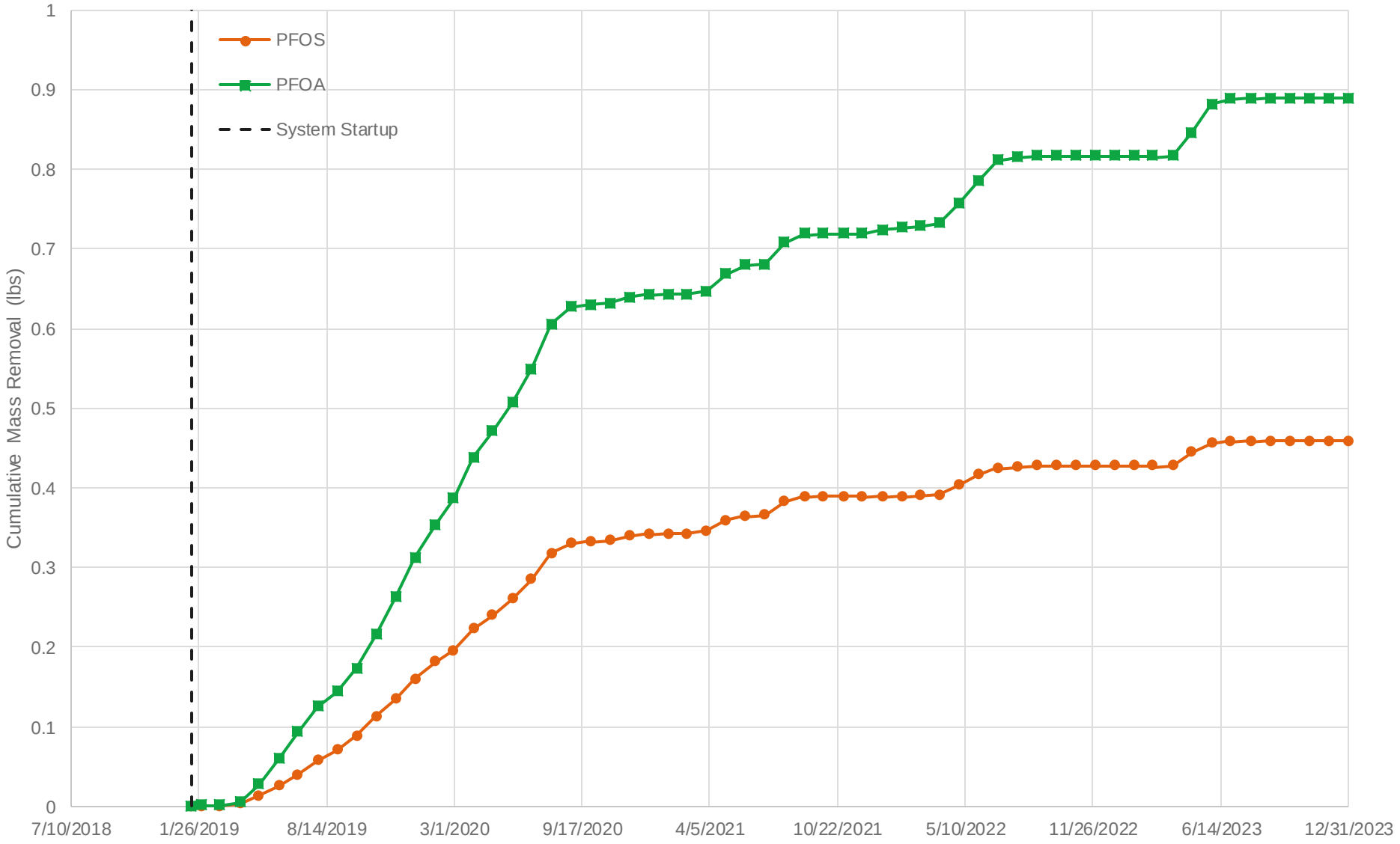
Notes:
1. Elevations based on survey conducted by Coleman Engineering on 10/20/22.
2. The Ditch A bottom elevation is variable. An approximate value upstream of the check dam is shown for reference.

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A SYSTEM UPSTREAM SURFACE WATER ELEVATION (7/1/23 – 12/31/23)

ARCADIS

FIGURE
3



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

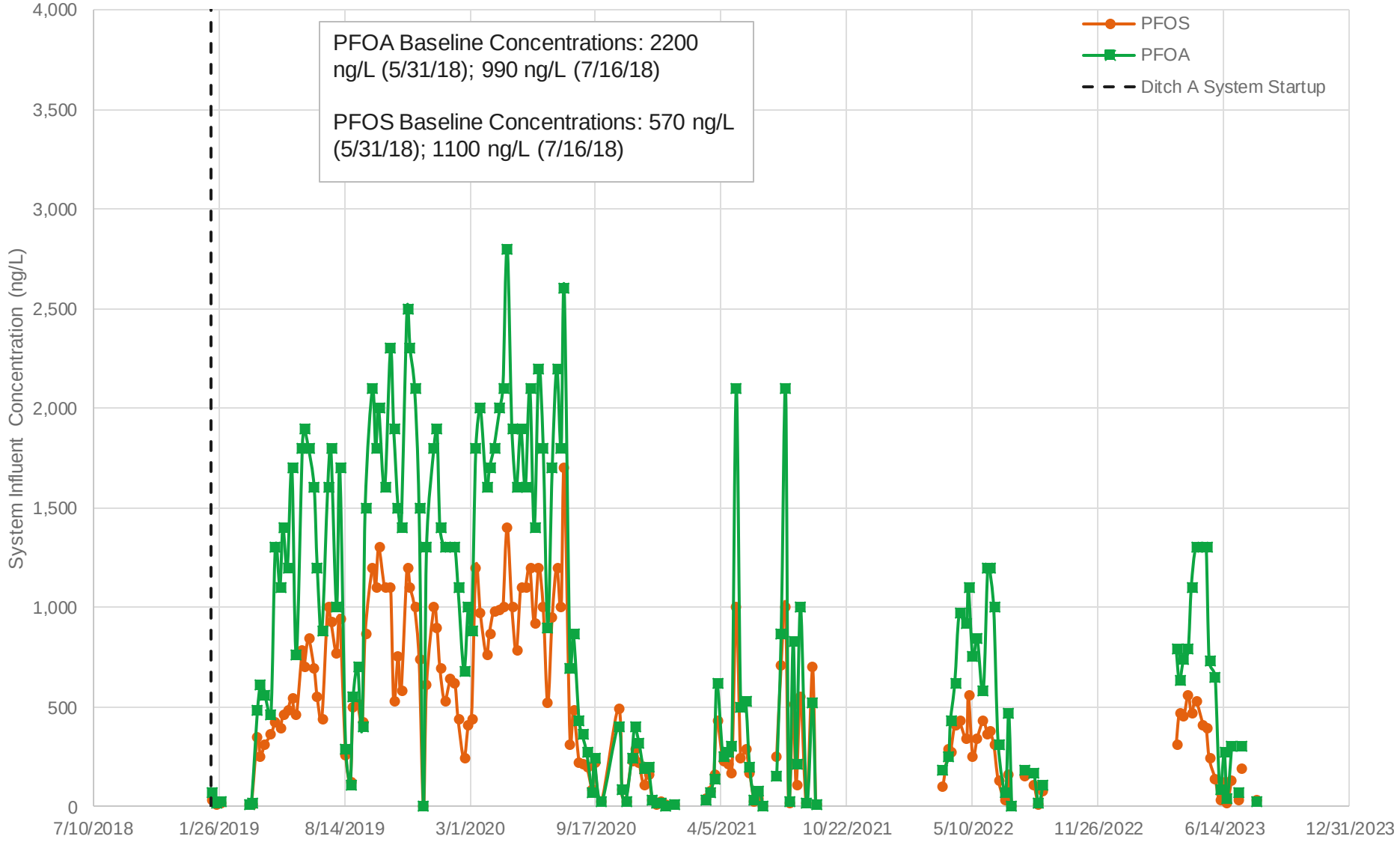
Note:
Data presented on a monthly basis

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A SYSTEM TREATMENT SYSTEM
CUMULATIVE PFAS MASS REMOVAL

ARCADIS

FIGURE
4



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

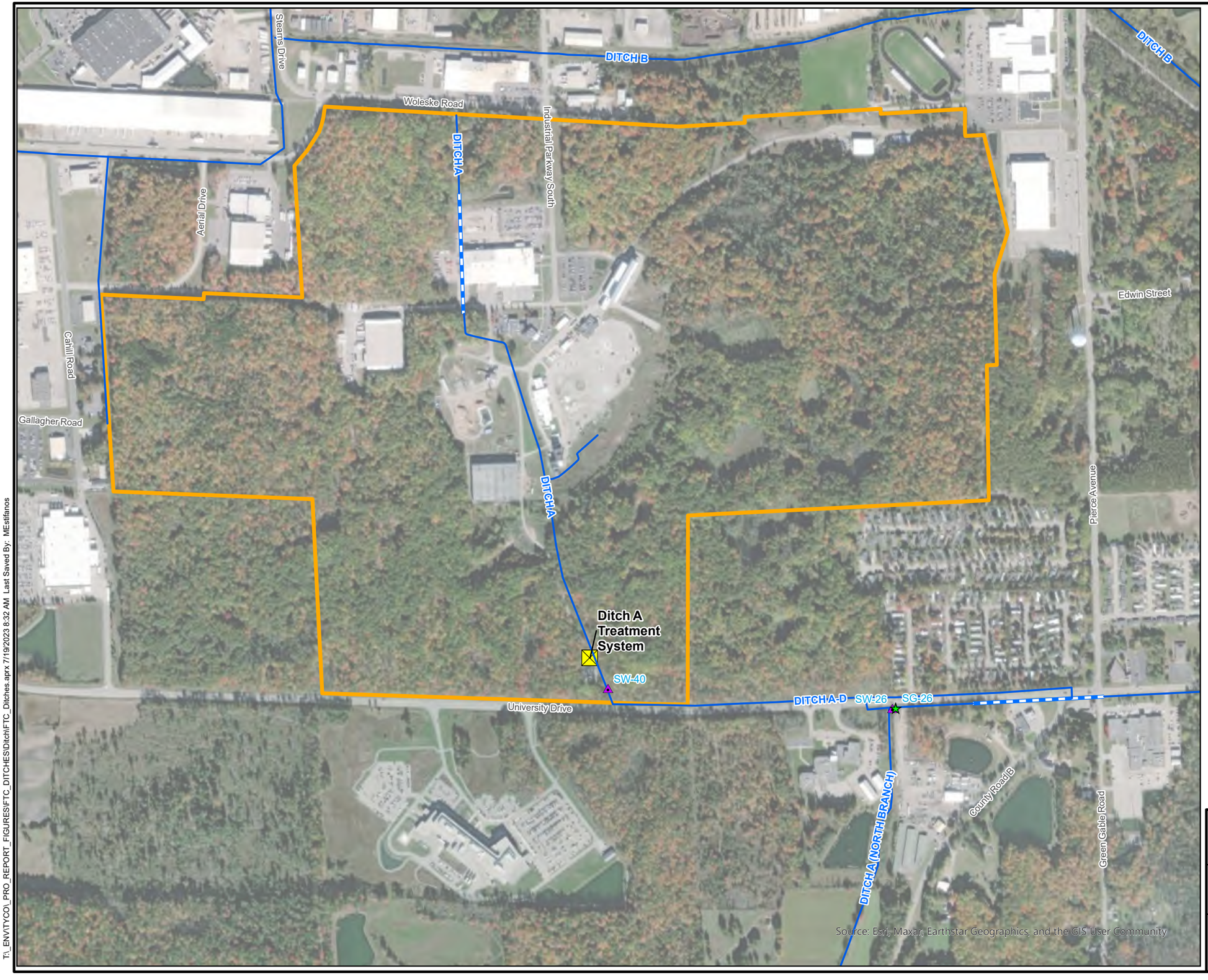
Note:
Baseline concentrations collected from sample location SW-27 on 5/31/18 and 7/16/18.

TYCO FIRE PRODUCTS LP
2700 INDUSTRIAL PARKWAY SOUTH
MARINETTE, WISCONSIN

DITCH A SYSTEM TREATMENT SYSTEM INFLUENT CONCENTRATIONS

ARCADIS

FIGURE
5



Legend

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

Notes
1. Sampling at SW-26 to begin in August 2023 pending the observation of flow.

0 500 1,000

GRAPHIC SCALE IN FEET

TYCO FIRE TECHNOLOGY CENTER
MARINETTE, WISCONSIN

DITCH A DOWNSTREAM SURFACE WATER SAMPLING LOCATIONS

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FIGURE 6

T:_ENVITYCO_PRO_REPORT_FIGURES\FTC_DITCHES\Ditch\FTC_Ditches aprx 7/19/2023 8:32 AM Last Saved By: MEsilfanos

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

Ditch Dry/Frozen (No Sample Collected):
9/2023, 10/2023, 11/2023, and 12/2023

Notes:
1. Downstream surface water samples collected from SW-40 (downstream of Ditch A System).
2. Downstream sample collection began in August 2021.
3. When duplicate samples were collected, the higher result is shown.
4. 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).
5. 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
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DITCH A DOWNSTREAM SURFACE WATER CONCENTRATIONS (SW-40)

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FIGURE
7

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.

NOT FOR CONSTRUCTION

REV.	ISSUED DATE	DESCRIPTION	BY	CK'D
3	02/04/2020	ISSUED FOR CUSTOMER REVIEW	PAP	MPS
2	10/1/2019	ISSUED FOR CUSTOMER REVIEW	PAP	MPS

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

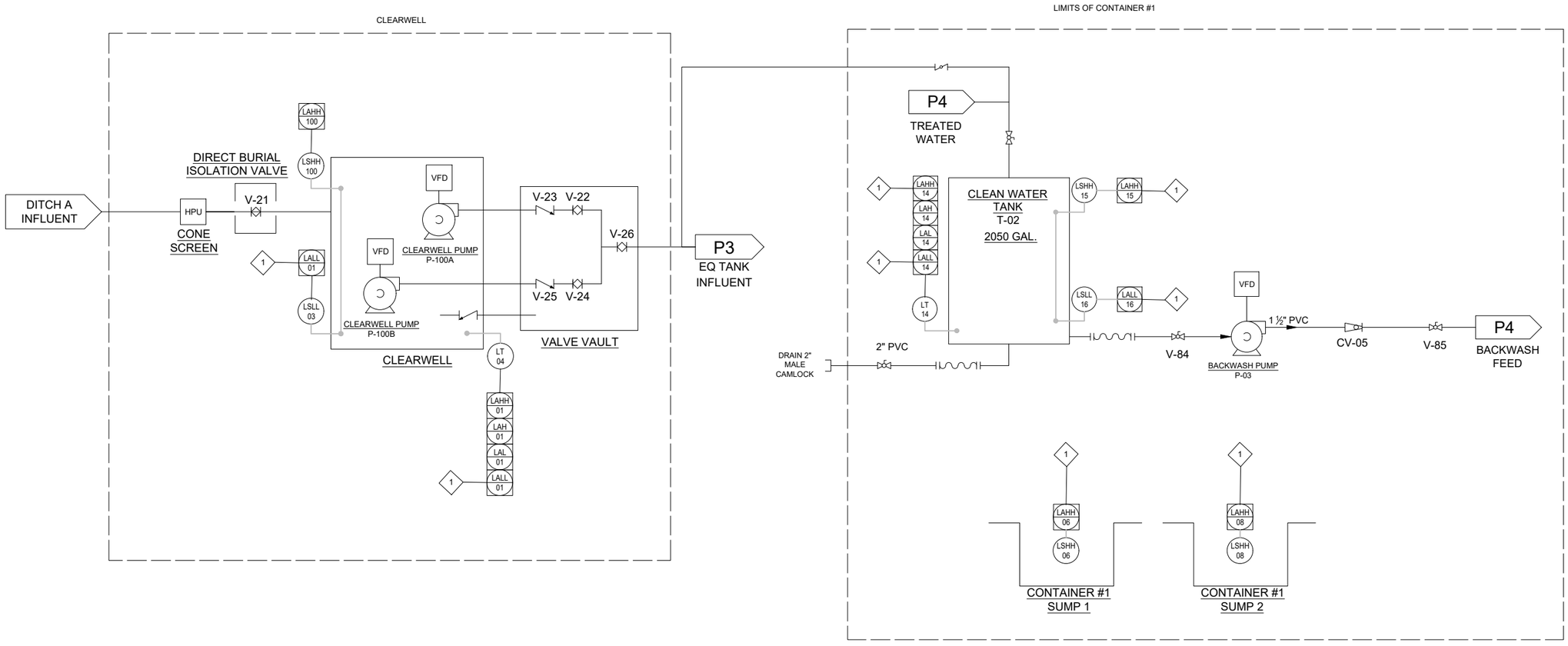
DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE
TYCO DITCH-A P&ID LEGEND SHEET

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

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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Cudahy, WI 53110
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DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

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

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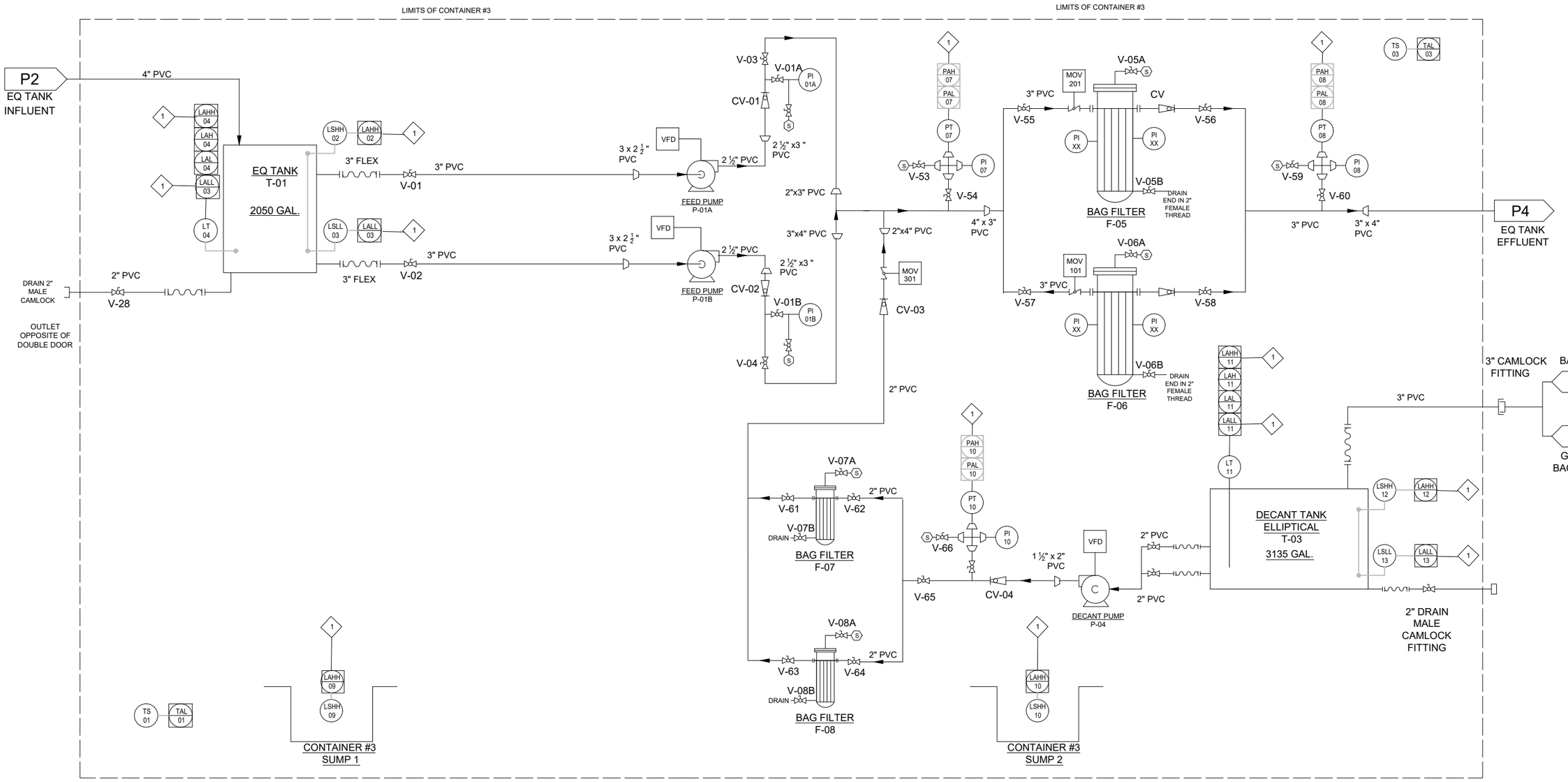
PROJECT NUMBER	DRAWING NUMBER
Q14949	P-02
	SHEET 2 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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Tel: (414) 483-5600 Fax: (414) 483-1957
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DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

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

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PAP	PAP
PROJECT NUMBER	DRAWING NUMBER
Q14949	P-03
	SHEET 3 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM

LIMITS OF CONTAINER #1

LIMITS OF CONTAINER #1

BACKWASH FEED
P2
P3
EQ TANK EFFLUENT
2" x 3" PVC
4" x 3" PVC
GV-02
GV-01
2" PVC
3" PVC
½" PVC
FIR 05
FQI 05
FIT 05
FAH 05
FAL 05
PI 01
PT 01
V-100A
PAH 01
PAL 01
DPAHH 300
DPAH 300
DPI 300
V-200A
PI 04
PT 04
PAL 04
PAH 04
FIR 07
FQI 07
FIT 07
FAH 07
FAL 07
DPI 301
DPAHH 301
DPAH 301
V-03A
V-09
V-10
V-03B
DRAIN
BAG FILTER F-03
V-04A
V-11
V-12
V-04B
BAG FILTER F-04
V-18
V-17
V-16
3" PVC
P5
GAC-202 INFLUENT
P5
GAC-201 INFLUENT/ BACKWASH FEED
V-200B
PT 05
PI 05
PAL 05
PAH 05
P4
DPI-501
V-01A
V-05
V-06
V-01B
BAG FILTER F-01
V-02A
V-07
V-08
V-02B
BAG FILTER F-02
V-100B
PI 02
PT 02
PAL 02
PAH 02
P4
DPI-500
V-15
V-13
V-14
P5
GAC-101 INFLUENT
P5
GAC-102 INFLUENT/ BACKWASH FEED
PI 202A
CV-202
V-47
V-202E
V-45
GRANULAR ACTIVATED CARBON GAC-202
DRAIN
V-202F
V-48
V-46
PI 202B
PI 203A
CV-203
V-51
V-203E
V-49
GRANULAR ACTIVATED CARBON GAC-203
DRAIN
V-203F
V-52
V-50
PI 203B
PI 102A
CV-102
V-35
V-102E
V-33
GRANULAR ACTIVATED CARBON GAC-102
DRAIN
V-102F
V-36
V-34
PI 102B
PI 103A
CV-103
V-39
V-103E
V-37
GRANULAR ACTIVATED CARBON GAC-103
DRAIN
V-103F
V-40
V-38
PI 103B
PAH 06
PAL 06
DPAHH 501
DPAH 501
PT 06
DPI 501
P4
DPI-501
V-200C
PI 03
V-900
3" PVC
4" PVC
V-19
V-27
DIRECT BURIAL ISOLATION VALVE
DITCH A DISCHARGE
V-20
V-113
P2
TREATED WATER
DPAHH 500
DPAH 500
V-100C
PT 03
PAH 03
PAL 03
DPI 500
P4
DPI-500

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DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE

TYCO DITCH-A SYSTEM P&ID SHEET 3

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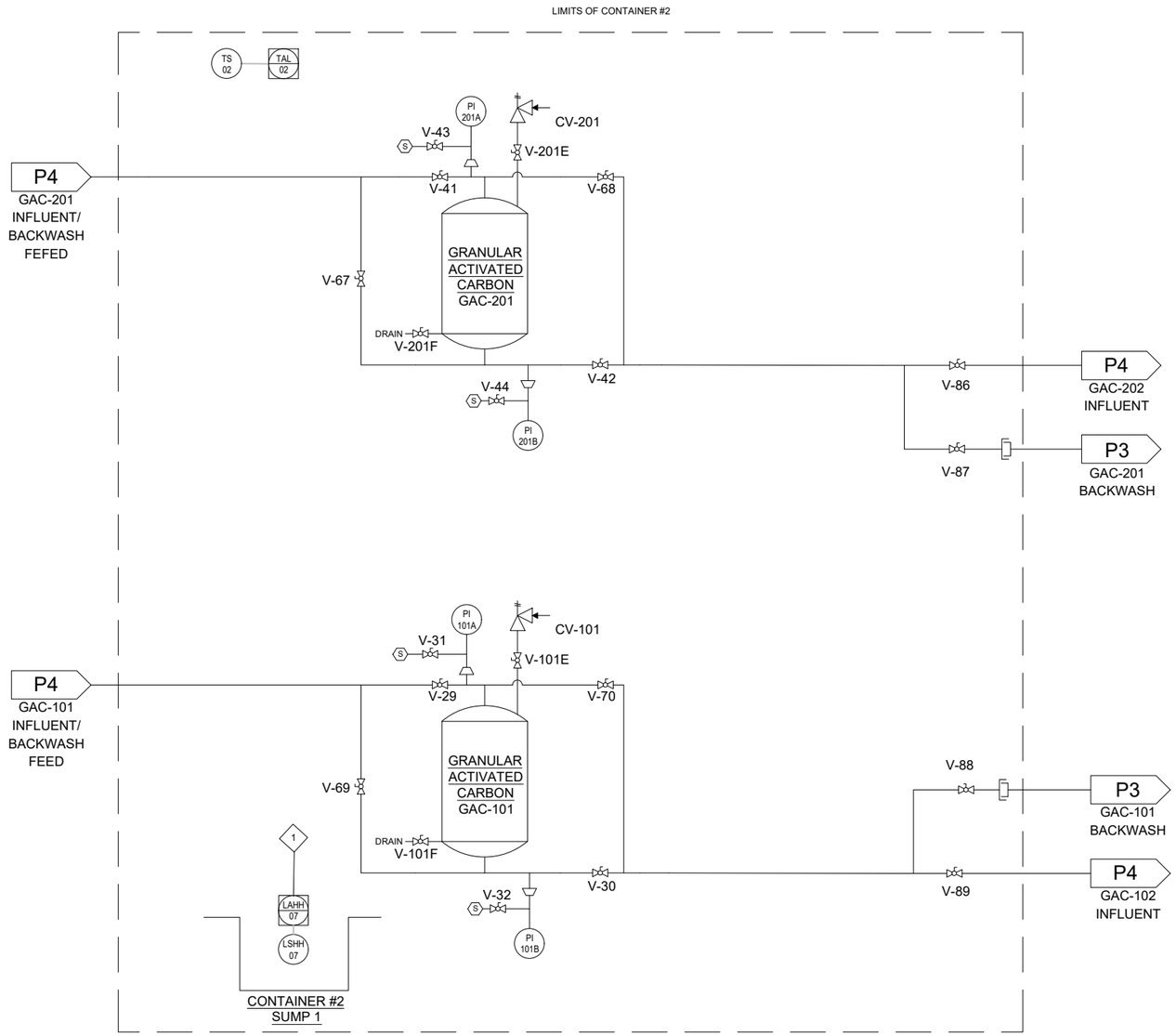
PAP	PAP
PROJECT NUMBER	DRAWING NUMBER
Q14949	P-04

SHEET 4 OF 5

INTERLOCK SCHEDULE

1 SHUT DOWN SYSTEM



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2129 E. Birchwood Ave.
Cudahy, WI 53110
Tel: (414) 483-5600 Fax: (414) 483-1957
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DITCH INTERIM ACTION-DITCH A
MARINETTE, WI

SHEET TITLE
TYCO DITCH-A SYSTEM P&ID SHEET 4

APPROVED BY **MPS**	CHECKED BY **MPS**
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
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

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JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 WPDES

JOB NUMBER

500-236304-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Job Notes

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

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

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

Authorization

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

Table of Contents

Job ID: 500-236304-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-236304-1

Receipt
The samples were received on 7/8/2023 10:10 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 0.4º 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: The tailing factor for Benzidine failed in the DFTPP analysis at 2.4. The tailing factor was acceptable at 0.71 in the ICIS. This indicates the system was in control and no corrective action was required. DFTPP 500-720850/1

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
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

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, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-236304-1	V-200-A	Water	07/07/23 10:35	07/08/23 10:10
500-236304-2	V-900-A	Water	07/07/23 10:55	07/08/23 10:10
500-236304-3	Trip Blank (7-7-23)	Water	07/07/23 00:00	07/08/23 10:10

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236304-1
Date Collected: 07/07/23 10:35
Matrix: Water
Date Received: 07/08/23 10:10

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			07/12/23 21:25	1
Toluene	<0.15		0.50	0.15	ug/L			07/12/23 21:25	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/12/23 21:25	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/12/23 21:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*70 - 130*		*07/12/23 21:25*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/12/23 21:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*108*		*70 - 130*		*07/12/23 21:25*	*1*
Dibromofluoromethane	*101*		*70 - 130*		*07/12/23 21:25*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.11		0.86	0.11	ug/L		07/12/23 07:08	07/13/23 18:09	1
Acenaphthylene	<0.12		0.86	0.12	ug/L		07/12/23 07:08	07/13/23 18:09	1
Anthracene	<0.16		0.86	0.16	ug/L		07/12/23 07:08	07/13/23 18:09	1
Benzo[a]anthracene	<0.056		0.86	0.056	ug/L		07/12/23 07:08	07/13/23 18:09	1
Benzo[a]pyrene	<0.065		0.86	0.065	ug/L		07/12/23 07:08	07/13/23 18:09	1
Benzo[b]fluoranthene	<0.070		0.86	0.070	ug/L		07/12/23 07:08	07/13/23 18:09	1
Benzo[g,h,i]perylene	<0.41		0.86	0.41	ug/L		07/12/23 07:08	07/13/23 18:09	1
Benzo[k]fluoranthene	<0.14		0.86	0.14	ug/L		07/12/23 07:08	07/13/23 18:09	1
Chrysene	<0.080		0.86	0.080	ug/L		07/12/23 07:08	07/13/23 18:09	1
Dibenz(a,h)anthracene	<0.097		0.86	0.097	ug/L		07/12/23 07:08	07/13/23 18:09	1
Fluoranthene	<0.17		0.86	0.17	ug/L		07/12/23 07:08	07/13/23 18:09	1
Fluorene	<0.14		0.86	0.14	ug/L		07/12/23 07:08	07/13/23 18:09	1
Indeno[1,2,3-cd]pyrene	<0.066		0.86	0.066	ug/L		07/12/23 07:08	07/13/23 18:09	1
1-Methylnaphthalene	<0.26		1.7	0.26	ug/L		07/12/23 07:08	07/13/23 18:09	1
2-Methylnaphthalene	<0.072		1.7	0.072	ug/L		07/12/23 07:08	07/13/23 18:09	1
Naphthalene	<0.13		0.86	0.13	ug/L		07/12/23 07:08	07/13/23 18:09	1
Phenanthrene	<0.18		0.86	0.18	ug/L		07/12/23 07:08	07/13/23 18:09	1
Pyrene	<0.20		0.86	0.20	ug/L		07/12/23 07:08	07/13/23 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*34 - 110*	*07/12/23 07:08*	*07/13/23 18:09*	*1*
Nitrobenzene-d5	*84*		*36 - 120*	*07/12/23 07:08*	*07/13/23 18:09*	*1*
Terphenyl-d14	*102*		*40 - 145*	*07/12/23 07:08*	*07/13/23 18:09*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664B)	<1.5		5.7	1.5	mg/L		07/13/23 07:00	07/13/23 07:03	1
Total Suspended Solids (SM 2540D)	**3.2**	**J**	5.0	1.9	mg/L			07/13/23 09:23	1

Client Sample ID: V-900-A
Date Collected: 07/07/23 10:55
Date Received: 07/08/23 10:10

Lab Sample ID: 500-236304-2
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			07/12/23 21:48	1
Toluene	<0.15		0.50	0.15	ug/L			07/12/23 21:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/12/23 21:48	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/12/23 21:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*70 - 130*		*07/12/23 21:48*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*07/12/23 21:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*07/12/23 21:48*	*1*
Dibromofluoromethane	*104*		*70 - 130*		*07/12/23 21:48*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.091		0.74	0.091	ug/L		07/12/23 07:08	07/13/23 18:35	1
Acenaphthylene	<0.10		0.74	0.10	ug/L		07/12/23 07:08	07/13/23 18:35	1
Anthracene	<0.14		0.74	0.14	ug/L		07/12/23 07:08	07/13/23 18:35	1
Benzo[a]anthracene	<0.048		0.74	0.048	ug/L		07/12/23 07:08	07/13/23 18:35	1
Benzo[a]pyrene	<0.056		0.74	0.056	ug/L		07/12/23 07:08	07/13/23 18:35	1
Benzo[b]fluoranthene	<0.060		0.74	0.060	ug/L		07/12/23 07:08	07/13/23 18:35	1
Benzo[g,h,i]perylene	<0.36		0.74	0.36	ug/L		07/12/23 07:08	07/13/23 18:35	1
Benzo[k]fluoranthene	<0.13		0.74	0.13	ug/L		07/12/23 07:08	07/13/23 18:35	1
Chrysene	<0.069		0.74	0.069	ug/L		07/12/23 07:08	07/13/23 18:35	1
Dibenz(a,h)anthracene	<0.084		0.74	0.084	ug/L		07/12/23 07:08	07/13/23 18:35	1
Fluoranthene	<0.15		0.74	0.15	ug/L		07/12/23 07:08	07/13/23 18:35	1
Fluorene	<0.12		0.74	0.12	ug/L		07/12/23 07:08	07/13/23 18:35	1
Indeno[1,2,3-cd]pyrene	<0.057		0.74	0.057	ug/L		07/12/23 07:08	07/13/23 18:35	1
1-Methylnaphthalene	<0.22		1.5	0.22	ug/L		07/12/23 07:08	07/13/23 18:35	1
2-Methylnaphthalene	<0.062		1.5	0.062	ug/L		07/12/23 07:08	07/13/23 18:35	1
Naphthalene	<0.11		0.74	0.11	ug/L		07/12/23 07:08	07/13/23 18:35	1
Phenanthrene	<0.16		0.74	0.16	ug/L		07/12/23 07:08	07/13/23 18:35	1
Pyrene	<0.17		0.74	0.17	ug/L		07/12/23 07:08	07/13/23 18:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*76*		*34 - 110*	*07/12/23 07:08*	*07/13/23 18:35*	*1*
Nitrobenzene-d5	*89*		*36 - 120*	*07/12/23 07:08*	*07/13/23 18:35*	*1*
Terphenyl-d14	*102*		*40 - 145*	*07/12/23 07:08*	*07/13/23 18:35*	*1*

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease) (1664B)	<1.4		5.3	1.4	mg/L		07/13/23 07:00	07/13/23 07:03	1
Total Suspended Solids (SM 2540D)	<1.9		5.0	1.9	mg/L			07/13/23 09:30	1

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: Trip Blank (7-7-23)

Lab Sample ID: 500-236304-3
Date Collected: 07/07/23 00:00
Matrix: Water
Date Received: 07/08/23 10:10

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			07/12/23 15:16	1
Toluene	<0.15		0.50	0.15	ug/L			07/12/23 15:16	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/12/23 15:16	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/12/23 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*70 - 130*		*07/12/23 15:16*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*07/12/23 15:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*07/12/23 15:16*	*1*
Dibromofluoromethane	*98*		*70 - 130*		*07/12/23 15:16*	*1*

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Qualifiers

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
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

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)
500-236304-1	V-200-A	99	100	108	101
500-236304-2	V-900-A	98	99	105	104
500-236304-2 MS	V-900-A	101	97	100	99
500-236304-2 MSD	V-900-A	99	96	102	99
500-236304-3	Trip Blank (7-7-23)	103	95	96	98
LCS 500-722684/4	Lab Control Sample	101	99	98	96
MB 500-722684/7	Method Blank	100	98	103	102

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)
500-236304-1	V-200-A	73	84	102
500-236304-2	V-900-A	76	89	102
LCS 500-722642/2-A	Lab Control Sample	70	71	90
MB 500-722642/1-A	Method Blank	85	87	108

Surrogate Legend

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

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

Lab Sample ID: MB 500-722684/7
Matrix: Water
Analysis Batch: 722684

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			07/12/23 14:29	1
Toluene	<0.15		0.50	0.15	ug/L			07/12/23 14:29	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			07/12/23 14:29	1
Xylenes, Total	<0.40		1.0	0.40	ug/L			07/12/23 14:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*70 - 130*		*07/12/23 14:29*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*07/12/23 14:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*07/12/23 14:29*	*1*
Dibromofluoromethane	*102*		*70 - 130*		*07/12/23 14:29*	*1*

Lab Sample ID: LCS 500-722684/4
Matrix: Water
Analysis Batch: 722684

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	48.6		ug/L		97	65 - 135		
Toluene			50.0	47.4		ug/L		95	70 - 130		
Ethylbenzene			50.0	50.9		ug/L		102	60 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*
Dibromofluoromethane	*96*		*70 - 130*

Lab Sample ID: 500-236304-2 MS
Matrix: Water
Analysis Batch: 722684

Client Sample ID: V-900-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	48.3		ug/L		97	37 - 151		
Toluene	<0.15		50.0	47.0		ug/L		94	47 - 150		
Ethylbenzene	<0.18		50.0	49.5		ug/L		99	37 - 162		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*70 - 130*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*

Lab Sample ID: 500-236304-2 MSD
Matrix: Water
Analysis Batch: 722684

Client Sample ID: V-900-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	48.9		ug/L		98	37 - 151	1	61
Toluene	<0.15		50.0	46.2		ug/L		92	47 - 150	2	41

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

Lab Sample ID: 500-236304-2 MSD
Matrix: Water
Analysis Batch: 722684

Client Sample ID: V-900-A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethylbenzene	<0.18		50.0	48.7		ug/L		97	37 - 162	2	63

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 130*
Dibromofluoromethane	*99*		*70 - 130*

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

Lab Sample ID: MB 500-722642/1-A
Matrix: Water
Analysis Batch: 722653

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 722642

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.099		0.80	0.099	ug/L		07/12/23 07:08	07/12/23 12:57	1
Acenaphthylene	<0.11		0.80	0.11	ug/L		07/12/23 07:08	07/12/23 12:57	1
Anthracene	<0.15		0.80	0.15	ug/L		07/12/23 07:08	07/12/23 12:57	1
Benzo[a]anthracene	<0.052		0.80	0.052	ug/L		07/12/23 07:08	07/12/23 12:57	1
Benzo[a]pyrene	<0.061		0.80	0.061	ug/L		07/12/23 07:08	07/12/23 12:57	1
Benzo[b]fluoranthene	<0.065		0.80	0.065	ug/L		07/12/23 07:08	07/12/23 12:57	1
Benzo[g,h,i]perylene	<0.39		0.80	0.39	ug/L		07/12/23 07:08	07/12/23 12:57	1
Benzo[k]fluoranthene	<0.14		0.80	0.14	ug/L		07/12/23 07:08	07/12/23 12:57	1
Chrysene	<0.075		0.80	0.075	ug/L		07/12/23 07:08	07/12/23 12:57	1
Dibenz(a,h)anthracene	<0.091		0.80	0.091	ug/L		07/12/23 07:08	07/12/23 12:57	1
Fluoranthene	<0.16		0.80	0.16	ug/L		07/12/23 07:08	07/12/23 12:57	1
Fluorene	<0.13		0.80	0.13	ug/L		07/12/23 07:08	07/12/23 12:57	1
Indeno[1,2,3-cd]pyrene	<0.061		0.80	0.061	ug/L		07/12/23 07:08	07/12/23 12:57	1
1-Methylnaphthalene	<0.24		1.6	0.24	ug/L		07/12/23 07:08	07/12/23 12:57	1
2-Methylnaphthalene	<0.067		1.6	0.067	ug/L		07/12/23 07:08	07/12/23 12:57	1
Naphthalene	<0.12		0.80	0.12	ug/L		07/12/23 07:08	07/12/23 12:57	1
Phenanthrene	<0.17		0.80	0.17	ug/L		07/12/23 07:08	07/12/23 12:57	1
Pyrene	<0.18		0.80	0.18	ug/L		07/12/23 07:08	07/12/23 12:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*85*		*34 - 110*	*07/12/23 07:08*	*07/12/23 12:57*	*1*
Nitrobenzene-d5	*87*		*36 - 120*	*07/12/23 07:08*	*07/12/23 12:57*	*1*
Terphenyl-d14	*108*		*40 - 145*	*07/12/23 07:08*	*07/12/23 12:57*	*1*

Lab Sample ID: LCS 500-722642/2-A
Matrix: Water
Analysis Batch: 722653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 722642

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Acenaphthene	32.0	24.1		ug/L		75	47 - 145
Acenaphthylene	32.0	24.7		ug/L		77	33 - 145
Anthracene	32.0	25.9		ug/L		81	27 - 133
Benzo[a]anthracene	32.0	26.5		ug/L		83	33 - 143

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

Lab Sample ID: LCS 500-722642/2-A
Matrix: Water
Analysis Batch: 722653

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 722642

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	32.0	31.1		ug/L		97	17 - 163
Benzo[b]fluoranthene	32.0	32.3		ug/L		101	24 - 159
Benzo[g,h,i]perylene	32.0	32.6		ug/L		102	10 - 219
Benzo[k]fluoranthene	32.0	29.7		ug/L		93	11 - 162
Chrysene	32.0	28.6		ug/L		89	17 - 168
Dibenz(a,h)anthracene	32.0	35.7		ug/L		111	10 - 227
Fluoranthene	32.0	27.5		ug/L		86	26 - 137
Fluorene	32.0	25.0		ug/L		78	59 - 121
Indeno[1,2,3-cd]pyrene	32.0	34.3		ug/L		107	10 - 171
1-Methylnaphthalene	32.0	21.2		ug/L		66	
2-Methylnaphthalene	32.0	21.4		ug/L		67	34 - 110
Naphthalene	32.0	21.7		ug/L		68	21 - 133
Phenanthrene	32.0	25.7		ug/L		80	54 - 120
Pyrene	32.0	26.5		ug/L		83	52 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*70*		*34 - 110*
Nitrobenzene-d5	*71*		*36 - 120*
Terphenyl-d14	*90*		*40 - 145*

Method: 1664B - HEM and SGT-HEM

Lab Sample ID: MB 500-722856/1-A
Matrix: Water
Analysis Batch: 722857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 722856

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	<1.3		5.0	1.3	mg/L		07/13/23 07:00	07/13/23 07:03	1

Lab Sample ID: LCS 500-722856/2-A
Matrix: Water
Analysis Batch: 722857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 722856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
HEM (Oil & Grease)	40.0	33.80		mg/L		84	78 - 114

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

Lab Sample ID: MB 500-722921/2
Matrix: Water
Analysis Batch: 722921

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			07/13/23 09:00	1

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

Lab Sample ID: LCS 500-722921/1
Matrix: Water
Analysis Batch: 722921

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	198.7		mg/L		99	80 - 120		

Lab Sample ID: 500-236304-1 DU
Matrix: Water
Analysis Batch: 722921

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

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Suspended Solids	3.2	J		3.10	J	mg/L				4	5

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236304-1
Date Collected: 07/07/23 10:35
Matrix: Water
Date Received: 07/08/23 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	722684	W1T	EET CHI	07/12/23 21:25
Total/NA	Prep	625			722642	TS	EET CHI	07/12/23 07:08
Total/NA	Analysis	625.1		1	722865	JSB	EET CHI	07/13/23 18:09
Total/NA	Prep	1664B			722856	AM	EET CHI	07/13/23 07:00
Total/NA	Analysis	1664B		1	722857	AM	EET CHI	07/13/23 07:03
Total/NA	Analysis	SM 2540D		1	722921	MB	EET CHI	07/13/23 09:23 - 07/13/23 09:26 [1]

Client Sample ID: V-900-A
Lab Sample ID: 500-236304-2
Date Collected: 07/07/23 10:55
Matrix: Water
Date Received: 07/08/23 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	722684	W1T	EET CHI	07/12/23 21:48
Total/NA	Prep	625			722642	TS	EET CHI	07/12/23 07:08
Total/NA	Analysis	625.1		1	722865	JSB	EET CHI	07/13/23 18:35
Total/NA	Prep	1664B			722856	AM	EET CHI	07/13/23 07:00
Total/NA	Analysis	1664B		1	722857	AM	EET CHI	07/13/23 07:03
Total/NA	Analysis	SM 2540D		1	722921	MB	EET CHI	07/13/23 09:30 - 07/13/23 09:33 [1]

Client Sample ID: Trip Blank (7-7-23)
Lab Sample ID: 500-236304-3
Date Collected: 07/07/23 00:00
Matrix: Water
Date Received: 07/08/23 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	624.1		1	722684	W1T	EET CHI	07/12/23 15:16

[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, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: ARCADIS US Inc
Job ID: 500-236304-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Laboratory: Eurofins Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-23

Eurofins TestAmerica, Chicago
2417 Bond Street

University Park, IL 60484-3101
phone 708 534 5200 fax 708 534 5211

Chain of Custody Record

eurofins | Environment Testing America

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: Jacob Flamenger	Date: 7-7-23	COC No 1
Arcadis U S , Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
126 North Jefferson Street, Suite 400	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			Lab Project Number
Site Marinette, WI	☐ 1 week			50015522
P O # 30171092 4 1 1 (WPDES)	☐ 2 days ☐ 1 day			500-236304 COC

	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	7-7-23	10:35	G	W	8	N	N	X	X	X	X	System Influent
2	V-900-A	↓	10:55	G	W	8	N	N	X	X	X	X	System Effluent
3	Trip Blank (7-7-23)	↓		G	W	1	N	N	X				Trip Blank

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

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:

5 day-TAT U-200-A-pH= 7.01 U-900-A=pH= 7.11

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No | Cooler Temp (°C) Obs'd 1.5 Corr'd 0.4 | Therm ID No

Relinquished by Jacob Flamenger	Company Barley Excavating	Date/Time 7-7-23/12:05	Received by Fed Ex	Company	Date/Time
Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by	Company	Date/Time	Received in Laboratory by Stephanie Hernandez	Company EEA	Date/Time 7/8/23 1010

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

7/11/2023

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-236304-1
SDG Number:

Login Number: 236304
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	0.4
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
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202

Generated 7/19/2023 5:31:19 PM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 WPDES

JOB NUMBER

500-236315-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Eurofins Chicago

Job Notes

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

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

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

Authorization

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

Table of Contents

Job ID: 500-236315-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-236315-1

Comments
No additional comments.

Receipt
The samples were received on 7/8/2023 8:40 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 3.4º C.

LCMS
Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: 500-236315-2. The samples were re-analyzed with concurring results. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. Per client instructions, all runs are reported.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-689766.
preparation batch 320-689766
Method: 3535 PFC-W
Matrix: Aqueous

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

Method Summary

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-236315-1	V-200-A	Water	07/07/23 10:30	07/08/23 08:40
500-236315-2	V-900-A	Water	07/07/23 10:50	07/08/23 08:40

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236315-1
Date Collected: 07/07/23 10:30
Matrix: Water
Date Received: 07/08/23 08:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**9.7**		4.3	2.1	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoropentanoic acid (PFPeA)	**31**		1.7	0.42	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorohexanoic acid (PFHxA)	**24**		1.7	0.50	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoroheptanoic acid (PFHpA)	**19**		1.7	0.21	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorooctanoic acid (PFOA)	**67**		1.7	0.73	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorononanoic acid (PFNA)	**7.7**		1.7	0.23	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorodecanoic acid (PFDA)	**7.2**		1.7	0.27	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoroundecanoic acid (PFUnA)	**3.4**		1.7	0.94	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorododecanoic acid (PFDoA)	**0.62**	**J**	1.7	0.47	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.76		1.7	0.76	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.81		1.7	0.81	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**		1.7	0.17	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorohexanesulfonic acid (PFHxS)	**4.7**		1.7	0.49	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.20**	**J**	1.7	0.16	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorooctanesulfonic acid (PFOS)	**33**		1.7	0.46	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorododecanesulfonic acid (PFDoS)	<0.83		1.7	0.83	ng/L		07/11/23 19:03	07/15/23 02:08	1
Perfluorooctanesulfonamide (FOSA)	**1.8**		1.7	0.84	ng/L		07/11/23 19:03	07/15/23 02:08	1
NEtFOSA	<0.75		1.7	0.75	ng/L		07/11/23 19:03	07/15/23 02:08	1
NMeFOSA	<0.37		1.7	0.37	ng/L		07/11/23 19:03	07/15/23 02:08	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		07/11/23 19:03	07/15/23 02:08	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		07/11/23 19:03	07/15/23 02:08	1
NMeFOSE	<1.2		3.4	1.2	ng/L		07/11/23 19:03	07/15/23 02:08	1
NEtFOSE	<0.73		1.7	0.73	ng/L		07/11/23 19:03	07/15/23 02:08	1
4:2 FTS	**0.22**	**J**	1.7	0.21	ng/L		07/11/23 19:03	07/15/23 02:08	1
6:2 FTS	**40**		4.3	2.1	ng/L		07/11/23 19:03	07/15/23 02:08	1
8:2 FTS	**76**		1.7	0.39	ng/L		07/11/23 19:03	07/15/23 02:08	1
10:2 FTS	**9.3**		1.7	0.57	ng/L		07/11/23 19:03	07/15/23 02:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		07/11/23 19:03	07/15/23 02:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.4	1.3	ng/L		07/11/23 19:03	07/15/23 02:08	1
F-53B Major	<0.21		1.7	0.21	ng/L		07/11/23 19:03	07/15/23 02:08	1
F-53B Minor	<0.27		1.7	0.27	ng/L		07/11/23 19:03	07/15/23 02:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*83*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:08*	*1*
13C5 PFPeA	*78*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:08*	*1*

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236315-1
Date Collected: 07/07/23 10:30
Matrix: Water
Date Received: 07/08/23 08:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	79		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C4 PFHpA	80		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C4 PFOA	87		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C5 PFNA	83		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 PFDA	87		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 PFUnA	81		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 PFDoA	75		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 PFTeDA	66		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 PFHxDA	36		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C3 PFBS	77		25 - 150	07/11/23 19:03	07/15/23 02:08	1
18O2 PFHxS	78		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C4 PFOS	78		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C8 FOSA	89		10 - 150	07/11/23 19:03	07/15/23 02:08	1
d3-NMeFOSAA	84		25 - 150	07/11/23 19:03	07/15/23 02:08	1
d5-NEtFOSAA	90		25 - 150	07/11/23 19:03	07/15/23 02:08	1
d-N-MeFOSA-M	71		10 - 150	07/11/23 19:03	07/15/23 02:08	1
d-N-EtFOSA-M	67		10 - 150	07/11/23 19:03	07/15/23 02:08	1
d7-N-MeFOSE-M	70		10 - 150	07/11/23 19:03	07/15/23 02:08	1
d9-N-EtFOSE-M	72		10 - 150	07/11/23 19:03	07/15/23 02:08	1
M2-4:2 FTS	81		25 - 150	07/11/23 19:03	07/15/23 02:08	1
M2-6:2 FTS	79		25 - 150	07/11/23 19:03	07/15/23 02:08	1
M2-8:2 FTS	86		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C3 HFPO-DA	73		25 - 150	07/11/23 19:03	07/15/23 02:08	1
13C2 10:2 FTS	80		25 - 150	07/11/23 19:03	07/15/23 02:08	1

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-236315-1

Client Sample ID: V-900-A
Date Collected: 07/07/23 10:50
Date Received: 07/08/23 08:40

Lab Sample ID: 500-236315-2
Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.3	2.1	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoropentanoic acid (PFPeA)	<0.42		1.7	0.42	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorohexanoic acid (PFHxA)	<0.50		1.7	0.50	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.7	0.22	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorooctanoic acid (PFOA)	<0.73		1.7	0.73	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoroundecanoic acid (PFUnA)	<0.95		1.7	0.95	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.77		1.7	0.77	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.81		1.7	0.81	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorobutanesulfonic acid (PFBS)	<0.17		1.7	0.17	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorohexanesulfonic acid (PFHxS)	<0.49		1.7	0.49	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.16		1.7	0.16	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorooctanesulfonic acid (PFOS)	<0.47		1.7	0.47	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorododecanesulfonic acid (PFDoS)	<0.84		1.7	0.84	ng/L		07/11/23 19:03	07/15/23 02:19	1
Perfluorooctanesulfonamide (FOSA)	<0.84		1.7	0.84	ng/L		07/11/23 19:03	07/15/23 02:19	1
NEtFOSA	<0.75		1.7	0.75	ng/L		07/11/23 19:03	07/15/23 02:19	1
NMeFOSA	<0.37		1.7	0.37	ng/L		07/11/23 19:03	07/15/23 02:19	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		07/11/23 19:03	07/15/23 02:19	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		07/11/23 19:03	07/15/23 02:19	1
NMeFOSE	<1.2		3.4	1.2	ng/L		07/11/23 19:03	07/15/23 02:19	1
NEtFOSE	<0.73		1.7	0.73	ng/L		07/11/23 19:03	07/15/23 02:19	1
4:2 FTS	<0.21		1.7	0.21	ng/L		07/11/23 19:03	07/15/23 02:19	1
6:2 FTS	<2.2		4.3	2.2	ng/L		07/11/23 19:03	07/15/23 02:19	1
8:2 FTS	<0.40		1.7	0.40	ng/L		07/11/23 19:03	07/15/23 02:19	1
10:2 FTS	**0.68**	**J**	1.7	0.58	ng/L		07/11/23 19:03	07/15/23 02:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		07/11/23 19:03	07/15/23 02:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.4	1.3	ng/L		07/11/23 19:03	07/15/23 02:19	1
F-53B Major	<0.21		1.7	0.21	ng/L		07/11/23 19:03	07/15/23 02:19	1
F-53B Minor	<0.28		1.7	0.28	ng/L		07/11/23 19:03	07/15/23 02:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*75*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C5 PFPeA	*71*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C2 PFHxA	*73*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C4 PFHpA	*72*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C4 PFOA	*74*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C5 PFNA	*79*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*
13C2 PFDA	*78*		*25 - 150*	*07/11/23 19:03*	*07/15/23 02:19*	*1*

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-236315-1

Client Sample ID: V-900-A
Date Collected: 07/07/23 10:50
Date Received: 07/08/23 08:40

Lab Sample ID: 500-236315-2
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	73		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C2 PFDoA	71		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C2 PFTeDA	65		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C2 PFHxDA	17	*	25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C3 PFBS	72		25 - 150	07/11/23 19:03	07/15/23 02:19	1
18O2 PFHxS	73		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C4 PFOS	73		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C8 FOSA	79		10 - 150	07/11/23 19:03	07/15/23 02:19	1
d3-NMeFOSAA	74		25 - 150	07/11/23 19:03	07/15/23 02:19	1
d5-NEtFOSAA	80		25 - 150	07/11/23 19:03	07/15/23 02:19	1
d-N-MeFOSA-M	64		10 - 150	07/11/23 19:03	07/15/23 02:19	1
d-N-EtFOSA-M	62		10 - 150	07/11/23 19:03	07/15/23 02:19	1
d7-N-MeFOSE-M	68		10 - 150	07/11/23 19:03	07/15/23 02:19	1
d9-N-EtFOSE-M	69		10 - 150	07/11/23 19:03	07/15/23 02:19	1
M2-4:2 FTS	76		25 - 150	07/11/23 19:03	07/15/23 02:19	1
M2-6:2 FTS	72		25 - 150	07/11/23 19:03	07/15/23 02:19	1
M2-8:2 FTS	75		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C3 HFPO-DA	69		25 - 150	07/11/23 19:03	07/15/23 02:19	1
13C2 10:2 FTS	76		25 - 150	07/11/23 19:03	07/15/23 02:19	1

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.3	2.1	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoropentanoic acid (PFPeA)	<0.42		1.7	0.42	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorohexanoic acid (PFHxA)	<0.50		1.7	0.50	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.7	0.22	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorooctanoic acid (PFOA)	<0.73		1.7	0.73	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoroundecanoic acid (PFUnA)	<0.95		1.7	0.95	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.7	1.1	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.77		1.7	0.77	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.81		1.7	0.81	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorobutanesulfonic acid (PFBS)	<0.17		1.7	0.17	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorohexanesulfonic acid (PFHxS)	<0.49		1.7	0.49	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.16		1.7	0.16	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorooctanesulfonic acid (PFOS)	<0.47		1.7	0.47	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorododecanesulfonic acid (PFDoS)	<0.84		1.7	0.84	ng/L		07/11/23 19:03	07/18/23 13:45	1
Perfluorooctanesulfonamide (FOSA)	<0.84		1.7	0.84	ng/L		07/11/23 19:03	07/18/23 13:45	1
NEtFOSA	<0.75		1.7	0.75	ng/L		07/11/23 19:03	07/18/23 13:45	1
NMeFOSA	<0.37		1.7	0.37	ng/L		07/11/23 19:03	07/18/23 13:45	1

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-900-A
Lab Sample ID: 500-236315-2
Date Collected: 07/07/23 10:50
Matrix: Water
Date Received: 07/08/23 08:40

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
NMeFOSAA	<1.0		4.3	1.0	ng/L		07/11/23 19:03	07/18/23 13:45	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		07/11/23 19:03	07/18/23 13:45	1
NMeFOSE	<1.2		3.4	1.2	ng/L		07/11/23 19:03	07/18/23 13:45	1
NEtFOSE	<0.73		1.7	0.73	ng/L		07/11/23 19:03	07/18/23 13:45	1
4:2 FTS	<0.21		1.7	0.21	ng/L		07/11/23 19:03	07/18/23 13:45	1
6:2 FTS	<2.2		4.3	2.2	ng/L		07/11/23 19:03	07/18/23 13:45	1
8:2 FTS	<0.40		1.7	0.40	ng/L		07/11/23 19:03	07/18/23 13:45	1
10:2 FTS	**0.83**	**J**	1.7	0.58	ng/L		07/11/23 19:03	07/18/23 13:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		07/11/23 19:03	07/18/23 13:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.4	1.3	ng/L		07/11/23 19:03	07/18/23 13:45	1
F-53B Major	<0.21		1.7	0.21	ng/L		07/11/23 19:03	07/18/23 13:45	1
F-53B Minor	<0.28		1.7	0.28	ng/L		07/11/23 19:03	07/18/23 13:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*64*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C5 PFPeA	*67*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFHxA	*68*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C4 PFHpA	*71*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C4 PFOA	*71*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C5 PFNA	*77*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFDA	*75*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFUnA	*71*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFDoA	*74*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFTeDA	*59*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 PFHxDA	*17*	*	*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C3 PFBS	*66*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
18O2 PFHxS	*69*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C4 PFOS	*66*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C8 FOSA	*67*		*10 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d3-NMeFOSAA	*54*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d5-NEtFOSAA	*59*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d-N-MeFOSA-M	*53*		*10 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d-N-EtFOSA-M	*55*		*10 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d7-N-MeFOSE-M	*56*		*10 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
d9-N-EtFOSE-M	*57*		*10 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
M2-4:2 FTS	*60*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
M2-6:2 FTS	*66*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
M2-8:2 FTS	*72*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C3 HFPO-DA	*69*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*
13C2 10:2 FTS	*80*		*25 - 150*	*07/11/23 19:03*	*07/18/23 13:45*	*1*

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
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: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-689766/1-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 689766

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		07/11/23 19:01	07/14/23 23:15	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		07/11/23 19:01	07/14/23 23:15	1
NEtFOSA	<0.87		2.0	0.87	ng/L		07/11/23 19:01	07/14/23 23:15	1
NMeFOSA	<0.43		2.0	0.43	ng/L		07/11/23 19:01	07/14/23 23:15	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		07/11/23 19:01	07/14/23 23:15	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		07/11/23 19:01	07/14/23 23:15	1
NMeFOSE	<1.4		4.0	1.4	ng/L		07/11/23 19:01	07/14/23 23:15	1
NEtFOSE	<0.85		2.0	0.85	ng/L		07/11/23 19:01	07/14/23 23:15	1
4:2 FTS	<0.24		2.0	0.24	ng/L		07/11/23 19:01	07/14/23 23:15	1
6:2 FTS	<2.5		5.0	2.5	ng/L		07/11/23 19:01	07/14/23 23:15	1
8:2 FTS	<0.46		2.0	0.46	ng/L		07/11/23 19:01	07/14/23 23:15	1
10:2 FTS	<0.67		2.0	0.67	ng/L		07/11/23 19:01	07/14/23 23:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/11/23 19:01	07/14/23 23:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		4.0	1.5	ng/L		07/11/23 19:01	07/14/23 23:15	1
F-53B Major	<0.24		2.0	0.24	ng/L		07/11/23 19:01	07/14/23 23:15	1
F-53B Minor	<0.32		2.0	0.32	ng/L		07/11/23 19:01	07/14/23 23:15	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*07/11/23 19:01*	*07/14/23 23:15*	*1*
13C5 PFPeA	*86*		*25 - 150*	*07/11/23 19:01*	*07/14/23 23:15*	*1*
13C2 PFHxA	*86*		*25 - 150*	*07/11/23 19:01*	*07/14/23 23:15*	*1*
13C4 PFHpA	*85*		*25 - 150*	*07/11/23 19:01*	*07/14/23 23:15*	*1*
13C4 PFOA	*88*		*25 - 150*	*07/11/23 19:01*	*07/14/23 23:15*	*1*

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

Lab Sample ID: MB 320-689766/1-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 689766

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	91		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 PFDA	95		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 PFUnA	85		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 PFDoA	87		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 PFTeDA	89		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 PFHxDA	76		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C3 PFBS	76		25 - 150	07/11/23 19:01	07/14/23 23:15	1
18O2 PFHxS	83		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C4 PFOS	84		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C8 FOSA	88		10 - 150	07/11/23 19:01	07/14/23 23:15	1
d3-NMeFOSAA	91		25 - 150	07/11/23 19:01	07/14/23 23:15	1
d5-NEtFOSAA	90		25 - 150	07/11/23 19:01	07/14/23 23:15	1
d-N-MeFOSA-M	76		10 - 150	07/11/23 19:01	07/14/23 23:15	1
d-N-EtFOSA-M	76		10 - 150	07/11/23 19:01	07/14/23 23:15	1
d7-N-MeFOSE-M	86		10 - 150	07/11/23 19:01	07/14/23 23:15	1
d9-N-EtFOSE-M	82		10 - 150	07/11/23 19:01	07/14/23 23:15	1
M2-4:2 FTS	94		25 - 150	07/11/23 19:01	07/14/23 23:15	1
M2-6:2 FTS	75		25 - 150	07/11/23 19:01	07/14/23 23:15	1
M2-8:2 FTS	86		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C3 HFPO-DA	82		25 - 150	07/11/23 19:01	07/14/23 23:15	1
13C2 10:2 FTS	90		25 - 150	07/11/23 19:01	07/14/23 23:15	1

Lab Sample ID: LCS 320-689766/2-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689766

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	41.2		ng/L		103	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	45.0		ng/L		112	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	44.4		ng/L		111	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	42.2		ng/L		105	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	43.2		ng/L		108	60 - 135
Perfluorononanoic acid (PFNA)	40.0	42.6		ng/L		106	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.9		ng/L		105	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	45.8		ng/L		114	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	43.6		ng/L		109	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	42.0		ng/L		105	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.3		ng/L		106	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	43.6		ng/L		109	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	25.3		ng/L		63	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	39.2		ng/L		110	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.5		ng/L		113	60 - 135

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

Lab Sample ID: LCS 320-689766/2-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689766

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.5		ng/L		105	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.4		ng/L		103	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	39.4		ng/L		106	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	40.9		ng/L		106	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	42.1		ng/L		109	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	37.3		ng/L		96	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	41.7		ng/L		104	60 - 135
NEtFOSA	40.0	43.5		ng/L		109	60 - 135
NMeFOSA	40.0	41.6		ng/L		104	60 - 135
NMeFOSAA	40.0	43.9		ng/L		110	60 - 135
NEtFOSAA	40.0	41.2		ng/L		103	60 - 135
NMeFOSE	40.0	42.1		ng/L		105	60 - 135
NEtFOSE	40.0	43.6		ng/L		109	60 - 135
4:2 FTS	37.5	37.9		ng/L		101	60 - 135
6:2 FTS	38.1	42.2		ng/L		111	60 - 135
8:2 FTS	38.4	39.8		ng/L		104	60 - 135
10:2 FTS	38.6	43.5		ng/L		113	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	44.1		ng/L		116	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	44.9		ng/L		112	60 - 135
F-53B Major	37.4	41.9		ng/L		112	60 - 135
F-53B Minor	37.8	41.5		ng/L		110	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*83*		*25 - 150*
13C5 PFPeA	*77*		*25 - 150*
13C2 PFHxA	*81*		*25 - 150*
13C4 PFHpA	*81*		*25 - 150*
13C4 PFOA	*86*		*25 - 150*
13C5 PFNA	*84*		*25 - 150*
13C2 PFDA	*88*		*25 - 150*
13C2 PFUnA	*79*		*25 - 150*
13C2 PFDoA	*88*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFHxDA	*81*		*25 - 150*
13C3 PFBS	*75*		*25 - 150*
18O2 PFHxS	*76*		*25 - 150*
13C4 PFOS	*78*		*25 - 150*
13C8 FOSA	*79*		*10 - 150*
d3-NMeFOSAA	*78*		*25 - 150*
d5-NEtFOSAA	*87*		*25 - 150*
d-N-MeFOSA-M	*72*		*10 - 150*
d-N-EtFOSA-M	*71*		*10 - 150*

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

Lab Sample ID: LCS 320-689766/2-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689766

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d7-N-MeFOSE-M	*79*		*10 - 150*
d9-N-EtFOSE-M	*73*		*10 - 150*
M2-4:2 FTS	*89*		*25 - 150*
M2-6:2 FTS	*81*		*25 - 150*
M2-8:2 FTS	*82*		*25 - 150*
13C3 HFPO-DA	*75*		*25 - 150*
13C2 10:2 FTS	*82*		*25 - 150*

Lab Sample ID: LCSD 320-689766/3-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 689766

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.5		ng/L		101	60 - 135	2	30
Perfluoropentanoic acid (PFPeA)			40.0	41.9		ng/L		105	60 - 135	7	30
Perfluorohexanoic acid (PFHxA)			40.0	40.5		ng/L		101	60 - 135	9	30
Perfluoroheptanoic acid (PFHpA)			40.0	43.7		ng/L		109	60 - 135	4	30
Perfluorooctanoic acid (PFOA)			40.0	41.7		ng/L		104	60 - 135	4	30
Perfluorononanoic acid (PFNA)			40.0	42.5		ng/L		106	60 - 135	0	30
Perfluorodecanoic acid (PFDA)			40.0	41.9		ng/L		105	60 - 135	0	30
Perfluoroundecanoic acid (PFUnA)			40.0	40.8		ng/L		102	60 - 135	11	30
Perfluorododecanoic acid (PFDoA)			40.0	42.3		ng/L		106	60 - 135	3	30
Perfluorotridecanoic acid (PFTriA)			40.0	40.7		ng/L		102	60 - 135	3	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.7		ng/L		99	60 - 135	6	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	43.3		ng/L		108	60 - 135	1	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	26.3		ng/L		66	60 - 135	4	30
Perfluorobutanesulfonic acid (PFBS)			35.5	37.2		ng/L		105	60 - 135	5	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	41.6		ng/L		111	60 - 135	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	38.0		ng/L		104	60 - 135	1	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	38.0		ng/L		99	60 - 135	4	30
Perfluorooctanesulfonic acid (PFOS)			37.2	38.8		ng/L		104	60 - 135	1	30
Perfluorononanesulfonic acid (PFNS)			38.5	39.3		ng/L		102	60 - 135	4	30
Perfluorodecanesulfonic acid (PFDS)			38.6	40.9		ng/L		106	60 - 135	3	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	37.9		ng/L		98	60 - 135	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	41.7		ng/L		104	60 - 135	0	30
NEtFOSA			40.0	43.4		ng/L		109	60 - 135	0	30
NMeFOSA			40.0	39.0		ng/L		97	60 - 135	7	30
NMeFOSAA			40.0	40.8		ng/L		102	60 - 135	7	30

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

Lab Sample ID: LCSD 320-689766/3-A
Matrix: Water
Analysis Batch: 690635

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 689766

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA			40.0	41.4		ng/L		103	60 - 135	0	30
NMeFOSE			40.0	41.2		ng/L		103	60 - 135	2	30
NEtFOSE			40.0	41.4		ng/L		103	60 - 135	5	30
4:2 FTS			37.5	36.2		ng/L		96	60 - 135	5	30
6:2 FTS			38.1	41.5		ng/L		109	60 - 135	2	30
8:2 FTS			38.4	40.1		ng/L		105	60 - 135	1	30
10:2 FTS			38.6	39.2		ng/L		101	60 - 135	10	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	41.3		ng/L		109	60 - 135	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	41.9		ng/L		105	60 - 135	7	30
F-53B Major			37.4	39.9		ng/L		107	60 - 135	5	30
F-53B Minor			37.8	39.8		ng/L		105	60 - 135	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*82*		*25 - 150*
13C5 PFPeA	*79*		*25 - 150*
13C2 PFHxA	*83*		*25 - 150*
13C4 PFHpA	*80*		*25 - 150*
13C4 PFOA	*85*		*25 - 150*
13C5 PFNA	*84*		*25 - 150*
13C2 PFDA	*88*		*25 - 150*
13C2 PFUnA	*86*		*25 - 150*
13C2 PFDoA	*89*		*25 - 150*
13C2 PFTeDA	*85*		*25 - 150*
13C2 PFHxDA	*78*		*25 - 150*
13C3 PFBS	*78*		*25 - 150*
18O2 PFHxS	*80*		*25 - 150*
13C4 PFOS	*81*		*25 - 150*
13C8 FOSA	*83*		*10 - 150*
d3-NMeFOSAA	*84*		*25 - 150*
d5-NEtFOSAA	*89*		*25 - 150*
d-N-MeFOSA-M	*75*		*10 - 150*
d-N-EtFOSA-M	*76*		*10 - 150*
d7-N-MeFOSE-M	*77*		*10 - 150*
d9-N-EtFOSE-M	*79*		*10 - 150*
M2-4:2 FTS	*92*		*25 - 150*
M2-6:2 FTS	*76*		*25 - 150*
M2-8:2 FTS	*84*		*25 - 150*
13C3 HFPO-DA	*79*		*25 - 150*
13C2 10:2 FTS	*92*		*25 - 150*

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236315-1
Date Collected: 07/07/23 10:30
Matrix: Water
Date Received: 07/08/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			689766	ERR	EET SAC	07/11/23 19:03
Total/NA	Analysis	537 (modified)		1	690635	S1C	EET SAC	07/15/23 02:08

Client Sample ID: V-900-A
Lab Sample ID: 500-236315-2
Date Collected: 07/07/23 10:50
Matrix: Water
Date Received: 07/08/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			689766	ERR	EET SAC	07/11/23 19:03
Total/NA	Analysis	537 (modified)		1	690635	S1C	EET SAC	07/15/23 02:19
Total/NA	Prep	3535	RA		689766	ERR	EET SAC	07/11/23 19:03
Total/NA	Analysis	537 (modified)	RA	1	691666	K1S	EET SAC	07/18/23 13:45

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: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

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

Eurofins TestAmerica, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of 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: Jacob Ominger	Date: 7-7-23	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
126 North Jefferson Street, Suite 400	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			Lab Sampling:
Project Name: Marinette, WI	☐ 2 weeks			Lab Project Number
Site: Marinette, WI	☑ 1 week			50015522
P O # 30171092.4.1.1 (WPDES)	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 Modified (36 Compounds)	Sample Specific Notes:
V-200-A	7-7-23	10:30	G	W	2	N	N	X	System Influent
V-900-A	↓	10:50	G	W	2	N	N	X	System Effluent

500-236315 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

5 day - TAT

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 3.4 Corr'd: 3.4	Therm ID No.: 102	
Relinquished by: Jacob Ominger	Company: Barley Excavating	Date/Time: 7-7-23/12:15	Received by: Fed Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company: FEDEX	Date/Time: 7/8/23 0840
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

7/19/2023

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-236315-1
SDG Number:

Login Number: 236315
List Number: 1
Creator: Fisher, Jamyiah L

List Source: Eurofins Sacramento
List Creation: 07/10/23 10:06 AM

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	2077439
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	3.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

500-236315 Field Sheet

Job: ____

Tracking # : 6374 2028 3362

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other ____

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

Therm. ID: 102 Corr. Factor: (+ / -) ____ °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: 2077434

Cooler ID: ____

Temp Observed: 3.4 °C Corrected: 3.4 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: NM Date: 7/6/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
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 require splitting/compositing?	☐	☐	☒
Samples w/o discrepancies?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

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

Initials: JF Date: 7/10/23

Notes: ____

Trizma Lot #(s): ____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☒	☐
Log Release checked in TALS?	☒	☐	☐

Initials: JF Date: 7/10/23

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
500-236315-1	V-200-A	83	78	79	80	87	83	87	81
500-236315-2	V-900-A	75	71	73	72	74	79	78	73
500-236315-2 - RA	V-900-A	64	67	68	71	71	77	75	71
LCS 320-689766/2-A	Lab Control Sample	83	77	81	81	86	84	88	79
LCSD 320-689766/3-A	Lab Control Sample Dup	82	79	83	80	85	84	88	86
MB 320-689766/1-A	Method Blank	85	86	86	85	88	91	95	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(10-150)	(25-150)
500-236315-1	V-200-A	75	66	36	77	78	78	89	84
500-236315-2	V-900-A	71	65	17 *	72	73	73	79	74
500-236315-2 - RA	V-900-A	74	59	17 *	66	69	66	67	54
LCS 320-689766/2-A	Lab Control Sample	88	81	81	75	76	78	79	78
LCSD 320-689766/3-A	Lab Control Sample Dup	89	85	78	78	80	81	83	84
MB 320-689766/1-A	Method Blank	87	89	76	76	83	84	88	91

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(10-150)	(10-150)	(10-150)	(10-150)	(25-150)	(25-150)	(25-150)
500-236315-1	V-200-A	90	71	67	70	72	81	79	86
500-236315-2	V-900-A	80	64	62	68	69	76	72	75
500-236315-2 - RA	V-900-A	59	53	55	56	57	60	66	72
LCS 320-689766/2-A	Lab Control Sample	87	72	71	79	73	89	81	82
LCSD 320-689766/3-A	Lab Control Sample Dup	89	75	76	77	79	92	76	84
MB 320-689766/1-A	Method Blank	90	76	76	86	82	94	75	86

		Percent Isotope Dilution Recovery (Acceptance Limits)	
		HFPODA	M102FTS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)
500-236315-1	V-200-A	73	80
500-236315-2	V-900-A	69	76
500-236315-2 - RA	V-900-A	69	80
LCS 320-689766/2-A	Lab Control Sample	75	82
LCSD 320-689766/3-A	Lab Control Sample Dup	79	92
MB 320-689766/1-A	Method Blank	82	90

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236315-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 7/21/2023 10:12:36 AM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 WPDES

JOB NUMBER

500-236652-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Eurofins Chicago

Job Notes

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

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

Authorization

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

Table of Contents

Job ID: 500-236652-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-236652-1

Receipt
The samples were received on 7/14/2023 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 1.0º C.

LCMS
Method 537 (modified): The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range: 500-236652-1. These analytes have been qualified; however, the peaks did not saturate the instrument detector. The samples were diluted within calibration range, and both sets of data were reported.

Method 537 (modified): Results for sample 500-236652-1 were reported from the analysis of a diluted extract due to high concentration of the matrix in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. The percent recovery for the internal standard in the 5X analysis is 92% after the dilution factor was applied to the labeled internal standard area count.

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

Organic Prep
Method 3535: The following samples in preparation batch 320-691259 were yellow in color prior to extraction. 500-236652-1 and 500-236652-2
Method: 3535 PFC-W
Matrix: Aqueous

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

Method Summary

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-236652-1	V-200-A	Water	07/11/23 10:30	07/14/23 09:30
500-236652-2	V-900-A	Water	07/11/23 10:35	07/14/23 09:30

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-236652-1

Client Sample ID: V-200-A
Date Collected: 07/11/23 10:30
Date Received: 07/14/23 09:30

Lab Sample ID: 500-236652-1
Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**27**		4.2	2.0	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoropentanoic acid (PFPeA)	**83**		1.7	0.41	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorohexanoic acid (PFHxA)	**74**		1.7	0.49	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoroheptanoic acid (PFHpA)	**59**		1.7	0.21	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorooctanoic acid (PFOA)	**300**		1.7	0.72	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorononanoic acid (PFNA)	**31**		1.7	0.23	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorodecanoic acid (PFDA)	**32**		1.7	0.26	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoroundecanoic acid (PFUnA)	**20**		1.7	0.93	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorododecanoic acid (PFDoA)	**2.2**		1.7	0.46	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorotridecanoic acid (PFTriA)	**1.7**		1.7	1.1	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorotetradecanoic acid (PFTeA)	<0.61		1.7	0.61	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.75		1.7	0.75	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.79		1.7	0.79	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorobutanesulfonic acid (PFBS)	**8.3**		1.7	0.17	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoropentanesulfonic acid (PFPeS)	**0.43**	**J**	1.7	0.25	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorohexanesulfonic acid (PFHxS)	**16**		1.7	0.48	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.97**	**J**	1.7	0.16	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorooctanesulfonic acid (PFOS)	**190**		1.7	0.45	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorononanesulfonic acid (PFNS)	<0.31		1.7	0.31	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorododecanesulfonic acid (PFDoS)	<0.82		1.7	0.82	ng/L		07/16/23 19:27	07/19/23 03:25	1
Perfluorooctanesulfonamide (FOSA)	**7.0**		1.7	0.83	ng/L		07/16/23 19:27	07/19/23 03:25	1
NEtFOSA	<0.73		1.7	0.73	ng/L		07/16/23 19:27	07/19/23 03:25	1
NMeFOSA	<0.36		1.7	0.36	ng/L		07/16/23 19:27	07/19/23 03:25	1
NMeFOSAA	<1.0		4.2	1.0	ng/L		07/16/23 19:27	07/19/23 03:25	1
NEtFOSAA	**2.0**	**J**	4.2	1.1	ng/L		07/16/23 19:27	07/19/23 03:25	1
NMeFOSE	<1.2		3.4	1.2	ng/L		07/16/23 19:27	07/19/23 03:25	1
NEtFOSE	<0.72		1.7	0.72	ng/L		07/16/23 19:27	07/19/23 03:25	1
4:2 FTS	**0.55**	**J**	1.7	0.20	ng/L		07/16/23 19:27	07/19/23 03:25	1
6:2 FTS	**130**		4.2	2.1	ng/L		07/16/23 19:27	07/19/23 03:25	1
8:2 FTS	**450**	**E**	1.7	0.39	ng/L		07/16/23 19:27	07/19/23 03:25	1
10:2 FTS	**32**		1.7	0.56	ng/L		07/16/23 19:27	07/19/23 03:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		07/16/23 19:27	07/19/23 03:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.4	1.3	ng/L		07/16/23 19:27	07/19/23 03:25	1
F-53B Major	<0.20		1.7	0.20	ng/L		07/16/23 19:27	07/19/23 03:25	1
F-53B Minor	<0.27		1.7	0.27	ng/L		07/16/23 19:27	07/19/23 03:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*73*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:25*	*1*
13C5 PFPeA	*78*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:25*	*1*

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-236652-1

Client Sample ID: V-200-A
Date Collected: 07/11/23 10:30
Date Received: 07/14/23 09:30

Lab Sample ID: 500-236652-1
Matrix: Water

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	70		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C4 PFHpA	78		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C4 PFOA	79		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C5 PFNA	78		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 PFDA	68		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 PFUnA	64		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 PFDoA	53		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 PFTeDA	47		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 PFHxDA	45		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C3 PFBS	79		25 - 150	07/16/23 19:27	07/19/23 03:25	1
18O2 PFHxS	83		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C4 PFOS	70		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C8 FOSA	70		10 - 150	07/16/23 19:27	07/19/23 03:25	1
d3-NMeFOSAA	72		25 - 150	07/16/23 19:27	07/19/23 03:25	1
d5-NEtFOSAA	69		25 - 150	07/16/23 19:27	07/19/23 03:25	1
d-N-MeFOSA-M	49		10 - 150	07/16/23 19:27	07/19/23 03:25	1
d-N-EtFOSA-M	49		10 - 150	07/16/23 19:27	07/19/23 03:25	1
d7-N-MeFOSE-M	44		10 - 150	07/16/23 19:27	07/19/23 03:25	1
d9-N-EtFOSE-M	52		10 - 150	07/16/23 19:27	07/19/23 03:25	1
M2-4:2 FTS	71		25 - 150	07/16/23 19:27	07/19/23 03:25	1
M2-6:2 FTS	66		25 - 150	07/16/23 19:27	07/19/23 03:25	1
M2-8:2 FTS	62		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C3 HFPO-DA	75		25 - 150	07/16/23 19:27	07/19/23 03:25	1
13C2 10:2 FTS	65		25 - 150	07/16/23 19:27	07/19/23 03:25	1

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**26**		21	10	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoropentanoic acid (PFPeA)	**72**		8.4	2.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorohexanoic acid (PFHxA)	**66**		8.4	2.4	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoroheptanoic acid (PFHpA)	**58**		8.4	1.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorooctanoic acid (PFOA)	**310**		8.4	3.6	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorononanoic acid (PFNA)	**31**		8.4	1.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorodecanoic acid (PFDA)	**32**		8.4	1.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoroundecanoic acid (PFUnA)	**20**		8.4	4.6	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorododecanoic acid (PFDoA)	<2.3		8.4	2.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorotridecanoic acid (PFTriA)	<5.5		8.4	5.5	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorotetradecanoic acid (PFTeA)	<3.1		8.4	3.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoro-n-hexadecanoic acid (PFHxDA)	<3.7		8.4	3.7	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoro-n-octadecanoic acid (PFODA)	<4.0		8.4	4.0	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorobutanesulfonic acid (PFBS)	**9.0**		8.4	0.84	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoropentanesulfonic acid (PFPeS)	<1.3		8.4	1.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorohexanesulfonic acid (PFHxS)	**15**		8.4	2.4	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluoroheptanesulfonic acid (PFHpS)	<0.80		8.4	0.80	ng/L		07/16/23 19:27	07/19/23 15:34	5

Client Sample ID: V-200-A
Date Collected: 07/11/23 10:30
Date Received: 07/14/23 09:30

Lab Sample ID: 500-236652-1
Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**180**		8.4	2.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorononanesulfonic acid (PFNS)	<1.6		8.4	1.6	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorodecanesulfonic acid (PFDS)	<1.3		8.4	1.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorododecanesulfonic acid (PFDoS)	<4.1		8.4	4.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
Perfluorooctanesulfonamide (FOSA)	**6.5**	**J**	8.4	4.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
NEtFOSA	<3.7		8.4	3.7	ng/L		07/16/23 19:27	07/19/23 15:34	5
NMeFOSA	<1.8		8.4	1.8	ng/L		07/16/23 19:27	07/19/23 15:34	5
NMeFOSAA	<5.1		21	5.1	ng/L		07/16/23 19:27	07/19/23 15:34	5
NEtFOSAA	<5.5		21	5.5	ng/L		07/16/23 19:27	07/19/23 15:34	5
NMeFOSE	<5.9		17	5.9	ng/L		07/16/23 19:27	07/19/23 15:34	5
NEtFOSE	<3.6		8.4	3.6	ng/L		07/16/23 19:27	07/19/23 15:34	5
4:2 FTS	<1.0		8.4	1.0	ng/L		07/16/23 19:27	07/19/23 15:34	5
6:2 FTS	**130**		21	11	ng/L		07/16/23 19:27	07/19/23 15:34	5
8:2 FTS	**470**		8.4	1.9	ng/L		07/16/23 19:27	07/19/23 15:34	5
10:2 FTS	**32**		8.4	2.8	ng/L		07/16/23 19:27	07/19/23 15:34	5
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.7		8.4	1.7	ng/L		07/16/23 19:27	07/19/23 15:34	5
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<6.3		17	6.3	ng/L		07/16/23 19:27	07/19/23 15:34	5
F-53B Major	<1.0		8.4	1.0	ng/L		07/16/23 19:27	07/19/23 15:34	5
F-53B Minor	<1.3		8.4	1.3	ng/L		07/16/23 19:27	07/19/23 15:34	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*106*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C5 PFPeA	*113*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFHxA	*109*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C4 PFHpA	*108*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C4 PFOA	*107*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C5 PFNA	*114*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFDA	*99*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFUnA	*96*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFDoA	*78*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFTeDA	*68*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C2 PFHxDA	*63*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C3 PFBS	*103*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
18O2 PFHxS	*111*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C4 PFOS	*113*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C8 FOSA	*106*		*10 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d3-NMeFOSAA	*96*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d5-NEtFOSAA	*92*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d-N-MeFOSA-M	*72*		*10 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d-N-EtFOSA-M	*69*		*10 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d7-N-MeFOSE-M	*65*		*10 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
d9-N-EtFOSE-M	*70*		*10 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
M2-4:2 FTS	*109*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
M2-6:2 FTS	*95*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
M2-8:2 FTS	*99*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*
13C3 HFPO-DA	*108*		*25 - 150*	*07/16/23 19:27*	*07/19/23 15:34*	*5*

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236652-1
Date Collected: 07/11/23 10:30
Matrix: Water
Date Received: 07/14/23 09:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 10:2 FTS	92		25 - 150	07/16/23 19:27	07/19/23 15:34	5

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-900-A
Lab Sample ID: 500-236652-2
Date Collected: 07/11/23 10:35
Matrix: Water
Date Received: 07/14/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.4	2.1	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoropentanoic acid (PFPeA)	<0.43		1.8	0.43	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorohexanoic acid (PFHxA)	<0.51		1.8	0.51	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.8	0.22	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorooctanoic acid (PFOA)	<0.75		1.8	0.75	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorotridecanoic acid (PFTriA)	<1.1		1.8	1.1	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.8	0.64	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.78		1.8	0.78	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.83		1.8	0.83	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.8	0.26	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.8	0.50	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.48		1.8	0.48	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		07/16/23 19:27	07/19/23 03:36	1
Perfluorooctanesulfonamide (FOSA)	<0.86		1.8	0.86	ng/L		07/16/23 19:27	07/19/23 03:36	1
NEtFOSA	<0.77		1.8	0.77	ng/L		07/16/23 19:27	07/19/23 03:36	1
NMeFOSA	<0.38		1.8	0.38	ng/L		07/16/23 19:27	07/19/23 03:36	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		07/16/23 19:27	07/19/23 03:36	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		07/16/23 19:27	07/19/23 03:36	1
NMeFOSE	<1.2		3.5	1.2	ng/L		07/16/23 19:27	07/19/23 03:36	1
NEtFOSE	<0.75		1.8	0.75	ng/L		07/16/23 19:27	07/19/23 03:36	1
4:2 FTS	<0.21		1.8	0.21	ng/L		07/16/23 19:27	07/19/23 03:36	1
6:2 FTS	<2.2		4.4	2.2	ng/L		07/16/23 19:27	07/19/23 03:36	1
8:2 FTS	**0.77**	**J**	1.8	0.41	ng/L		07/16/23 19:27	07/19/23 03:36	1
10:2 FTS	**2.1**		1.8	0.59	ng/L		07/16/23 19:27	07/19/23 03:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		07/16/23 19:27	07/19/23 03:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.5	1.3	ng/L		07/16/23 19:27	07/19/23 03:36	1
F-53B Major	<0.21		1.8	0.21	ng/L		07/16/23 19:27	07/19/23 03:36	1
F-53B Minor	<0.28		1.8	0.28	ng/L		07/16/23 19:27	07/19/23 03:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C5 PFPeA	*102*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C2 PFHxA	*101*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C4 PFHpA	*104*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C4 PFOA	*96*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C5 PFNA	*102*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*
13C2 PFDA	*91*		*25 - 150*	*07/16/23 19:27*	*07/19/23 03:36*	*1*

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-900-A
Lab Sample ID: 500-236652-2
Date Collected: 07/11/23 10:35
Matrix: Water
Date Received: 07/14/23 09:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	82		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C2 PFDoA	76		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C2 PFTeDA	67		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C2 PFHxDA	35		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C3 PFBS	93		25 - 150	07/16/23 19:27	07/19/23 03:36	1
18O2 PFHxS	97		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C4 PFOS	96		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C8 FOSA	90		10 - 150	07/16/23 19:27	07/19/23 03:36	1
d3-NMeFOSAA	86		25 - 150	07/16/23 19:27	07/19/23 03:36	1
d5-NEtFOSAA	87		25 - 150	07/16/23 19:27	07/19/23 03:36	1
d-N-MeFOSA-M	73		10 - 150	07/16/23 19:27	07/19/23 03:36	1
d-N-EtFOSA-M	77		10 - 150	07/16/23 19:27	07/19/23 03:36	1
d7-N-MeFOSE-M	78		10 - 150	07/16/23 19:27	07/19/23 03:36	1
d9-N-EtFOSE-M	80		10 - 150	07/16/23 19:27	07/19/23 03:36	1
M2-4:2 FTS	104		25 - 150	07/16/23 19:27	07/19/23 03:36	1
M2-6:2 FTS	78		25 - 150	07/16/23 19:27	07/19/23 03:36	1
M2-8:2 FTS	79		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C3 HFPO-DA	98		25 - 150	07/16/23 19:27	07/19/23 03:36	1
13C2 10:2 FTS	89		25 - 150	07/16/23 19:27	07/19/23 03:36	1

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Qualifiers

LCMS

Qualifier	Qualifier Description
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: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-691259/1-A
Matrix: Water
Analysis Batch: 691839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 691259

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		07/16/23 19:27	07/19/23 02:24	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		07/16/23 19:27	07/19/23 02:24	1
NEtFOSA	<0.87		2.0	0.87	ng/L		07/16/23 19:27	07/19/23 02:24	1
NMeFOSA	<0.43		2.0	0.43	ng/L		07/16/23 19:27	07/19/23 02:24	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		07/16/23 19:27	07/19/23 02:24	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		07/16/23 19:27	07/19/23 02:24	1
NMeFOSE	<1.4		4.0	1.4	ng/L		07/16/23 19:27	07/19/23 02:24	1
NEtFOSE	<0.85		2.0	0.85	ng/L		07/16/23 19:27	07/19/23 02:24	1
4:2 FTS	<0.24		2.0	0.24	ng/L		07/16/23 19:27	07/19/23 02:24	1
6:2 FTS	<2.5		5.0	2.5	ng/L		07/16/23 19:27	07/19/23 02:24	1
8:2 FTS	<0.46		2.0	0.46	ng/L		07/16/23 19:27	07/19/23 02:24	1
10:2 FTS	<0.67		2.0	0.67	ng/L		07/16/23 19:27	07/19/23 02:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		07/16/23 19:27	07/19/23 02:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		4.0	1.5	ng/L		07/16/23 19:27	07/19/23 02:24	1
F-53B Major	<0.24		2.0	0.24	ng/L		07/16/23 19:27	07/19/23 02:24	1
F-53B Minor	<0.32		2.0	0.32	ng/L		07/16/23 19:27	07/19/23 02:24	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*07/16/23 19:27*	*07/19/23 02:24*	*1*
13C5 PFPeA	*89*		*25 - 150*	*07/16/23 19:27*	*07/19/23 02:24*	*1*
13C2 PFHxA	*88*		*25 - 150*	*07/16/23 19:27*	*07/19/23 02:24*	*1*
13C4 PFHpA	*88*		*25 - 150*	*07/16/23 19:27*	*07/19/23 02:24*	*1*
13C4 PFOA	*88*		*25 - 150*	*07/16/23 19:27*	*07/19/23 02:24*	*1*

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

Lab Sample ID: MB 320-691259/1-A
Matrix: Water
Analysis Batch: 691839

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 691259

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	95		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 PFDA	83		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 PFUnA	84		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 PFDoA	84		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 PFTeDA	82		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 PFHxDA	65		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C3 PFBS	85		25 - 150	07/16/23 19:27	07/19/23 02:24	1
18O2 PFHxS	84		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C4 PFOS	88		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C8 FOSA	81		10 - 150	07/16/23 19:27	07/19/23 02:24	1
d3-NMeFOSAA	86		25 - 150	07/16/23 19:27	07/19/23 02:24	1
d5-NEtFOSAA	95		25 - 150	07/16/23 19:27	07/19/23 02:24	1
d-N-MeFOSA-M	65		10 - 150	07/16/23 19:27	07/19/23 02:24	1
d-N-EtFOSA-M	67		10 - 150	07/16/23 19:27	07/19/23 02:24	1
d7-N-MeFOSE-M	79		10 - 150	07/16/23 19:27	07/19/23 02:24	1
d9-N-EtFOSE-M	79		10 - 150	07/16/23 19:27	07/19/23 02:24	1
M2-4:2 FTS	84		25 - 150	07/16/23 19:27	07/19/23 02:24	1
M2-6:2 FTS	73		25 - 150	07/16/23 19:27	07/19/23 02:24	1
M2-8:2 FTS	78		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C3 HFPO-DA	89		25 - 150	07/16/23 19:27	07/19/23 02:24	1
13C2 10:2 FTS	99		25 - 150	07/16/23 19:27	07/19/23 02:24	1

Lab Sample ID: LCS 320-691259/2-A
Matrix: Water
Analysis Batch: 691839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 691259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	38.3		ng/L		96	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	39.7		ng/L		99	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	36.6		ng/L		92	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.0		ng/L		103	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	40.5		ng/L		101	60 - 135
Perfluorononanoic acid (PFNA)	40.0	39.8		ng/L		99	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	38.7		ng/L		97	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	40.5		ng/L		101	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	39.5		ng/L		99	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	33.9		ng/L		85	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	38.7		ng/L		97	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	42.7		ng/L		107	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	28.2		ng/L		70	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	36.1		ng/L		102	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	37.8		ng/L		100	60 - 135

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

Lab Sample ID: LCS 320-691259/2-A
Matrix: Water
Analysis Batch: 691839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 691259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.6		ng/L		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	34.9		ng/L		92	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	36.2		ng/L		97	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	37.1		ng/L		96	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	34.0		ng/L		88	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	38.4		ng/L		96	60 - 135
NEtFOSA	40.0	40.4		ng/L		101	60 - 135
NMeFOSA	40.0	41.1		ng/L		103	60 - 135
NMeFOSAA	40.0	39.2		ng/L		98	60 - 135
NEtFOSAA	40.0	40.0		ng/L		100	60 - 135
NMeFOSE	40.0	39.1		ng/L		98	60 - 135
NEtFOSE	40.0	37.9		ng/L		95	60 - 135
4:2 FTS	37.5	38.2		ng/L		102	60 - 135
6:2 FTS	38.1	39.3		ng/L		103	60 - 135
8:2 FTS	38.4	39.5		ng/L		103	60 - 135
10:2 FTS	38.6	35.4		ng/L		92	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	40.3		ng/L		106	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	40.8		ng/L		102	60 - 135
F-53B Major	37.4	36.3		ng/L		97	60 - 135
F-53B Minor	37.8	33.2		ng/L		88	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*91*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*93*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*96*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2 PFTeDA	*95*		*25 - 150*
13C2 PFHxDA	*81*		*25 - 150*
13C3 PFBS	*88*		*25 - 150*
18O2 PFHxS	*90*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*89*		*10 - 150*
d3-NMeFOSAA	*93*		*25 - 150*
d5-NEtFOSAA	*96*		*25 - 150*
d-N-MeFOSA-M	*76*		*10 - 150*
d-N-EtFOSA-M	*78*		*10 - 150*

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

Lab Sample ID: LCS 320-691259/2-A
Matrix: Water
Analysis Batch: 691839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 691259

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
d7-N-MeFOSE-M	88		10 - 150
d9-N-EtFOSE-M	88		10 - 150
M2-4:2 FTS	94		25 - 150
M2-6:2 FTS	78		25 - 150
M2-8:2 FTS	83		25 - 150
13C3 HFPO-DA	89		25 - 150
13C2 10:2 FTS	106		25 - 150

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-236652-1
Date Collected: 07/11/23 10:30
Matrix: Water
Date Received: 07/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			691259	ERR	EET SAC	07/16/23 19:27
Total/NA	Analysis	537 (modified)		1	691839	S1C	EET SAC	07/19/23 03:25
Total/NA	Prep	3535	DL		691259	ERR	EET SAC	07/16/23 19:27
Total/NA	Analysis	537 (modified)	DL	5	692060	K1S	EET SAC	07/19/23 15:34

Client Sample ID: V-900-A
Lab Sample ID: 500-236652-2
Date Collected: 07/11/23 10:35
Matrix: Water
Date Received: 07/14/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			691259	ERR	EET SAC	07/16/23 19:27
Total/NA	Analysis	537 (modified)		1	691839	S1C	EET SAC	07/19/23 03:36

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: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

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

Eurofins TestA(ca, Sacramento
880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain Custody Record

eurofins Environment Testing TestAmerica

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

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: Jacob Naminger	Date: 7-11-23	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
126 North Jefferson Street, Suite 400	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 ____			Lab Sampling:
Project Name: Marinette, WI	☐ 2 weeks			Lab Project Number
Site: Marinette, WI	☑ 1 week			50015522
P O # 30171092.4.1.1 (WPDES)	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	EPA 537 Modified (36 Compounds)	Sample Specific Notes:
V-200-A	7-11-23	10:30	G	W	2	N	N	X	System Influent
V-900-A	↓	10:35	G	W	2	N	N	X	System Effluent

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

5 day-TAT

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 1.0	Corr'd: 1.0	Therm ID No.: LIO
Relinquished by: Jacob Naminger	Company: Barley Excavating	Date/Time: 7-12-23 11:45	Received by: Fed Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time: 7/14/23 930
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

7/21/2023

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-236652-1
SDG Number:

Login Number: 236652
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 07/14/23 04:48 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	2159421
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0C
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento
Sample Receiving Notes

500-236652 Field Sheet

Job: _____

Tracking # : 6374 2028 3340

SO / CO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

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

Therm. ID: 40 Corr. Factor: (+ / -) _____ °C

Ice _____ Wet _____ Gel _____ Other _____

Cooler Custody Seal: 2159421

Cooler ID: _____

Temp Observed: 1.0 °C Corrected: 1.0 °C

From: Temp Blank ☑ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: JF Date: 7/14/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☑	☐	☐
Samples compromised/tampered with?	☐	☑	☐
Containers are not broken or leaking?	☑	☐	☐
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 require splitting/compositing?	☐	☐	☑
Samples w/o discrepancies?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐

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

Initials: SG Date: 7/14/23

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
Samples received within hold time?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: B Date: 7/14/23

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
500-236652-1	V-200-A	73	78	70	78	79	78	68	64
500-236652-1 - DL	V-200-A	106	113	109	108	107	114	99	96
500-236652-2	V-900-A	97	102	101	104	96	102	91	82
LCS 320-691259/2-A	Lab Control Sample	91	93	95	93	92	96	90	88
MB 320-691259/1-A	Method Blank	90	89	88	88	88	95	83	84

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(10-150)	(25-150)
500-236652-1	V-200-A	53	47	45	79	83	70	70	72
500-236652-1 - DL	V-200-A	78	68	63	103	111	113	106	96
500-236652-2	V-900-A	76	67	35	93	97	96	90	86
LCS 320-691259/2-A	Lab Control Sample	92	95	81	88	90	93	89	93
MB 320-691259/1-A	Method Blank	84	82	65	85	84	88	81	86

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(10-150)	(10-150)	(10-150)	(10-150)	(25-150)	(25-150)	(25-150)
500-236652-1	V-200-A	69	49	49	44	52	71	66	62
500-236652-1 - DL	V-200-A	92	72	69	65	70	109	95	99
500-236652-2	V-900-A	87	73	77	78	80	104	78	79
LCS 320-691259/2-A	Lab Control Sample	96	76	78	88	88	94	78	83
MB 320-691259/1-A	Method Blank	95	65	67	79	79	84	73	78

		Percent Isotope Dilution Recovery (Acceptance Limits)	
		HFPODA	M102FTS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)
500-236652-1	V-200-A	75	65
500-236652-1 - DL	V-200-A	108	92
500-236652-2	V-900-A	98	89
LCS 320-691259/2-A	Lab Control Sample	89	106
MB 320-691259/1-A	Method Blank	89	99

Surrogate Legend

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

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236652-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 WPDES

JOB NUMBER

500-237749-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Eurofins Chicago

Job Notes

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

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

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

Authorization

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

Table of Contents

Job ID: 500-237749-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-237749-1

Receipt
The samples were received on 8/5/2023 11:30 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 0.7º C.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-697774.
3535 PFC
Water
preparation batch 320-697774

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
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-237749-1	V-200-A	Water	08/04/23 09:00	08/05/23 11:30
500-237749-2	V-900-A	Water	08/04/23 09:05	08/05/23 11:30

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-237749-1
Date Collected: 08/04/23 09:00
Matrix: Water
Date Received: 08/05/23 11:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**6.7**		4.5	2.2	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoropentanoic acid (PFPeA)	**16**		1.8	0.44	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorohexanoic acid (PFHxA)	**11**		1.8	0.52	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoroheptanoic acid (PFHpA)	**10**		1.8	0.23	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorooctanoic acid (PFOA)	**24**		1.8	0.77	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorononanoic acid (PFNA)	**6.2**		1.8	0.24	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorodecanoic acid (PFDA)	**8.0**		1.8	0.28	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoroundecanoic acid (PFUnA)	**9.1**		1.8	0.99	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorododecanoic acid (PFDoA)	**1.4**	**J**	1.8	0.50	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.80		1.8	0.80	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.85		1.8	0.85	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorobutanesulfonic acid (PFBS)	**2.4**		1.8	0.18	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoropentanesulfonic acid (PFPeS)	<0.27		1.8	0.27	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorohexanesulfonic acid (PFHxS)	**2.5**		1.8	0.51	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorooctanesulfonic acid (PFOS)	**30**		1.8	0.49	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorododecanesulfonic acid (PFDoS)	<0.87		1.8	0.87	ng/L		08/11/23 09:40	08/13/23 06:38	1
Perfluorooctanesulfonamide (FOSA)	**2.5**		1.8	0.88	ng/L		08/11/23 09:40	08/13/23 06:38	1
NEtFOSA	<0.78		1.8	0.78	ng/L		08/11/23 09:40	08/13/23 06:38	1
NMeFOSA	<0.39		1.8	0.39	ng/L		08/11/23 09:40	08/13/23 06:38	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		08/11/23 09:40	08/13/23 06:38	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		08/11/23 09:40	08/13/23 06:38	1
NMeFOSE	<1.3		3.6	1.3	ng/L		08/11/23 09:40	08/13/23 06:38	1
NEtFOSE	<0.77		1.8	0.77	ng/L		08/11/23 09:40	08/13/23 06:38	1
4:2 FTS	<0.22		1.8	0.22	ng/L		08/11/23 09:40	08/13/23 06:38	1
6:2 FTS	**11**		4.5	2.3	ng/L		08/11/23 09:40	08/13/23 06:38	1
8:2 FTS	**50**		1.8	0.41	ng/L		08/11/23 09:40	08/13/23 06:38	1
10:2 FTS	**26**		1.8	0.60	ng/L		08/11/23 09:40	08/13/23 06:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		08/11/23 09:40	08/13/23 06:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.4		3.6	1.4	ng/L		08/11/23 09:40	08/13/23 06:38	1
F-53B Major	<0.22		1.8	0.22	ng/L		08/11/23 09:40	08/13/23 06:38	1
F-53B Minor	<0.29		1.8	0.29	ng/L		08/11/23 09:40	08/13/23 06:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:38*	*1*
13C5 PFPeA	*98*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:38*	*1*

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-237749-1
Date Collected: 08/04/23 09:00
Matrix: Water
Date Received: 08/05/23 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C4 PFHpA	102		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C4 PFOA	104		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C5 PFNA	100		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 PFDA	101		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 PFUnA	91		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 PFDoA	77		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 PFTeDA	48		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 PFHxDA	71		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C3 PFBS	98		25 - 150	08/11/23 09:40	08/13/23 06:38	1
18O2 PFHxS	110		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C4 PFOS	99		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C8 FOSA	103		10 - 150	08/11/23 09:40	08/13/23 06:38	1
d3-NMeFOSAA	95		25 - 150	08/11/23 09:40	08/13/23 06:38	1
d5-NEtFOSAA	89		25 - 150	08/11/23 09:40	08/13/23 06:38	1
d-N-MeFOSA-M	69		10 - 150	08/11/23 09:40	08/13/23 06:38	1
d-N-EtFOSA-M	61		10 - 150	08/11/23 09:40	08/13/23 06:38	1
d7-N-MeFOSE-M	68		10 - 150	08/11/23 09:40	08/13/23 06:38	1
d9-N-EtFOSE-M	55		10 - 150	08/11/23 09:40	08/13/23 06:38	1
M2-4:2 FTS	101		25 - 150	08/11/23 09:40	08/13/23 06:38	1
M2-6:2 FTS	105		25 - 150	08/11/23 09:40	08/13/23 06:38	1
M2-8:2 FTS	112		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C3 HFPO-DA	90		25 - 150	08/11/23 09:40	08/13/23 06:38	1
13C2 10:2 FTS	80		25 - 150	08/11/23 09:40	08/13/23 06:38	1

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-237749-1

Client Sample ID: V-900-A
Date Collected: 08/04/23 09:05
Date Received: 08/05/23 11:30

Lab Sample ID: 500-237749-2
Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.5	2.1	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoropentanoic acid (PFPeA)	<0.44		1.8	0.44	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorohexanoic acid (PFHxA)	<0.52		1.8	0.52	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.8	0.22	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorooctanoic acid (PFOA)	<0.76		1.8	0.76	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoroundecanoic acid (PFUnA)	<0.98		1.8	0.98	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorotridecanoic acid (PFTriA)	<1.2		1.8	1.2	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorotetradecanoic acid (PFTeA)	<0.65		1.8	0.65	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.79		1.8	0.79	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.84		1.8	0.84	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoropentanesulfonic acid (PFPeS)	<0.27		1.8	0.27	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorohexanesulfonic acid (PFHxS)	<0.51		1.8	0.51	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorooctanesulfonic acid (PFOS)	<0.48		1.8	0.48	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		08/11/23 09:40	08/13/23 06:49	1
Perfluorooctanesulfonamide (FOSA)	<0.87		1.8	0.87	ng/L		08/11/23 09:40	08/13/23 06:49	1
NEtFOSA	<0.77		1.8	0.77	ng/L		08/11/23 09:40	08/13/23 06:49	1
NMeFOSA	<0.38		1.8	0.38	ng/L		08/11/23 09:40	08/13/23 06:49	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		08/11/23 09:40	08/13/23 06:49	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		08/11/23 09:40	08/13/23 06:49	1
NMeFOSE	<1.2		3.6	1.2	ng/L		08/11/23 09:40	08/13/23 06:49	1
NEtFOSE	<0.76		1.8	0.76	ng/L		08/11/23 09:40	08/13/23 06:49	1
4:2 FTS	<0.21		1.8	0.21	ng/L		08/11/23 09:40	08/13/23 06:49	1
6:2 FTS	<2.2		4.5	2.2	ng/L		08/11/23 09:40	08/13/23 06:49	1
8:2 FTS	<0.41		1.8	0.41	ng/L		08/11/23 09:40	08/13/23 06:49	1
10:2 FTS	**2.3**		1.8	0.60	ng/L		08/11/23 09:40	08/13/23 06:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		08/11/23 09:40	08/13/23 06:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.3		3.6	1.3	ng/L		08/11/23 09:40	08/13/23 06:49	1
F-53B Major	<0.21		1.8	0.21	ng/L		08/11/23 09:40	08/13/23 06:49	1
F-53B Minor	<0.28		1.8	0.28	ng/L		08/11/23 09:40	08/13/23 06:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C5 PFPeA	*89*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C2 PFHxA	*92*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C4 PFHpA	*100*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C5 PFNA	*92*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*
13C2 PFDA	*87*		*25 - 150*	*08/11/23 09:40*	*08/13/23 06:49*	*1*

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-900-A
Lab Sample ID: 500-237749-2
Date Collected: 08/04/23 09:05
Matrix: Water
Date Received: 08/05/23 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	66		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C2 PFDoA	44		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C2 PFTeDA	33		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C2 PFHxDA	75		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C3 PFBS	100		25 - 150	08/11/23 09:40	08/13/23 06:49	1
18O2 PFHxS	104		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C4 PFOS	92		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C8 FOSA	87		10 - 150	08/11/23 09:40	08/13/23 06:49	1
d3-NMeFOSAA	67		25 - 150	08/11/23 09:40	08/13/23 06:49	1
d5-NEtFOSAA	54		25 - 150	08/11/23 09:40	08/13/23 06:49	1
d-N-MeFOSA-M	37		10 - 150	08/11/23 09:40	08/13/23 06:49	1
d-N-EtFOSA-M	28		10 - 150	08/11/23 09:40	08/13/23 06:49	1
d7-N-MeFOSE-M	34		10 - 150	08/11/23 09:40	08/13/23 06:49	1
d9-N-EtFOSE-M	31		10 - 150	08/11/23 09:40	08/13/23 06:49	1
M2-4:2 FTS	102		25 - 150	08/11/23 09:40	08/13/23 06:49	1
M2-6:2 FTS	108		25 - 150	08/11/23 09:40	08/13/23 06:49	1
M2-8:2 FTS	99		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C3 HFPO-DA	91		25 - 150	08/11/23 09:40	08/13/23 06:49	1
13C2 10:2 FTS	39		25 - 150	08/11/23 09:40	08/13/23 06:49	1

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 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: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-697774/1-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697774

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorotridecanoic acid (PFTriA)	<1.3		2.0	1.3	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<0.89		2.0	0.89	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoro-n-octadecanoic acid (PFODA)	<0.94		2.0	0.94	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		08/11/23 09:40	08/13/23 03:17	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		08/11/23 09:40	08/13/23 03:17	1
NEtFOSA	<0.87		2.0	0.87	ng/L		08/11/23 09:40	08/13/23 03:17	1
NMeFOSA	<0.43		2.0	0.43	ng/L		08/11/23 09:40	08/13/23 03:17	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		08/11/23 09:40	08/13/23 03:17	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		08/11/23 09:40	08/13/23 03:17	1
NMeFOSE	<1.4		4.0	1.4	ng/L		08/11/23 09:40	08/13/23 03:17	1
NEtFOSE	<0.85		2.0	0.85	ng/L		08/11/23 09:40	08/13/23 03:17	1
4:2 FTS	<0.24		2.0	0.24	ng/L		08/11/23 09:40	08/13/23 03:17	1
6:2 FTS	<2.5		5.0	2.5	ng/L		08/11/23 09:40	08/13/23 03:17	1
8:2 FTS	<0.46		2.0	0.46	ng/L		08/11/23 09:40	08/13/23 03:17	1
10:2 FTS	<0.67		2.0	0.67	ng/L		08/11/23 09:40	08/13/23 03:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		08/11/23 09:40	08/13/23 03:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<1.5		4.0	1.5	ng/L		08/11/23 09:40	08/13/23 03:17	1
F-53B Major	<0.24		2.0	0.24	ng/L		08/11/23 09:40	08/13/23 03:17	1
F-53B Minor	<0.32		2.0	0.32	ng/L		08/11/23 09:40	08/13/23 03:17	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*25 - 150*	*08/11/23 09:40*	*08/13/23 03:17*	*1*
13C5 PFPeA	*90*		*25 - 150*	*08/11/23 09:40*	*08/13/23 03:17*	*1*
13C2 PFHxA	*93*		*25 - 150*	*08/11/23 09:40*	*08/13/23 03:17*	*1*
13C4 PFHpA	*98*		*25 - 150*	*08/11/23 09:40*	*08/13/23 03:17*	*1*
13C4 PFOA	*98*		*25 - 150*	*08/11/23 09:40*	*08/13/23 03:17*	*1*

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

Lab Sample ID: MB 320-697774/1-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 697774

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	96		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 PFDA	97		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 PFUnA	93		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 PFDoA	92		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 PFTeDA	84		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 PFHxDA	84		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C3 PFBS	92		25 - 150	08/11/23 09:40	08/13/23 03:17	1
18O2 PFHxS	100		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C4 PFOS	96		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C8 FOSA	99		10 - 150	08/11/23 09:40	08/13/23 03:17	1
d3-NMeFOSAA	96		25 - 150	08/11/23 09:40	08/13/23 03:17	1
d5-NEtFOSAA	100		25 - 150	08/11/23 09:40	08/13/23 03:17	1
d-N-MeFOSA-M	80		10 - 150	08/11/23 09:40	08/13/23 03:17	1
d-N-EtFOSA-M	74		10 - 150	08/11/23 09:40	08/13/23 03:17	1
d7-N-MeFOSE-M	84		10 - 150	08/11/23 09:40	08/13/23 03:17	1
d9-N-EtFOSE-M	85		10 - 150	08/11/23 09:40	08/13/23 03:17	1
M2-4:2 FTS	112		25 - 150	08/11/23 09:40	08/13/23 03:17	1
M2-6:2 FTS	104		25 - 150	08/11/23 09:40	08/13/23 03:17	1
M2-8:2 FTS	110		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C3 HFPO-DA	90		25 - 150	08/11/23 09:40	08/13/23 03:17	1
13C2 10:2 FTS	87		25 - 150	08/11/23 09:40	08/13/23 03:17	1

Lab Sample ID: LCS 320-697774/2-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697774

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	45.0		ng/L		113	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	44.3		ng/L		111	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.4		ng/L		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	40.1		ng/L		100	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	41.8		ng/L		105	60 - 135
Perfluorononanoic acid (PFNA)	40.0	41.3		ng/L		103	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	39.3		ng/L		98	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	44.6		ng/L		112	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	40.9		ng/L		102	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	40.5		ng/L		101	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	40.4		ng/L		101	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	40.7		ng/L		102	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	45.2		ng/L		113	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	35.3		ng/L		100	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	39.1		ng/L		104	60 - 135

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

Lab Sample ID: LCS 320-697774/2-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697774

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.8		ng/L		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.9		ng/L		104	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	37.3		ng/L		100	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	36.3		ng/L		94	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	39.1		ng/L		102	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	35.6		ng/L		92	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	40.8		ng/L		102	60 - 135
NEtFOSA	40.0	42.7		ng/L		107	60 - 135
NMeFOSA	40.0	41.2		ng/L		103	60 - 135
NMeFOSAA	40.0	41.2		ng/L		103	60 - 135
NEtFOSAA	40.0	42.1		ng/L		105	60 - 135
NMeFOSE	40.0	42.0		ng/L		105	60 - 135
NEtFOSE	40.0	41.1		ng/L		103	60 - 135
4:2 FTS	37.5	37.1		ng/L		99	60 - 135
6:2 FTS	38.1	35.5		ng/L		93	60 - 135
8:2 FTS	38.4	39.5		ng/L		103	60 - 135
10:2 FTS	38.6	41.3		ng/L		107	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	37.9		ng/L		100	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	39.4		ng/L		99	60 - 135
F-53B Major	37.4	35.7		ng/L		96	60 - 135
F-53B Minor	37.8	34.3		ng/L		91	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*93*		*25 - 150*
13C5 PFPeA	*91*		*25 - 150*
13C2 PFHxA	*93*		*25 - 150*
13C4 PFHpA	*98*		*25 - 150*
13C4 PFOA	*100*		*25 - 150*
13C5 PFNA	*98*		*25 - 150*
13C2 PFDA	*105*		*25 - 150*
13C2 PFUnA	*94*		*25 - 150*
13C2 PFDoA	*95*		*25 - 150*
13C2 PFTeDA	*85*		*25 - 150*
13C2 PFHxDA	*95*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*103*		*25 - 150*
13C4 PFOS	*103*		*25 - 150*
13C8 FOSA	*96*		*10 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*94*		*25 - 150*
d-N-MeFOSA-M	*82*		*10 - 150*
d-N-EtFOSA-M	*77*		*10 - 150*

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

Lab Sample ID: LCS 320-697774/2-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 697774

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
d7-N-MeFOSE-M	*86*		*10 - 150*
d9-N-EtFOSE-M	*85*		*10 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*109*		*25 - 150*
M2-8:2 FTS	*106*		*25 - 150*
13C3 HFPO-DA	*95*		*25 - 150*
13C2 10:2 FTS	*89*		*25 - 150*

Lab Sample ID: LCSD 320-697774/3-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 697774

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	42.9		ng/L		107	60 - 135	5	30
Perfluoropentanoic acid (PFPeA)			40.0	38.0		ng/L		95	60 - 135	15	30
Perfluorohexanoic acid (PFHxA)			40.0	39.4		ng/L		99	60 - 135	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.7		ng/L		97	60 - 135	3	30
Perfluorooctanoic acid (PFOA)			40.0	39.6		ng/L		99	60 - 135	6	30
Perfluorononanoic acid (PFNA)			40.0	40.9		ng/L		102	60 - 135	1	30
Perfluorodecanoic acid (PFDA)			40.0	39.6		ng/L		99	60 - 135	1	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.1		ng/L		98	60 - 135	13	30
Perfluorododecanoic acid (PFDoA)			40.0	42.7		ng/L		107	60 - 135	4	30
Perfluorotridecanoic acid (PFTriA)			40.0	41.2		ng/L		103	60 - 135	2	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.3		ng/L		98	60 - 135	3	30
Perfluoro-n-hexadecanoic acid (PFHxDA)			40.0	39.0		ng/L		97	60 - 135	4	30
Perfluoro-n-octadecanoic acid (PFODA)			40.0	44.8		ng/L		112	60 - 135	1	30
Perfluorobutanesulfonic acid (PFBS)			35.5	36.0		ng/L		101	60 - 135	2	30
Perfluoropentanesulfonic acid (PFPeS)			37.6	38.1		ng/L		101	60 - 135	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.5		ng/L		95	60 - 135	4	30
Perfluoroheptanesulfonic acid (PFHpS)			38.2	39.6		ng/L		104	60 - 135	1	30
Perfluorooctanesulfonic acid (PFOS)			37.2	37.5		ng/L		101	60 - 135	1	30
Perfluorononanesulfonic acid (PFNS)			38.5	37.0		ng/L		96	60 - 135	2	30
Perfluorodecanesulfonic acid (PFDS)			38.6	37.4		ng/L		97	60 - 135	4	30
Perfluorododecanesulfonic acid (PFDoS)			38.8	36.9		ng/L		95	60 - 135	4	30
Perfluorooctanesulfonamide (FOSA)			40.0	38.9		ng/L		97	60 - 135	5	30
NEtFOSA			40.0	40.9		ng/L		102	60 - 135	4	30
NMeFOSA			40.0	42.0		ng/L		105	60 - 135	2	30
NMeFOSAA			40.0	39.3		ng/L		98	60 - 135	5	30

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

Lab Sample ID: LCSD 320-697774/3-A
Matrix: Water
Analysis Batch: 698226

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 697774

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
NEtFOSAA			40.0	37.7		ng/L		94	60 - 135	11	30
NMeFOSE			40.0	39.8		ng/L		100	60 - 135	5	30
NEtFOSE			40.0	38.3		ng/L		96	60 - 135	7	30
4:2 FTS			37.5	37.3		ng/L		99	60 - 135	0	30
6:2 FTS			38.1	36.2		ng/L		95	60 - 135	2	30
8:2 FTS			38.4	38.2		ng/L		100	60 - 135	3	30
10:2 FTS			38.6	38.5		ng/L		100	60 - 135	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.8	39.1		ng/L		103	60 - 135	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	42.0		ng/L		105	60 - 135	6	30
F-53B Major			37.4	35.9		ng/L		96	60 - 135	0	30
F-53B Minor			37.8	35.0		ng/L		93	60 - 135	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*101*		*25 - 150*
13C5 PFPeA	*100*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*102*		*25 - 150*
13C4 PFOA	*104*		*25 - 150*
13C5 PFNA	*98*		*25 - 150*
13C2 PFDA	*101*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*94*		*25 - 150*
13C2 PFTeDA	*88*		*25 - 150*
13C2 PFHxDA	*93*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
18O2 PFHxS	*109*		*25 - 150*
13C4 PFOS	*104*		*25 - 150*
13C8 FOSA	*106*		*10 - 150*
d3-NMeFOSAA	*103*		*25 - 150*
d5-NEtFOSAA	*103*		*25 - 150*
d-N-MeFOSA-M	*92*		*10 - 150*
d-N-EtFOSA-M	*91*		*10 - 150*
d7-N-MeFOSE-M	*95*		*10 - 150*
d9-N-EtFOSE-M	*91*		*10 - 150*
M2-4:2 FTS	*104*		*25 - 150*
M2-6:2 FTS	*111*		*25 - 150*
M2-8:2 FTS	*113*		*25 - 150*
13C3 HFPO-DA	*89*		*25 - 150*
13C2 10:2 FTS	*94*		*25 - 150*

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Client Sample ID: V-200-A
Lab Sample ID: 500-237749-1
Date Collected: 08/04/23 09:00
Matrix: Water
Date Received: 08/05/23 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			697774	VP	EET SAC	08/11/23 09:40
Total/NA	Analysis	537 (modified)		1	698226	D1R	EET SAC	08/13/23 06:38

Client Sample ID: V-900-A
Lab Sample ID: 500-237749-2
Date Collected: 08/04/23 09:05
Matrix: Water
Date Received: 08/05/23 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			697774	VP	EET SAC	08/11/23 09:40
Total/NA	Analysis	537 (modified)		1	698226	D1R	EET SAC	08/13/23 06:49

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: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Laboratory: Eurofins Sacramento

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

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

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

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

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

Client Contact	Project Manager: Lisa Rutkowski	Sampler: Jacob Hamlinger	Date: 8-4-23	COC No: 1
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: FedEx	1 of 1 COCs
126 North Jefferson Street, Suite 400	Tel/Fax: N/A			
Milwaukee, WI 53202	Analysis Turnaround Time: ☐ CALENDAR DAYS ☑ WORKING DAYS			For Lab Use Only:
Phone	TAT if different from Below ____			Walk-in Client:
FAX	☐ 2 weeks			Lab Sampling:
Project Name: Marinette, WI	☑ 1 week			Lab Project Number: 50015522
Site: Marinette, WI	☐ 2 days			
P O # 30171092.4.1.1 (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)	EPA 537 Modified (36 Compounds)	Sample Specific Notes:
V-200-A	8-4-23	9:00	G	W	2	N	N	X	System Influent
V-900-A	↓	9:05	G	W	2	N	N	X	System Effluent

500-237749 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 5 day-TAT

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.7 Corr'd: 0.7 Therm ID No.: 102

Relinquished by: Jacob Hamlinger	Company: Barley Excavating	Date/Time: 8-4-23/1600	Received by: Fed Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company: EET SHE	Date/Time: 8/5/23 1132
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: 500-237749-1
SDG Number:

Login Number: 237749
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 08/07/23 04:35 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	2119909
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7C
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?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento Sample Receiving Notes

500-237749 Field Sheet

Job: ____

Tracking # : 1443 4233 4428

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: 402 Corr. Factor: (+ / -) ____ °C

Ice ✓ Wet ✓ Gel ____ Other ____

Cooler Custody Seal: 2119409

Cooler ID: ____

Temp Observed: 0.2 °C Corrected: 0.1 °C

From: Temp Blank ☐ Sample ☐

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: MY Date: 8/5/23

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

Initials: MY Date: 8/7/23

Notes: ____

Trizma Lot #(s): ____

Ammonium Acetate Lot #(s): ____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: SO Date: 8/7/23

Isotope Dilution Summary

Client: ARCADIS US Inc
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

Job ID: 500-237749-1

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
500-237749-1	V-200-A	95	98	96	102	104	100	101	91
500-237749-2	V-900-A	95	89	92	100	98	92	87	66
LCS 320-697774/2-A	Lab Control Sample	93	91	93	98	100	98	105	94
LCSD 320-697774/3-A	Lab Control Sample Dup	101	100	99	102	104	98	101	103
MB 320-697774/1-A	Method Blank	96	90	93	98	98	96	97	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(10-150)	(25-150)
500-237749-1	V-200-A	77	48	71	98	110	99	103	95
500-237749-2	V-900-A	44	33	75	100	104	92	87	67
LCS 320-697774/2-A	Lab Control Sample	95	85	95	97	103	103	96	98
LCSD 320-697774/3-A	Lab Control Sample Dup	94	88	93	101	109	104	106	103
MB 320-697774/1-A	Method Blank	92	84	84	92	100	96	99	96

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(10-150)	(10-150)	(10-150)	(10-150)	(25-150)	(25-150)	(25-150)
500-237749-1	V-200-A	89	69	61	68	55	101	105	112
500-237749-2	V-900-A	54	37	28	34	31	102	108	99
LCS 320-697774/2-A	Lab Control Sample	94	82	77	86	85	99	109	106
LCSD 320-697774/3-A	Lab Control Sample Dup	103	92	91	95	91	104	111	113
MB 320-697774/1-A	Method Blank	100	80	74	84	85	112	104	110

		Percent Isotope Dilution Recovery (Acceptance Limits)	
		HFPODA	M102FTS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)
500-237749-1	V-200-A	90	80
500-237749-2	V-900-A	91	39
LCS 320-697774/2-A	Lab Control Sample	95	89
LCSD 320-697774/3-A	Lab Control Sample Dup	89	94
MB 320-697774/1-A	Method Blank	90	87

Surrogate Legend

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

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-237749-1
Project/Site: Marinette, WI 30171092.4.1.1 WPDES

dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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 October 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.

$$V_{Stream} = V_{System} \quad (2)$$

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.

$$V_{Stream} > V_{System} \quad (3)$$

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

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 7/19/2023 12:05:56 PM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 Ditch A SW

JOB NUMBER

500-236313-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Eurofins Chicago

Job Notes

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

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

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

Authorization

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

Table of Contents

Case Narrative

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Job ID: 500-236313-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-236313-1

Receipt
The samples were received on 7/8/2023 8:40 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 3.4º C.

LCMS
Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte: 500-236313-1.

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
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-236313-1	SW-40(7-7-23)	Water	07/07/23 11:35	07/08/23 08:40
500-236313-2	DUP-01-A(7-7-23)	Water	07/07/23 00:00	07/08/23 08:40
500-236313-3	Field Blank-A(7-7-23)	Water	07/07/23 11:40	07/08/23 08:40

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(7-7-23)
Lab Sample ID: 500-236313-1
Date Collected: 07/07/23 11:35
Matrix: Water
Date Received: 07/08/23 08:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.3**	**J**	4.5	2.1	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoropentanoic acid (PFPeA)	**3.0**		1.8	0.44	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorohexanoic acid (PFHxA)	**2.5**		1.8	0.52	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoroheptanoic acid (PFHpA)	**1.9**		1.8	0.22	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorooctanoic acid (PFOA)	**8.4**		1.8	0.76	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorononanoic acid (PFNA)	**1.1**	**J**	1.8	0.24	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorodecanoic acid (PFDA)	**4.1**		1.8	0.28	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoroundecanoic acid (PFUnA)	**5.4**		1.8	0.98	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorododecanoic acid (PFDoA)	**1.3**	**J**	1.8	0.49	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorotetradecanoic acid (PFTeA)	**0.65**	**J I**	1.8	0.65	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.80	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8		1.8	0.84	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.51	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	0.17	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorooctanesulfonic acid (PFOS)	**11**		1.8	0.48	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.87	ng/L		07/10/23 11:42	07/15/23 15:35	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.88	ng/L		07/10/23 11:42	07/15/23 15:35	1
NEtFOSA	<1.8		1.8	0.78	ng/L		07/10/23 11:42	07/15/23 15:35	1
NMeFOSA	<1.8		1.8	0.38	ng/L		07/10/23 11:42	07/15/23 15:35	1
NMeFOSAA	<4.5		4.5	1.1	ng/L		07/10/23 11:42	07/15/23 15:35	1
NEtFOSAA	<4.5		4.5	1.2	ng/L		07/10/23 11:42	07/15/23 15:35	1
NMeFOSE	<3.6		3.6	1.3	ng/L		07/10/23 11:42	07/15/23 15:35	1
NEtFOSE	<1.8		1.8	0.76	ng/L		07/10/23 11:42	07/15/23 15:35	1
4:2 FTS	<1.8		1.8	0.21	ng/L		07/10/23 11:42	07/15/23 15:35	1
6:2 FTS	**4.0**	**J**	4.5	2.2	ng/L		07/10/23 11:42	07/15/23 15:35	1
8:2 FTS	**37**		1.8	0.41	ng/L		07/10/23 11:42	07/15/23 15:35	1
10:2 FTS	**11**		1.8	0.60	ng/L		07/10/23 11:42	07/15/23 15:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.36	ng/L		07/10/23 11:42	07/15/23 15:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.6		3.6	1.3	ng/L		07/10/23 11:42	07/15/23 15:35	1
F-53B Major	<1.8		1.8	0.21	ng/L		07/10/23 11:42	07/15/23 15:35	1
F-53B Minor	<1.8		1.8	0.29	ng/L		07/10/23 11:42	07/15/23 15:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*130*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:35*	*1*
13C5 PFPeA	*118*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:35*	*1*
13C2 PFHxA	*122*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:35*	*1*
13C4 PFHpA	*123*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:35*	*1*

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(7-7-23)
Lab Sample ID: 500-236313-1
Date Collected: 07/07/23 11:35
Matrix: Water
Date Received: 07/08/23 08:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOA	123		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C5 PFNA	124		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 PFDA	127		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 PFUnA	116		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 PFDoA	114		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 PFTeDA	114		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 PFHxDA	68		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C3 PFBS	112		25 - 150	07/10/23 11:42	07/15/23 15:35	1
18O2 PFHxS	120		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C4 PFOS	121		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C8 FOSA	133		10 - 150	07/10/23 11:42	07/15/23 15:35	1
d3-NMeFOSAA	119		25 - 150	07/10/23 11:42	07/15/23 15:35	1
d5-NEtFOSAA	122		25 - 150	07/10/23 11:42	07/15/23 15:35	1
d-N-MeFOSA-M	106		10 - 150	07/10/23 11:42	07/15/23 15:35	1
d-N-EtFOSA-M	102		10 - 150	07/10/23 11:42	07/15/23 15:35	1
d7-N-MeFOSE-M	106		10 - 150	07/10/23 11:42	07/15/23 15:35	1
d9-N-EtFOSE-M	106		10 - 150	07/10/23 11:42	07/15/23 15:35	1
M2-4:2 FTS	126		25 - 150	07/10/23 11:42	07/15/23 15:35	1
M2-6:2 FTS	123		25 - 150	07/10/23 11:42	07/15/23 15:35	1
M2-8:2 FTS	120		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C3 HFPO-DA	119		25 - 150	07/10/23 11:42	07/15/23 15:35	1
13C2 10:2 FTS	122		25 - 150	07/10/23 11:42	07/15/23 15:35	1

Client Sample ID: DUP-01-A(7-7-23)
Date Collected: 07/07/23 00:00
Date Received: 07/08/23 08:40

Lab Sample ID: 500-236313-2
Matrix: Water

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	4.6	2.2	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoropentanoic acid (PFPeA)	**3.8**		1.9	0.46	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorohexanoic acid (PFHxA)	**3.1**		1.9	0.54	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoroheptanoic acid (PFHpA)	**2.6**		1.9	0.23	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorooctanoic acid (PFOA)	**10**		1.9	0.79	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorononanoic acid (PFNA)	**1.5**	**J**	1.9	0.25	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorodecanoic acid (PFDA)	**3.2**		1.9	0.29	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoroundecanoic acid (PFUnA)	**3.9**		1.9	1.0	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorododecanoic acid (PFDoA)	**1.0**	**J**	1.9	0.51	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.68	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.83	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9		1.9	0.87	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorobutanesulfonic acid (PFBS)	**0.19**	**J**	1.9	0.19	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.28	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorohexanesulfonic acid (PFHxS)	**0.69**	**J**	1.9	0.53	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.9		1.9	0.18	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorooctanesulfonic acid (PFOS)	**11**		1.9	0.50	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.34	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.30	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.90	ng/L		07/10/23 11:42	07/15/23 15:45	1
Perfluorooctanesulfonamide (FOSA)	<1.9		1.9	0.91	ng/L		07/10/23 11:42	07/15/23 15:45	1
NEtFOSA	<1.9		1.9	0.81	ng/L		07/10/23 11:42	07/15/23 15:45	1
NMeFOSA	<1.9		1.9	0.40	ng/L		07/10/23 11:42	07/15/23 15:45	1
NMeFOSAA	<4.6		4.6	1.1	ng/L		07/10/23 11:42	07/15/23 15:45	1
NEtFOSAA	<4.6		4.6	1.2	ng/L		07/10/23 11:42	07/15/23 15:45	1
NMeFOSE	<3.7		3.7	1.3	ng/L		07/10/23 11:42	07/15/23 15:45	1
NEtFOSE	<1.9		1.9	0.79	ng/L		07/10/23 11:42	07/15/23 15:45	1
4:2 FTS	<1.9		1.9	0.22	ng/L		07/10/23 11:42	07/15/23 15:45	1
6:2 FTS	**4.9**		4.6	2.3	ng/L		07/10/23 11:42	07/15/23 15:45	1
8:2 FTS	**36**		1.9	0.43	ng/L		07/10/23 11:42	07/15/23 15:45	1
10:2 FTS	**7.7**		1.9	0.62	ng/L		07/10/23 11:42	07/15/23 15:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	0.37	ng/L		07/10/23 11:42	07/15/23 15:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.7		3.7	1.4	ng/L		07/10/23 11:42	07/15/23 15:45	1
F-53B Major	<1.9		1.9	0.22	ng/L		07/10/23 11:42	07/15/23 15:45	1
F-53B Minor	<1.9		1.9	0.30	ng/L		07/10/23 11:42	07/15/23 15:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:45*	*1*
13C5 PFPeA	*100*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:45*	*1*
13C2 PFHxA	*107*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:45*	*1*

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: DUP-01-A(7-7-23)
Lab Sample ID: 500-236313-2
Date Collected: 07/07/23 00:00
Matrix: Water
Date Received: 07/08/23 08:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	107		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C4 PFOA	109		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C5 PFNA	107		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 PFDA	109		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 PFUnA	100		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 PFDoA	97		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 PFTeDA	85		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 PFHxDA	38		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C3 PFBS	97		25 - 150	07/10/23 11:42	07/15/23 15:45	1
18O2 PFHxS	100		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C4 PFOS	101		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C8 FOSA	111		10 - 150	07/10/23 11:42	07/15/23 15:45	1
d3-NMeFOSAA	101		25 - 150	07/10/23 11:42	07/15/23 15:45	1
d5-NEtFOSAA	102		25 - 150	07/10/23 11:42	07/15/23 15:45	1
d-N-MeFOSA-M	93		10 - 150	07/10/23 11:42	07/15/23 15:45	1
d-N-EtFOSA-M	82		10 - 150	07/10/23 11:42	07/15/23 15:45	1
d7-N-MeFOSE-M	85		10 - 150	07/10/23 11:42	07/15/23 15:45	1
d9-N-EtFOSE-M	88		10 - 150	07/10/23 11:42	07/15/23 15:45	1
M2-4:2 FTS	106		25 - 150	07/10/23 11:42	07/15/23 15:45	1
M2-6:2 FTS	102		25 - 150	07/10/23 11:42	07/15/23 15:45	1
M2-8:2 FTS	102		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C3 HFPO-DA	107		25 - 150	07/10/23 11:42	07/15/23 15:45	1
13C2 10:2 FTS	104		25 - 150	07/10/23 11:42	07/15/23 15:45	1

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: Field Blank-A(7-7-23)
Lab Sample ID: 500-236313-3
Date Collected: 07/07/23 11:40
Matrix: Water
Date Received: 07/08/23 08:40

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.9		4.9	2.4	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.48	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.57	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.84	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.54	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.72	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.88	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.93	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.56	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.19	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.53	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.96	ng/L		07/10/23 11:42	07/15/23 15:55	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.97	ng/L		07/10/23 11:42	07/15/23 15:55	1
NEtFOSA	<2.0		2.0	0.86	ng/L		07/10/23 11:42	07/15/23 15:55	1
NMeFOSA	<2.0		2.0	0.42	ng/L		07/10/23 11:42	07/15/23 15:55	1
NMeFOSAA	<4.9		4.9	1.2	ng/L		07/10/23 11:42	07/15/23 15:55	1
NEtFOSAA	<4.9		4.9	1.3	ng/L		07/10/23 11:42	07/15/23 15:55	1
NMeFOSE	<3.9		3.9	1.4	ng/L		07/10/23 11:42	07/15/23 15:55	1
NEtFOSE	<2.0		2.0	0.84	ng/L		07/10/23 11:42	07/15/23 15:55	1
4:2 FTS	<2.0		2.0	0.24	ng/L		07/10/23 11:42	07/15/23 15:55	1
6:2 FTS	<4.9		4.9	2.5	ng/L		07/10/23 11:42	07/15/23 15:55	1
8:2 FTS	<2.0		2.0	0.45	ng/L		07/10/23 11:42	07/15/23 15:55	1
10:2 FTS	<2.0		2.0	0.66	ng/L		07/10/23 11:42	07/15/23 15:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.39	ng/L		07/10/23 11:42	07/15/23 15:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.9		3.9	1.5	ng/L		07/10/23 11:42	07/15/23 15:55	1
F-53B Major	<2.0		2.0	0.24	ng/L		07/10/23 11:42	07/15/23 15:55	1
F-53B Minor	<2.0		2.0	0.32	ng/L		07/10/23 11:42	07/15/23 15:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*110*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C5 PFPeA	*104*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C2 PFHxA	*111*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C4 PFHpA	*115*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C4 PFOA	*111*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C5 PFNA	*112*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*
13C2 PFDA	*117*		*25 - 150*	*07/10/23 11:42*	*07/15/23 15:55*	*1*

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: Field Blank-A(7-7-23)
Lab Sample ID: 500-236313-3
Date Collected: 07/07/23 11:40
Matrix: Water
Date Received: 07/08/23 08:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	111		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C2 PFDoA	106		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C2 PFTeDA	107		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C2 PFHxDA	77		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C3 PFBS	105		25 - 150	07/10/23 11:42	07/15/23 15:55	1
18O2 PFHxS	112		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C4 PFOS	115		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C8 FOSA	121		10 - 150	07/10/23 11:42	07/15/23 15:55	1
d3-NMeFOSAA	114		25 - 150	07/10/23 11:42	07/15/23 15:55	1
d5-NEtFOSAA	115		25 - 150	07/10/23 11:42	07/15/23 15:55	1
d-N-MeFOSA-M	101		10 - 150	07/10/23 11:42	07/15/23 15:55	1
d-N-EtFOSA-M	100		10 - 150	07/10/23 11:42	07/15/23 15:55	1
d7-N-MeFOSE-M	101		10 - 150	07/10/23 11:42	07/15/23 15:55	1
d9-N-EtFOSE-M	102		10 - 150	07/10/23 11:42	07/15/23 15:55	1
M2-4:2 FTS	114		25 - 150	07/10/23 11:42	07/15/23 15:55	1
M2-6:2 FTS	110		25 - 150	07/10/23 11:42	07/15/23 15:55	1
M2-8:2 FTS	110		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C3 HFPO-DA	107		25 - 150	07/10/23 11:42	07/15/23 15:55	1
13C2 10:2 FTS	121		25 - 150	07/10/23 11:42	07/15/23 15:55	1

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Qualifiers

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-689299/1-A
Matrix: Water
Analysis Batch: 690665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 689299

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<5.0		5.0	2.4	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	0.49	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	0.58	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	0.25	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	0.85	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	0.27	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	0.31	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	1.1	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	0.55	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorotridecanoic acid (PFTriA)	<2.0		2.0	1.3	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorotetradecanoic acid (PFTeA)	<2.0		2.0	0.73	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<2.0		2.0	0.89	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoro-n-octadecanoic acid (PFODA)	<2.0		2.0	0.94	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	0.20	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	0.30	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	0.57	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	0.19	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	0.54	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	0.37	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	0.32	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	0.97	ng/L		07/10/23 11:42	07/15/23 13:23	1
Perfluorooctanesulfonamide (FOSA)	<2.0		2.0	0.98	ng/L		07/10/23 11:42	07/15/23 13:23	1
NEtFOSA	<2.0		2.0	0.87	ng/L		07/10/23 11:42	07/15/23 13:23	1
NMeFOSA	<2.0		2.0	0.43	ng/L		07/10/23 11:42	07/15/23 13:23	1
NMeFOSAA	<5.0		5.0	1.2	ng/L		07/10/23 11:42	07/15/23 13:23	1
NEtFOSAA	<5.0		5.0	1.3	ng/L		07/10/23 11:42	07/15/23 13:23	1
NMeFOSE	<4.0		4.0	1.4	ng/L		07/10/23 11:42	07/15/23 13:23	1
NEtFOSE	<2.0		2.0	0.85	ng/L		07/10/23 11:42	07/15/23 13:23	1
4:2 FTS	<2.0		2.0	0.24	ng/L		07/10/23 11:42	07/15/23 13:23	1
6:2 FTS	<5.0		5.0	2.5	ng/L		07/10/23 11:42	07/15/23 13:23	1
8:2 FTS	<2.0		2.0	0.46	ng/L		07/10/23 11:42	07/15/23 13:23	1
10:2 FTS	<2.0		2.0	0.67	ng/L		07/10/23 11:42	07/15/23 13:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	0.40	ng/L		07/10/23 11:42	07/15/23 13:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<4.0		4.0	1.5	ng/L		07/10/23 11:42	07/15/23 13:23	1
F-53B Major	<2.0		2.0	0.24	ng/L		07/10/23 11:42	07/15/23 13:23	1
F-53B Minor	<2.0		2.0	0.32	ng/L		07/10/23 11:42	07/15/23 13:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*85*		*25 - 150*	*07/10/23 11:42*	*07/15/23 13:23*	*1*
13C5 PFPeA	*81*		*25 - 150*	*07/10/23 11:42*	*07/15/23 13:23*	*1*
13C2 PFHxA	*86*		*25 - 150*	*07/10/23 11:42*	*07/15/23 13:23*	*1*
13C4 PFHpA	*89*		*25 - 150*	*07/10/23 11:42*	*07/15/23 13:23*	*1*
13C4 PFOA	*85*		*25 - 150*	*07/10/23 11:42*	*07/15/23 13:23*	*1*

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

Lab Sample ID: MB 320-689299/1-A
Matrix: Water
Analysis Batch: 690665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 689299

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	87		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 PFDA	87		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 PFUnA	86		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 PFDoA	80		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 PFTeDA	87		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 PFHxDA	74		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C3 PFBS	81		25 - 150	07/10/23 11:42	07/15/23 13:23	1
18O2 PFHxS	89		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C4 PFOS	90		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C8 FOSA	88		10 - 150	07/10/23 11:42	07/15/23 13:23	1
d3-NMeFOSAA	85		25 - 150	07/10/23 11:42	07/15/23 13:23	1
d5-NEtFOSAA	87		25 - 150	07/10/23 11:42	07/15/23 13:23	1
d-N-MeFOSA-M	75		10 - 150	07/10/23 11:42	07/15/23 13:23	1
d-N-EtFOSA-M	76		10 - 150	07/10/23 11:42	07/15/23 13:23	1
d7-N-MeFOSE-M	81		10 - 150	07/10/23 11:42	07/15/23 13:23	1
d9-N-EtFOSE-M	80		10 - 150	07/10/23 11:42	07/15/23 13:23	1
M2-4:2 FTS	86		25 - 150	07/10/23 11:42	07/15/23 13:23	1
M2-6:2 FTS	88		25 - 150	07/10/23 11:42	07/15/23 13:23	1
M2-8:2 FTS	88		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C3 HFPO-DA	85		25 - 150	07/10/23 11:42	07/15/23 13:23	1
13C2 10:2 FTS	93		25 - 150	07/10/23 11:42	07/15/23 13:23	1

Lab Sample ID: LCS 320-689299/2-A
Matrix: Water
Analysis Batch: 690665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	40.0	43.0		ng/L		107	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	46.7		ng/L		117	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	42.8		ng/L		107	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	43.5		ng/L		109	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	45.2		ng/L		113	60 - 135
Perfluorononanoic acid (PFNA)	40.0	45.0		ng/L		112	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	44.3		ng/L		111	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	47.0		ng/L		117	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	46.4		ng/L		116	60 - 135
Perfluorotridecanoic acid (PFTriA)	40.0	44.1		ng/L		110	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	41.1		ng/L		103	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	45.3		ng/L		113	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	40.0	30.8		ng/L		77	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	39.9		ng/L		112	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.6	42.9		ng/L		114	60 - 135

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

Lab Sample ID: LCS 320-689299/2-A
Matrix: Water
Analysis Batch: 690665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689299

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.9		ng/L		107	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.8		ng/L		102	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	39.7		ng/L		107	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	40.1		ng/L		104	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	41.3		ng/L		107	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	39.2		ng/L		101	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	42.2		ng/L		105	60 - 135
NEtFOSA	40.0	42.8		ng/L		107	60 - 135
NMeFOSA	40.0	45.2		ng/L		113	60 - 135
NMeFOSAA	40.0	40.4		ng/L		101	60 - 135
NEtFOSAA	40.0	42.9		ng/L		107	60 - 135
NMeFOSE	40.0	46.6		ng/L		117	60 - 135
NEtFOSE	40.0	44.8		ng/L		112	60 - 135
4:2 FTS	37.5	40.3		ng/L		108	60 - 135
6:2 FTS	38.1	38.9		ng/L		102	60 - 135
8:2 FTS	38.4	43.0		ng/L		112	60 - 135
10:2 FTS	38.6	39.9		ng/L		103	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	42.5		ng/L		112	60 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	45.2		ng/L		113	60 - 135
F-53B Major	37.4	40.2		ng/L		107	60 - 135
F-53B Minor	37.8	42.5		ng/L		113	60 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*95*		*25 - 150*
13C5 PFPeA	*88*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*93*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C5 PFNA	*91*		*25 - 150*
13C2 PFDA	*94*		*25 - 150*
13C2 PFUnA	*89*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2 PFTeDA	*88*		*25 - 150*
13C2 PFHxDA	*91*		*25 - 150*
13C3 PFBS	*88*		*25 - 150*
18O2 PFHxS	*94*		*25 - 150*
13C4 PFOS	*93*		*25 - 150*
13C8 FOSA	*95*		*10 - 150*
d3-NMeFOSAA	*89*		*25 - 150*
d5-NEtFOSAA	*92*		*25 - 150*
d-N-MeFOSA-M	*66*		*10 - 150*
d-N-EtFOSA-M	*69*		*10 - 150*

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

Lab Sample ID: LCS 320-689299/2-A
Matrix: Water
Analysis Batch: 690665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 689299

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
d7-N-MeFOSE-M	73		10 - 150
d9-N-EtFOSE-M	78		10 - 150
M2-4:2 FTS	94		25 - 150
M2-6:2 FTS	95		25 - 150
M2-8:2 FTS	88		25 - 150
13C3 HFPO-DA	88		25 - 150
13C2 10:2 FTS	97		25 - 150

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(7-7-23)
Lab Sample ID: 500-236313-1

Date Collected: 07/07/23 11:35
Matrix: Water
Date Received: 07/08/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			689299	BLR	EET SAC	07/10/23 11:42
Total/NA	Analysis	537 (modified)		1	690665	S1M	EET SAC	07/15/23 15:35

Client Sample ID: DUP-01-A(7-7-23)
Lab Sample ID: 500-236313-2

Date Collected: 07/07/23 00:00
Matrix: Water
Date Received: 07/08/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			689299	BLR	EET SAC	07/10/23 11:42
Total/NA	Analysis	537 (modified)		1	690665	S1M	EET SAC	07/15/23 15:45

Client Sample ID: Field Blank-A(7-7-23)
Lab Sample ID: 500-236313-3

Date Collected: 07/07/23 11:40
Matrix: Water
Date Received: 07/08/23 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			689299	BLR	EET SAC	07/10/23 11:42
Total/NA	Analysis	537 (modified)		1	690665	S1M	EET SAC	07/15/23 15:55

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: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 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	08-31-23

Eurofins TestAmerica, Sacramento
80 Riverside Parkway
West Sacramento, CA 95605-1500
Phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

eurofins Environment Testing TestAmerica

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

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

Client Contact	Project Manager: Lisa Rutkowski	Site Contact:	Date: 7-7-23	COC No: 1 of 1 COCs
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: Fed Ex	TALS Project #: 50019256
126 North Jefferson Street, Suite 400	Tel/Fax: N/A			Sampler:
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 Standard: ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Job / SDG No.:
FAX				
Project Name: Ditch A Surface Water				
Site: Marinette, WI				
PO # 30171092.4.1.1				

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 537 Modified 36 Compound	Sample Specific Notes:
SW-40 (7-7-23)	7-7-23	11:35	G	W	2	N	N	X	Downstream
DUP-01-A (7-7-23)	↓	—	G	W	2	N	N	X	Duplicate
Field Blank-A (7-7-23)	↓	11:40	G	W	2	N	N	X	Field Blank

500-236313 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:
Questions call Lisa Rutkowski, Liz Hover

5 day- TAT

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 3.4 Corr'd: 3.4		Therm ID No.: 102	
Relinquished by: Jacob Flaminger	Company: Barley Excavating	Date/Time: 7-7-23/17:00	Received by: Fed Ex	Company:	Date/Time:	
Relinquished by:	Company:	Date/Time:	Received by:	Company: EDT SAC	Date/Time: 7/8/23 0840	
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	

Form No. CA-C-WI-002, Rev. 4.26, dated 7/25/2019

7/19/2023

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-236313-1

Login Number: 236313
List Number: 1
Creator: Fisher, Jamyiah L

List Source: Eurofins Sacramento
List Creation: 07/10/23 10:06 AM

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	2077439
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	3.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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Sacramento
Sample Receiving Notes

500-236313 Field Sheet

Job: _____

Tracking # : 6374 2028 3362

SO / PO / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

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

Therm. ID: 402 Corr. Factor: (+ / -) _____ °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 2077434

Cooler ID: _____

Temp Observed: 3.4 °C Corrected: 3.4 °C

From: Temp Blank ☐ Sample ☒

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☒	☐
Cooler Temperature is acceptable?	☒	☐	☐
Frozen samples show signs of thaw?	☐	☐	☒

Initials: NM Date: 7/6/23

Unpacking/Labeling The Samples	Yes	No	NA
COC is complete w/o discrepancies?	☒	☐	☐
Samples compromised/tampered with?	☐	☒	☐
Containers are not broken or leaking?	☒	☐	☐
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 require splitting/compositing?	☐	☐	☒
Samples w/o discrepancies?	☐	☒	☐
Zero headspace?*	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐

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

Initials: JF Date: 7/10/23

Notes: _____

Trizma Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☒	☐	☐
Samples received within hold time?	☒	☐	☐
NCM Filed?	☐	☒	☐
Log Release checked in TALS?	☒	☐	☐

Initials: JF Date: 7/10/23

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Method: 537 (modified) - Fluorinated Alkyl Substances

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

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
500-236313-1	SW-40(7-7-23)	130	118	122	123	123	124	127	116
500-236313-2	DUP-01-A(7-7-23)	110	100	107	107	109	107	109	100
500-236313-3	Field Blank-A(7-7-23)	110	104	111	115	111	112	117	111
LCS 320-689299/2-A	Lab Control Sample	95	88	95	93	94	91	94	89
MB 320-689299/1-A	Method Blank	85	81	86	89	85	87	87	86

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFDoA	PFTDA	PFHxDA	C3PFBS	PFHxS	PFOS	PFOSA	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(10-150)	(25-150)
500-236313-1	SW-40(7-7-23)	114	114	68	112	120	121	133	119
500-236313-2	DUP-01-A(7-7-23)	97	85	38	97	100	101	111	101
500-236313-3	Field Blank-A(7-7-23)	106	107	77	105	112	115	121	114
LCS 320-689299/2-A	Lab Control Sample	92	88	91	88	94	93	95	89
MB 320-689299/1-A	Method Blank	80	87	74	81	89	90	88	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS	dMeFOSA	dEtFOSA	NMFM	NEFM	M242FTS	M262FTS	M282FTS
Lab Sample ID	Client Sample ID	(25-150)	(10-150)	(10-150)	(10-150)	(10-150)	(25-150)	(25-150)	(25-150)
500-236313-1	SW-40(7-7-23)	122	106	102	106	106	126	123	120
500-236313-2	DUP-01-A(7-7-23)	102	93	82	85	88	106	102	102
500-236313-3	Field Blank-A(7-7-23)	115	101	100	101	102	114	110	110
LCS 320-689299/2-A	Lab Control Sample	92	66	69	73	78	94	95	88
MB 320-689299/1-A	Method Blank	87	75	76	81	80	86	88	88

		Percent Isotope Dilution Recovery (Acceptance Limits)	
		HFPODA	M102FTS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)
500-236313-1	SW-40(7-7-23)	119	122
500-236313-2	DUP-01-A(7-7-23)	107	104
500-236313-3	Field Blank-A(7-7-23)	107	121
LCS 320-689299/2-A	Lab Control Sample	88	97
MB 320-689299/1-A	Method Blank	85	93

Surrogate Legend

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

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-236313-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

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ANALYTICAL REPORT

PREPARED FOR

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

Generated 8/31/2023 11:46:12 AM

JOB DESCRIPTION

Marinette, WI 30171092.4.1.1 Ditch A SW

JOB NUMBER

500-237747-1

Eurofins Chicago
2417 Bond Street
University Park IL 60484

See page two for job notes and contact information.

Eurofins Chicago

Job Notes

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

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

Authorization

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8/31/2023 11:46:12 AM

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

Table of Contents

Job ID: 500-237747-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative
500-237747-1

Receipt
The samples were received on 8/5/2023 11:30 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 0.7º C.

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

Method 537 (modified): The Isotope Dilution Analyte (IDA), 13C2 PFHxDA, recovery associated with the following sample is below the method recommended limit: 500-237747-2. The associated target analytes, Perfluoro-n-hexadecanoic acid (PFHxDA) and Perfluoro-n-octadecanoic acid (PFODA), are not state regulated analytes, therefore, the data have been reported.

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

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

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

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
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-237747-1	SW-40(8-4-23)	Water	08/04/23 09:30	08/05/23 11:30
500-237747-2	DUP-01-A(8-4-23)	Water	08/04/23 00:00	08/05/23 11:30
500-237747-3	Field Blank-A(8-4-23)	Water	08/04/23 09:40	08/05/23 11:30

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(8-4-23)
Lab Sample ID: 500-237747-1
Date Collected: 08/04/23 09:30
Matrix: Water
Date Received: 08/05/23 11:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.5		4.5	2.2	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.45	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorohexanoic acid (PFHxA)	**0.61**	**J I**	1.8	0.53	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.23	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.77	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.25	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.28	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	1.0	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.50	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.2	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.66	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.81	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8	*- *1	1.8	0.85	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.27	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.52	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	0.17	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.49	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.34	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.29	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.88	ng/L		08/24/23 18:47	08/29/23 22:22	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.89	ng/L		08/24/23 18:47	08/29/23 22:22	1
NEtFOSA	<1.8		1.8	0.79	ng/L		08/24/23 18:47	08/29/23 22:22	1
NMeFOSA	<1.8		1.8	0.39	ng/L		08/24/23 18:47	08/29/23 22:22	1
NMeFOSAA	<4.5		4.5	1.1	ng/L		08/24/23 18:47	08/29/23 22:22	1
NEtFOSAA	<4.5		4.5	1.2	ng/L		08/24/23 18:47	08/29/23 22:22	1
NMeFOSE	<3.6		3.6	1.3	ng/L		08/24/23 18:47	08/29/23 22:22	1
NEtFOSE	<1.8		1.8	0.77	ng/L		08/24/23 18:47	08/29/23 22:22	1
4:2 FTS	<1.8		1.8	0.22	ng/L		08/24/23 18:47	08/29/23 22:22	1
6:2 FTS	<4.5		4.5	2.3	ng/L		08/24/23 18:47	08/29/23 22:22	1
8:2 FTS	<1.8		1.8	0.42	ng/L		08/24/23 18:47	08/29/23 22:22	1
10:2 FTS	**2.0**		1.8	0.61	ng/L		08/24/23 18:47	08/29/23 22:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.36	ng/L		08/24/23 18:47	08/29/23 22:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.6		3.6	1.4	ng/L		08/24/23 18:47	08/29/23 22:22	1
F-53B Major	<1.8		1.8	0.22	ng/L		08/24/23 18:47	08/29/23 22:22	1
F-53B Minor	<1.8		1.8	0.29	ng/L		08/24/23 18:47	08/29/23 22:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*70*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C5 PFPeA	*70*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C2 PFHxA	*71*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C4 PFHpA	*73*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C4 PFOA	*71*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C5 PFNA	*76*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*
13C2 PFDA	*70*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:22*	*1*

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(8-4-23)
Lab Sample ID: 500-237747-1
Date Collected: 08/04/23 09:30
Matrix: Water
Date Received: 08/05/23 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	65		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C2 PFDoA	65		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C2 PFTeDA	55		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C2 PFHxDA	31		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C3 PFBS	67		25 - 150	08/24/23 18:47	08/29/23 22:22	1
18O2 PFHxS	68		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C4 PFOS	69		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C8 FOSA	76		10 - 150	08/24/23 18:47	08/29/23 22:22	1
d3-NMeFOSAA	63		25 - 150	08/24/23 18:47	08/29/23 22:22	1
d5-NEtFOSAA	62		25 - 150	08/24/23 18:47	08/29/23 22:22	1
d-N-MeFOSA-M	49		10 - 150	08/24/23 18:47	08/29/23 22:22	1
d-N-EtFOSA-M	53		10 - 150	08/24/23 18:47	08/29/23 22:22	1
d7-N-MeFOSE-M	58		10 - 150	08/24/23 18:47	08/29/23 22:22	1
d9-N-EtFOSE-M	57		10 - 150	08/24/23 18:47	08/29/23 22:22	1
M2-4:2 FTS	57		25 - 150	08/24/23 18:47	08/29/23 22:22	1
M2-6:2 FTS	58		25 - 150	08/24/23 18:47	08/29/23 22:22	1
M2-8:2 FTS	64		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C3 HFPO-DA	59		25 - 150	08/24/23 18:47	08/29/23 22:22	1
13C2 10:2 FTS	56		25 - 150	08/24/23 18:47	08/29/23 22:22	1

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: DUP-01-A(8-4-23)
Lab Sample ID: 500-237747-2
Date Collected: 08/04/23 00:00
Matrix: Water
Date Received: 08/05/23 11:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.7		4.7	2.3	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoropentanoic acid (PFPeA)	<1.9		1.9	0.46	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorohexanoic acid (PFHxA)	<1.9		1.9	0.54	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoroheptanoic acid (PFHpA)	<1.9		1.9	0.23	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorooctanoic acid (PFOA)	<1.9		1.9	0.80	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorononanoic acid (PFNA)	<1.9		1.9	0.25	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorodecanoic acid (PFDA)	<1.9		1.9	0.29	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoroundecanoic acid (PFUnA)	<1.9		1.9	1.0	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorododecanoic acid (PFDoA)	<1.9		1.9	0.52	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorotridecanoic acid (PFTriA)	<1.9		1.9	1.2	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorotetradecanoic acid (PFTeA)	<1.9		1.9	0.68	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.9		1.9	0.83	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.9	*- *1	1.9	0.88	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorobutanesulfonic acid (PFBS)	<1.9		1.9	0.19	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoropentanesulfonic acid (PFPeS)	<1.9		1.9	0.28	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorohexanesulfonic acid (PFHxS)	<1.9		1.9	0.53	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.9		1.9	0.18	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorooctanesulfonic acid (PFOS)	<1.9		1.9	0.51	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorononanesulfonic acid (PFNS)	<1.9		1.9	0.35	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorodecanesulfonic acid (PFDS)	<1.9		1.9	0.30	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorododecanesulfonic acid (PFDoS)	<1.9		1.9	0.91	ng/L		08/24/23 18:47	08/29/23 22:32	1
Perfluorooctanesulfonamide (FOSA)	<1.9		1.9	0.92	ng/L		08/24/23 18:47	08/29/23 22:32	1
NEtFOSA	<1.9		1.9	0.82	ng/L		08/24/23 18:47	08/29/23 22:32	1
NMeFOSA	<1.9		1.9	0.40	ng/L		08/24/23 18:47	08/29/23 22:32	1
NMeFOSAA	<4.7		4.7	1.1	ng/L		08/24/23 18:47	08/29/23 22:32	1
NEtFOSAA	<4.7		4.7	1.2	ng/L		08/24/23 18:47	08/29/23 22:32	1
NMeFOSE	<3.8		3.8	1.3	ng/L		08/24/23 18:47	08/29/23 22:32	1
NEtFOSE	<1.9		1.9	0.80	ng/L		08/24/23 18:47	08/29/23 22:32	1
4:2 FTS	<1.9		1.9	0.23	ng/L		08/24/23 18:47	08/29/23 22:32	1
6:2 FTS	<4.7		4.7	2.3	ng/L		08/24/23 18:47	08/29/23 22:32	1
8:2 FTS	<1.9		1.9	0.43	ng/L		08/24/23 18:47	08/29/23 22:32	1
10:2 FTS	**1.4**	**J**	1.9	0.63	ng/L		08/24/23 18:47	08/29/23 22:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.9		1.9	0.38	ng/L		08/24/23 18:47	08/29/23 22:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.8		3.8	1.4	ng/L		08/24/23 18:47	08/29/23 22:32	1
F-53B Major	<1.9		1.9	0.23	ng/L		08/24/23 18:47	08/29/23 22:32	1
F-53B Minor	<1.9		1.9	0.30	ng/L		08/24/23 18:47	08/29/23 22:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C5 PFPeA	*100*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C2 PFHxA	*103*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C4 PFHpA	*108*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C4 PFOA	*106*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C5 PFNA	*106*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*
13C2 PFDA	*97*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:32*	*1*

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: DUP-01-A(8-4-23)
Lab Sample ID: 500-237747-2
Date Collected: 08/04/23 00:00
Matrix: Water
Date Received: 08/05/23 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	87		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C2 PFDoA	83		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C2 PFTeDA	69		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C2 PFHxDA	24	*5-	25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C3 PFBS	100		25 - 150	08/24/23 18:47	08/29/23 22:32	1
18O2 PFHxS	102		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C4 PFOS	90		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C8 FOSA	111		10 - 150	08/24/23 18:47	08/29/23 22:32	1
d3-NMeFOSAA	86		25 - 150	08/24/23 18:47	08/29/23 22:32	1
d5-NEtFOSAA	86		25 - 150	08/24/23 18:47	08/29/23 22:32	1
d-N-MeFOSA-M	62		10 - 150	08/24/23 18:47	08/29/23 22:32	1
d-N-EtFOSA-M	62		10 - 150	08/24/23 18:47	08/29/23 22:32	1
d7-N-MeFOSE-M	76		10 - 150	08/24/23 18:47	08/29/23 22:32	1
d9-N-EtFOSE-M	74		10 - 150	08/24/23 18:47	08/29/23 22:32	1
M2-4:2 FTS	85		25 - 150	08/24/23 18:47	08/29/23 22:32	1
M2-6:2 FTS	86		25 - 150	08/24/23 18:47	08/29/23 22:32	1
M2-8:2 FTS	87		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C3 HFPO-DA	91		25 - 150	08/24/23 18:47	08/29/23 22:32	1
13C2 10:2 FTS	83		25 - 150	08/24/23 18:47	08/29/23 22:32	1

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: Field Blank-A(8-4-23)
Lab Sample ID: 500-237747-3

Date Collected: 08/04/23 09:40
Matrix: Water
Date Received: 08/05/23 11:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<4.4		4.4	2.1	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoropentanoic acid (PFPeA)	<1.8		1.8	0.43	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	0.51	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	0.22	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	0.75	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	0.24	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorodecanoic acid (PFDA)	<1.8		1.8	0.27	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	0.97	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	0.48	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorotridecanoic acid (PFTriA)	<1.8		1.8	1.1	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorotetradecanoic acid (PFTeA)	<1.8		1.8	0.64	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	<1.8		1.8	0.78	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoro-n-octadecanoic acid (PFODA)	<1.8	*- *1	1.8	0.83	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	0.18	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	0.26	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	0.50	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	0.17	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	0.47	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	0.33	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	0.28	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	0.85	ng/L		08/24/23 18:47	08/29/23 22:42	1
Perfluorooctanesulfonamide (FOSA)	<1.8		1.8	0.86	ng/L		08/24/23 18:47	08/29/23 22:42	1
NEtFOSA	<1.8		1.8	0.76	ng/L		08/24/23 18:47	08/29/23 22:42	1
NMeFOSA	<1.8		1.8	0.38	ng/L		08/24/23 18:47	08/29/23 22:42	1
NMeFOSAA	<4.4		4.4	1.1	ng/L		08/24/23 18:47	08/29/23 22:42	1
NEtFOSAA	<4.4		4.4	1.1	ng/L		08/24/23 18:47	08/29/23 22:42	1
NMeFOSE	<3.5		3.5	1.2	ng/L		08/24/23 18:47	08/29/23 22:42	1
NEtFOSE	<1.8		1.8	0.75	ng/L		08/24/23 18:47	08/29/23 22:42	1
4:2 FTS	<1.8		1.8	0.21	ng/L		08/24/23 18:47	08/29/23 22:42	1
6:2 FTS	<4.4		4.4	2.2	ng/L		08/24/23 18:47	08/29/23 22:42	1
8:2 FTS	<1.8		1.8	0.40	ng/L		08/24/23 18:47	08/29/23 22:42	1
10:2 FTS	<1.8		1.8	0.59	ng/L		08/24/23 18:47	08/29/23 22:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<1.8		1.8	0.35	ng/L		08/24/23 18:47	08/29/23 22:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<3.5		3.5	1.3	ng/L		08/24/23 18:47	08/29/23 22:42	1
F-53B Major	<1.8		1.8	0.21	ng/L		08/24/23 18:47	08/29/23 22:42	1
F-53B Minor	<1.8		1.8	0.28	ng/L		08/24/23 18:47	08/29/23 22:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C5 PFPeA	*81*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C2 PFHxA	*81*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C4 PFHpA	*86*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C4 PFOA	*83*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C5 PFNA	*82*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*
13C2 PFDA	*84*		*25 - 150*	*08/24/23 18:47*	*08/29/23 22:42*	*1*

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: Field Blank-A(8-4-23)
Lab Sample ID: 500-237747-3
Date Collected: 08/04/23 09:40
Matrix: Water
Date Received: 08/05/23 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFUnA	81		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C2 PFDoA	78		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C2 PFTeDA	71		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C2 PFHxDA	65		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C3 PFBS	81		25 - 150	08/24/23 18:47	08/29/23 22:42	1
18O2 PFHxS	82		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C4 PFOS	82		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C8 FOSA	90		10 - 150	08/24/23 18:47	08/29/23 22:42	1
d3-NMeFOSAA	73		25 - 150	08/24/23 18:47	08/29/23 22:42	1
d5-NEtFOSAA	80		25 - 150	08/24/23 18:47	08/29/23 22:42	1
d-N-MeFOSA-M	57		10 - 150	08/24/23 18:47	08/29/23 22:42	1
d-N-EtFOSA-M	61		10 - 150	08/24/23 18:47	08/29/23 22:42	1
d7-N-MeFOSE-M	74		10 - 150	08/24/23 18:47	08/29/23 22:42	1
d9-N-EtFOSE-M	72		10 - 150	08/24/23 18:47	08/29/23 22:42	1
M2-4:2 FTS	64		25 - 150	08/24/23 18:47	08/29/23 22:42	1
M2-6:2 FTS	74		25 - 150	08/24/23 18:47	08/29/23 22:42	1
M2-8:2 FTS	84		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C3 HFPO-DA	71		25 - 150	08/24/23 18:47	08/29/23 22:42	1
13C2 10:2 FTS	84		25 - 150	08/24/23 18:47	08/29/23 22:42	1

Definitions/Glossary

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Method: 537 (modified) - Fluorinated Alkyl Substances

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

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

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

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*08/24/23 18:47*	*08/29/23 21:31*	*1*
13C5 PFPeA	*84*		*25 - 150*	*08/24/23 18:47*	*08/29/23 21:31*	*1*
13C2 PFHxA	*85*		*25 - 150*	*08/24/23 18:47*	*08/29/23 21:31*	*1*
13C4 PFHpA	*89*		*25 - 150*	*08/24/23 18:47*	*08/29/23 21:31*	*1*
13C4 PFOA	*89*		*25 - 150*	*08/24/23 18:47*	*08/29/23 21:31*	*1*

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

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

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

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

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

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	9.40		ng/L		117	60 - 135
Perfluoropentanoic acid (PFPeA)	8.00	9.41		ng/L		118	60 - 135
Perfluorohexanoic acid (PFHxA)	8.00	8.82		ng/L		110	60 - 135
Perfluoroheptanoic acid (PFHpA)	8.00	9.41		ng/L		118	60 - 135
Perfluorooctanoic acid (PFOA)	8.00	9.91		ng/L		124	60 - 135
Perfluorononanoic acid (PFNA)	8.00	9.55		ng/L		119	60 - 135
Perfluorodecanoic acid (PFDA)	8.00	9.06		ng/L		113	60 - 135
Perfluoroundecanoic acid (PFUnA)	8.00	8.66		ng/L		108	60 - 135
Perfluorododecanoic acid (PFDoA)	8.00	9.81		ng/L		123	60 - 135
Perfluorotridecanoic acid (PFTriA)	8.00	8.81		ng/L		110	60 - 135
Perfluorotetradecanoic acid (PFTeA)	8.00	8.54		ng/L		107	60 - 135
Perfluoro-n-hexadecanoic acid (PFHxDA)	8.00	9.50		ng/L		119	60 - 135
Perfluoro-n-octadecanoic acid (PFODA)	8.00	3.74	*-	ng/L		47	60 - 135
Perfluorobutanesulfonic acid (PFBS)	7.10	8.08		ng/L		114	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	7.52	8.84		ng/L		118	60 - 135

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Lab Chronicle

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Client Sample ID: SW-40(8-4-23)
Lab Sample ID: 500-237747-1

Date Collected: 08/04/23 09:30
Matrix: Water
Date Received: 08/05/23 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)		1	702524	KCO	EET SAC	08/29/23 22:22

Client Sample ID: DUP-01-A(8-4-23)
Lab Sample ID: 500-237747-2

Date Collected: 08/04/23 00:00
Matrix: Water
Date Received: 08/05/23 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)		1	702524	KCO	EET SAC	08/29/23 22:32

Client Sample ID: Field Blank-A(8-4-23)
Lab Sample ID: 500-237747-3

Date Collected: 08/04/23 09:40
Matrix: Water
Date Received: 08/05/23 11:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			701569	ERR	EET SAC	08/24/23 18:47
Total/NA	Analysis	537 (modified)		1	702524	KCO	EET SAC	08/29/23 22:42

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: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 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	08-31-23

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	Site Contact:	Date: 8-4-23	COC No: 1 of 1 COCs
Arcadis U.S., Inc.	Email: N/A	Lab Contact: Sandie Fredrick	Carrier: Fed Ex	TALS Project #: 50019256
126 North Jefferson Street, Suite 400	Tel/Fax: N/A			Sampler:
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: Ditch A Surface Water	☐ 2 weeks			Job / SDG No.:
Site: Marinette, WI	☐ 1 week			
P O # 30171092.4.1.1	☐ 2 days ☐ 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 537 Modified 36 Compound	Sample Specific Notes:
SW-40 (8-4-23)	8-4-23	9:30	G	W	2	N	N	X	Downstream 1
SW-26 (8-4-23)	↓	~~9:35~~	G	W	2	N	N	X	Downstream 2
DUP-01-A (8-4-23)		—	G	W	2	N	N	X	Duplicate
Field Blank-A (8-4-23)	↓	9:40	G	W	2	N	N	X	Field Blank

500-237747 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

No flow/water at SW-26

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: 0.7 Corr'd: 0.7		Therm ID No.: 102
Relinquished by: Jacob Hamminger	Company: Barley Excavating	Date/Time: 8-4-23/10:15	Received by: Fed Ex	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company: ECT SNC	Date/Time: 8/5/23 1130
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: ARCADIS US Inc

Job Number: 500-237747-1

Login Number: 237747
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 08/07/23 04:35 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	2119909
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.7C
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?	False	Refer to Job Narrative for details.
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	

eurofins | Environment Testing America

Sacramento Sample Receiving Notes


500-237747 Field Sheet

Job: _____

Tracking # : 6483 4233 4428

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: 402 Corr. Factor: (+ / -) _____ °C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: 2119909

Cooler ID: _____

Temp Observed: 0.2 °C Corrected: 0.2 °C

From: Temp Blank ☐ Sample ☑

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	☐	☑	☐
Cooler Temperature is acceptable?	☑	☐	☐
Frozen samples show signs of thaw?	☐	☐	☑

Initials: MY Date: 8/5/23

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

Initials: MY Date: 8/7/23

Notes: _____

Trizma Lot #(s): _____

Ammonium Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	☑	☐	☐
NCM Filed?	☐	☐	☑
Log Release checked in TALS?	☐	☐	☑

Initials: SO Date: 8/7/23

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

Method: 537 (modified) - Fluorinated Alkyl Substances

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

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-237747-1	SW-40(8-4-23)	70	70	71	73	71	76	70	65
500-237747-2	DUP-01-A(8-4-23)	104	100	103	108	106	106	97	87
500-237747-3	Field Blank-A(8-4-23)	79	81	81	86	83	82	84	81
LCS 320-701569/2-A	Lab Control Sample	78	77	84	80	78	81	82	85
LCSD 320-701569/3-A	Lab Control Sample Dup	88	88	90	91	92	89	94	96
MB 320-701569/1-A	Method Blank	84	84	85	89	89	87	93	90

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)
500-237747-1	SW-40(8-4-23)	65	55	31	67	68	69	76	63
500-237747-2	DUP-01-A(8-4-23)	83	69	24 *5-	100	102	90	111	86
500-237747-3	Field Blank-A(8-4-23)	78	71	65	81	82	82	90	73
LCS 320-701569/2-A	Lab Control Sample	84	72	65	76	77	77	88	75
LCSD 320-701569/3-A	Lab Control Sample Dup	92	79	64	87	89	96	98	88
MB 320-701569/1-A	Method Blank	89	79	66	81	84	86	96	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)
500-237747-1	SW-40(8-4-23)	62	49	53	58	57	57	58	64
500-237747-2	DUP-01-A(8-4-23)	86	62	62	76	74	85	86	87
500-237747-3	Field Blank-A(8-4-23)	80	57	61	74	72	64	74	84
LCS 320-701569/2-A	Lab Control Sample	81	62	72	69	69	67	68	81
LCSD 320-701569/3-A	Lab Control Sample Dup	86	65	68	81	84	76	78	89
MB 320-701569/1-A	Method Blank	84	67	73	81	81	76	69	87

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)	M102FTS (25-150)
500-237747-1	SW-40(8-4-23)	59	56
500-237747-2	DUP-01-A(8-4-23)	91	83
500-237747-3	Field Blank-A(8-4-23)	71	84
LCS 320-701569/2-A	Lab Control Sample	67	83
LCSD 320-701569/3-A	Lab Control Sample Dup	74	99
MB 320-701569/1-A	Method Blank	75	92

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxDA = 13C2 PFHxDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS

Isotope Dilution Summary

Client: ARCADIS US Inc
Job ID: 500-237747-1
Project/Site: Marinette, WI 30171092.4.1.1 Ditch A SW

PFOSA = 13C8 FOSA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFM = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
HFPODA = 13C3 HFPO-DA
M102FTS = 13C2 10:2 FTS

Appendix E

Waste Management Documentation

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	TASK	Spent Carbon Shipped
7/18/2023	Delivery/Pick-up	20,000 lbs
8/8/2023	Delivery/Pick-up	20,000 lbs
	Pick-Up	20,000 lbs
9/6/2023	Delivery	20,000 lbs
9/12/2023	Delivery/Pick-up	20,000 lbs
	Pick-Up	20,000 lbs
9/8/2023	Pick-Up	20,000 lbs
9/27/2023	Delivery	20,000 lbs
	Pick-Up	20,000 lbs
9/29/2023	Pick-Up	20,000 lbs
10/3/2023	Delivery/Pick-up	20,000 lbs
10/25/2023	Delivery/Pick-up	20,000 lbs
	Pick-Up	20,000 lbs
11/14/2023	Delivery/Pick-up	20,000 lbs
	Pick-Up	20,000 lbs
12/5/2023	Delivery/Pick-up	20,000 lbs
	Pick-Up	20,000 lbs
12/19/2023	Delivery/Pick-Up	20,000 lbs

Steve Jordan — Signature

2/23/2024 — Date

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	W026-001-23-09

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: WIR000170027

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

8. Designated Facility Name and Site Address
~~JCI/Tyco~~
~~2700 Industrial Parkway S~~
~~Marinette WI 54143~~
FOR 7-19-23
Endpoint Waste Solutions
1024 Western Drive
Hartford WI 53027
414 858-2104
Facility's Phone: 414 858-1203
U.S. EPA ID Number: WIT560011850

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-RCRA, Non-DOT	0040	DF	12000	P	
2.	Non-RCRA, non-DOT	0	DM	0	—	
3.						
4.						

13. Special Handling Instructions and Additional Information
1. Bag Filters, Jute Netting/Filters and Booms Profile# 05162022TIP-03
2. Waste Flux Profile# 05162022TIP-04

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: Matt Shea on Behalf of | Signature | Month 7 | Day 18 | Year 23

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 7 | Day 19 | Year 23

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 07 | Day 19 | Year 23

169-BLC-O 5 11977 (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	W026-001-23-16

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.
S83W18781 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	0032	DF	12800	G	
2.	Non-RCRA, Non-DOT	0005	DM	2000	P	
3.	Non-RCRA, Non-DOT	0001	DM	100	P	
4.	Non-RCRA, Non-DOT	0004	DM	8000	P	

13. Special Handling Instructions and Additional Information
1. Bag Filters, Jute Filter, BoomsProfile# 05162022TIP-03
2. Waste Flux Profile# 05162022TIP-04
3. Bag House Dust Profile# 05162022TIP-05
4. Steel Shot for Recycling Profile# 05162022TIP-02

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: Matt Shaw on Behalf of Tyco
Signature:
Month: 10 Day: 3 Year: 23

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 Bachtold
Signature:
Month: 10 Day: 3 Year: 23

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: Matt & Steve Matt Shaw
Signature:
Month: 10 Day: 11 Year: 23

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	W026-001-23-12

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	002	DF	300	P	
2.	Non-RCRA, Non-DOT	000		0		
3.	Non-RCRA, Non-DOT	000		0		
4.						

13. Special Handling Instructions and Additional Information
1. Jute Filters and AFF Foam Profile# 05162022TIP-03-3H
2. Waste Flux Profile# 05162022TIP-04-3W
3. Steel Shot for Recycling 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: Mathew Shaw on Behalf of | Signature | Month 10 | Day 18 | Year 23

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: Mathew Shaw | Signature | Month 10 | Day 18 | Year 23

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: Mathew Shaw | Signature | Month 10 | Day 19 | Year 23

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	W026-001-23-17

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	017	DF	935	G	
2.	Non-RCRA, Non-DOT	008	DM	4,800	P	
3.	Non-RCRA, Non-DOT	001	DM	200	P	
4.	Non-RCRA, Non-DOT	001	DF	70	P	

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

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

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

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: Mathew Shaw | Signature: Mathew Shaw | Month 11 | Day 7 | Year 23

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

17. Discrepancy

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

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: Mathew Shaw | Signature: Mathew Shaw | Month 11 | Day 08 | Year 23

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

169-BLC-O 5 11977 (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	W026-001-23-20

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	0008	DF	2400	P	
2.	Non-RCRA, Non-DOT	0005	DM	2000	P	
3.	Non-RCRA, Non-DOT	~~0~~	~~0~~	~~0~~	—	
4.	Non-RCRA, Non-DOT	0001	DM	200	P	

13. Special Handling Instructions and Additional Information
1. Jute Filters and AFF Foam Profile# 05162022TIP-03-SH
2. Waste Flux Profile# 05162022TIP-04-SW
3. Steel Shot for Recycling Profile# 05162022TIP-02-RCY
4. Bag house Dust Profile# 05162022TIP-05-SW

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

Generator's/Offeror's Printed/Typed Name: Steve Bachtell (For Tyco?) — Signature: St Bachtell — Month 12 Day 8 Year 23

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: Steve Bachtell — Signature: St Bachtell — Month 12 Day 8 Year 23

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

17. Discrepancy

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

Manifest Reference Number:

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: Steven Bachtell — Signature: St Bachtell — Month 12 Day 13 Year 23

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DESIGNATED FACILITY TO GENERATOR

Arcadis U.S., Inc.
126 North Jefferson Street
Suite 400
Milwaukee, Wisconsin 53202
Tel 414 276 7742
Fax 414 276 7603

www.arcadis.com