



Spokane International Airport

9000 West Airport Drive, Suite 204 | Spokane, Washington 99224 | spokaneairports.net

December 15, 2025

Jeremy Schmidt, P.E.
Site Manager
Washington State Department of Ecology
4601 North Monroe Street
Spokane, WA 99205

Re: Ecology Determination of Insufficient Progress at the Spokane International Airport Cleanup
Site ID:16774, Facility Site ID:6335493

Dear Jeremy:

This letter will serve as a response to your letter dated December 12, 2025, regarding the assertion of a delay in submittal of the Initial per- and polyfluoroalkyl substances (PFAS) Investigation (IPI) Report. Your letter asserts the Spokane International Airport (SIA) has failed to comply with Section 8.9 “Delay in Performance” of the Enforcement Order (EO) and in accordance with Section 7.5 “Work to be Performed” of the EO, and that the Washington State Department of Ecology (Ecology) has now unreasonably and arbitrarily determined SIA has failed to make sufficient progress completing and submitting the IPI report.

Since the completion of the IPI field work, we have been actively communicating to Ecology the anticipated completion for data validation which dictates the timeline for submission of the draft IPI report. We struggle to understand the position from Ecology that SIA is failing to comply with the EO under Section 8.9 or why Ecology did not provide a response to prior Progress Reports if there were concerns SIA was not making sufficient progress towards a draft IPI report.

Monthly Progress Reports included the timeline for analysis of samples collected during the IPI and estimated completion for data validation as provided by Pyron Environmental, Inc. (Pyron). Below is a timeline of activities and communications since completion of the IPI field work:

- On **April 30, 2025**, SIA provided Ecology with a summary of the sample analysis status for the IPI via email. This included reporting the total number of samples collected which included 80 groundwater and 337 soil samples for PFAS analysis related to the soil sampling (these numbers include the required quality control samples). The update also stated that laboratory analysis for groundwater and soil samples was still in progress.
- GSI Environmental, Inc. (GSI) communicated to Ecology in the **June 2025 Progress Report** dated July 10, 2025 that groundwater data was planned to be submitted to Pyron for validation in July. As stated in the approved IPI Work Plan, data validation includes a



December 15, 2025

Level 4 review of 10% of the data analyzed, with the remaining data reviewed at Level 2. This ensures adherence to the quality assurance and quality control performance criteria set forth in the Department of Defense Quality Systems Manual as recommended by Ecology. As Ecology is aware, Level 4 data validation is far more involved and time consuming, especially given the number of PFAS samples analyzed as part of the IPI.

- GSI communicated to Ecology in the **August 2025 Progress Report** dated September 10, 2025 that no new raw analytical data was received from the analytical laboratory, however, the laboratory provided GSI an exported data set for Level 4 data validation. This allowed Pyron to select 10% of the data set to validate. GSI promptly forwarded this to Pyron in August. Pyron then had all of the necessary data and information for validation.
- GSI further communicated to Ecology in the **August 2025 Progress Report** that Pyron's estimated completion date for data validation was mid-October.
- GSI communication to Ecology in the **September 2025 Progress Report** dated October 10, 2025, that Pyron revised the estimated completion date for data validation. The estimated completion data for groundwater data was going to remain mid-October but the estimated completion date for soil data was now November.
- GSI communicated to Ecology in the **October 2025 Progress Report** dated November 10 2025, that GSI received the validated groundwater data from Pyron. GSI then provided Ecology the validation report in the October Progress Report. In addition, GSI communicated to Ecology that Pyron revised the estimated completion date for the soil data. The new estimated completion date provided by Pyron was December 12, 2025.
- GSI iterated to Ecology in the **November 2025 Progress Report** dated December 10, 2025 that the estimated completion date for the validated soil data remained December 12, 2025.

To date, SIA has adhered to the aggressive schedule set forth in the EO. As you are aware, there are only a number of analytical testing firms in the nation that are accredited to sample and validate for PFAS at the levels the EO is requiring. While analytical firms can try to accommodate our schedule, there is no guarantee based on their availability and schedule. Regardless, the draft IPI report will be completed per the schedule in the EO, which is identified as 30 calendar days after the receipt of the final validated data report. SIA has relied on progress made by Pyron, and each revised completion date was communicated to Ecology. As such, the timeline currently presented on the SIA Cleanup webpage is not accurate and we request that the information be presented in an accurate manner as documented in emails and Monthly Progress Reports detailed above.

GSI received the first set of validated soil data on December 12, 2025 and has been informed from Pyron the second and final set is anticipated to be delivered to GSI on December 16, 2025. If GSI receives the final laboratory report on December 16, 2025, the draft IPI Report will be delivered to Ecology on or before January 15, 2025. We will notify you the day they receive the final validated data report from Pyron.



December 15, 2025

SIA and our consultants have been and will continue to be committed to conducting work in a timely manner. While there were some unanticipated delays in receiving the final Level 4 validation reports, the level of effort and time needed to complete the Level 4 validation is extensive. Clear and direct guidance from Ecology specifying the recommended level of data validation for PFAS measurements would be appreciated. SIA is open to using Ecology-accredited laboratories for the relevant PFAS analytical methods followed by Level 2 data validation. If approved by Ecology this would reduce the level of effort required after receipt of analytical data.

In addition, as part of our efforts to further the on-site investigations, SIA approached Ecology in the in-person meeting which occurred on July 29, 2025, to propose moving the quarterly groundwater monitoring forward in the schedule of work (which would otherwise be scheduled to begin in about a year, per the EO). At the same meeting, additional time for preparation of the RI/FS Work Plan was requested. Following the meeting, SIA submitted a letter to Ecology dated July 31, 2025 identifying the items of discussion. Ecology recognized the very accelerated schedule identified in the EO to draft an RI/FS Work Plan and stated it was not surprised by the request as it should have been recognized at the time of the EO development. Ecology also stated this would not be a problem and would only require administrative approval by Ecology staff and would not require public input. Furthermore, Ecology appreciated and recognized SIA for proposing to accelerate quarterly sampling and Ecology said it would not have an issue with both proposed changes. Please note, the statement on the SIA Cleanup webpage states that Ecology “required” quarterly groundwater monitoring as part of a “compromise” rather than accurately portraying the exchange where SIA proposed the accelerated start date for quarterly groundwater monitoring. All work associated with beginning quarterly groundwater monitoring including drafting a Sampling and Analysis Plan and Quality Assurance Project Plan have been conducted in the last few months in a timely manner and in adherence to Ecology’s deadlines.

In closing, SIA is disappointed that you chose to write this formal letter accusing SIA of delaying submission of the draft IPI report that SIA and GSI have communicated to Ecology for months rather than contacting us through email or a phone call first. This unnecessary action by Ecology is not conducive to what we hoped would be a cooperative approach to investigating the conditions at the airport and protecting the environment.

Sincerely,

Lisa Corcoran
Chief Development Officer



December 15, 2025

cc: Nick Acklam, Washington State Department of Ecology, Toxic Cleanup Program
Section Manager
Brook Beeler, Washington State Department of Ecology, Director Eastern Region
Casey Sixkiller, Washington State Department of Ecology, Director
Brian Werst, Spokane International Airport, General Counsel
Keylin Huddleston, Spokane International Airport, Environmental Specialist
John Sheehan, Earth and Water Law, Legal Counsel
Jeffery Longworth, Earth and Water Law, Legal Counsel
Kenia Whitehead, GSI Environmental, Senior Associate

Attachments:

June, July, August, September, October, and November Monthly Progress Reports

SIA Letter to Ecology dated July 31, 2025.

10 July 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 15, Spokane International Airport PFAS
June 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport PFAS site (Site) as required by Order No. DE 22584 by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 15 covers the reporting period of 1 June through 30 June 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - Activities in the month of June focused on managing ongoing laboratory activities relating to samples collected as part of the Initial PFAS Investigation (IPI) Work Plan (approved by Ecology on 13 December 2024).
 - SIA staff met in person with the Director of Ecology and Eastern Region Director on 10 June 2025. Ecology notified SIA of a pending potentially liable person (PLP) determination for Spokane County and the City of Spokane.
 - SIA received, by email, notification from Ecology of their preliminary determination of PLP status with regards to the Site for Spokane County and the City of Spokane on 16 June 2025.
 - SIA is working to determine additional PLPs by reviewing historical reports, correspondence, and ownership history regarding other previously closed, opened, or re-opened sites on and near the Site.
 - SIA discussed PLP status with Spokane County and the City of Spokane.
2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.

3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.
 - None anticipated.
4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - Raw results received during this reporting period for PFAS, total organic carbon, pH, and percent moisture for soils samples are included in six lab reports transmitted from Eurofins Northern California and Eurofins Northwest. This data has not been validated.
 - One laboratory report (J118205-1) was provided via email to Ecology on 13 June 2025 containing the PFAS results for four groundwater samples, one of which required reanalysis with dilution for two analytes (MW-13B). We are including the laboratory report with this Progress Report.
 - Note that the PFAS results for two soil samples (JTA-002-N-S025 and JTA-005-N-S025) were analyzed outside of the hold time of 90 days under EPA Method 1633. GSI had requested the laboratory to extract any remaining soil samples on 07 April 2025, within the 90-day hold time from the soil sample collection date. While the extractions were performed, two of the extracts were inadvertently discarded by the laboratory prior to analysis. This required the two samples to be re-extracted. Raw results for these two samples are flagged 'H' in the laboratory report, indicating that the sample was prepped or analyzed beyond the specified holding time.
6. A list of deliverables and activities for the upcoming reporting period.
 - The PFAS data for groundwater will be submitted for data validation during the upcoming reporting period.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.



Kenia Whitehead, PhD
Senior Associate/Certified Senior
Ecologist
kwhitehead@gsi-net.com



Matthew Q. Lentz, BCES, CPSWQ,
CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

10 July 2025



cc: Spokane International Airport

INITIAL PFAS INVESTIGATION WORK PLAN
Spokane International Airport
Spokane, WA

PROGRESS REPORT NO. 15 – RAW DATA REPORTS

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Sarah Mass
Haley & Aldrich, Inc.
8101 E. Prentice Avenue
Suite 600
Greenwood Village, Colorado 80111

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JOB DESCRIPTION

Geiger Field PFAS Support/0209800-001

JOB NUMBER

590-29042-7

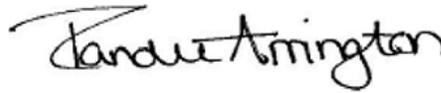
Eurofins Spokane

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northwest, LLC Project Manager.

Authorization



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Authorized for release by
Randee Arrington, Business Unit Manager
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Case Narrative

Client: Haley & Aldrich, Inc.
Project: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Job ID: 590-29042-7

Eurofins Spokane

Job Narrative 590-29042-7

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 1/16/2025 1:30 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 3.7°C and 5.8°C.

Receipt Exceptions

The following sample was activated for TOC and pH analysis by the client on 06/04/25: JTA-002-N-S025-01152025 (590-29042-38). This analysis was not originally requested on the chain-of-custody (COC).

General Chemistry

Method 9045D: The following sample was analyzed outside of analytical holding time due to client activation out of hold: JTA-002-N-S025-01152025 (590-29042-38).

Method 9060A: The method blank for analytical batch 580-495154 contained TOC above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

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

Eurofins Spokane

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-29042-38	JTA-002-N-S025-01152025	Solid	01/15/25 16:28	01/16/25 13:30

1

2

3

4

5

6

7

8

9

10

11

12

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 590-29042-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/16/25 13:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup (SW846 9060A)	2300	H B	2000	97	mg/Kg			06/17/25 19:45	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	7.7	H	0.1	0.1	SU			06/16/25 12:04	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Method: 9045D - pH

Lab Sample ID: LCS 590-54558/1
Matrix: Solid
Analysis Batch: 54558

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		101	98.6 - 101.4

Lab Sample ID: 590-29042-38 DU
Matrix: Solid
Analysis Batch: 54558

Client Sample ID: JTA-002-N-S025-01152025
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.7	H	7.7		SU		0	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-495154/3
Matrix: Solid
Analysis Batch: 495154

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup	1380	J	2000	97	mg/Kg			06/17/25 17:46	1

Lab Sample ID: LCS 580-495154/4
Matrix: Solid
Analysis Batch: 495154

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average Dup	320000	322000		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 580-495154/5
Matrix: Solid
Analysis Batch: 495154

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Average Dup	320000	329000		mg/Kg		103	80 - 120	2	20

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 590-29042-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/16/25 13:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	10.50 g	10 mL	54558	06/16/25 12:04	RMA	EET SPK
Total/NA	Analysis	9060A		1	203.0000 mg	203.0000 mg	495154	06/17/25 19:45	FCG	EET SEA
Total/NA	Analysis	Moisture		1			54344	06/04/25 16:00	M1M	EET SPK

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-26
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-27
ANAB	Dept. of Defense ELAP	L2236	01-19-27
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-26
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-24-28
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29042-7

Method	Method Description	Protocol	Laboratory
9045D	pH	SW846	EET SPK
9060A	Organic Carbon, Total (TOC)	SW846	EET SEA
Moisture	Percent Moisture	EPA	EET SPK

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 SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200





Haley & Aldrich, Inc.
505 W Riverside Ave.
STE 450,
Spokane, WA 99201-0513

Phone (509) 960-7447
Fax (509) 960-7447
Page 2 of 4

H&A FILE NO. 0209800-002 LABORATORY Eurofins Environmental Testing DELIVERY DATE 1/16/25
PROJECT NAME Geiger Field PFAS Support ADDRESS 11922 E 1st Ave, Spokane Valley, WA 99206 TURNAROUND TIME Standard
H&A CONTACT Breeyn Greer CONTACT Randee Arrington PROJECT MANAGER Breeyn Greer

Sample No.	Date	Time	Type	Analysis Requested										HOLD	Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)	
				TOC	EPA 9060A	pH EPA SW-846 9045D	Moisture Content										
LTA-002-N-S006-01152025	1/15/2025	9:35	Soil												X	3	Laboratory to use applicable DEP CAM methods, unless otherwise directed. - TOC: Total Organic Carbon 3,3,3-Tricloro PCEs 5,4,5,8-tetrachloro PCEs
LTA-002-N-S010-01152025	1/15/2025	9:40	Soil												X	3	
LTA-003-N-S000-01152025	1/15/2025	10:00	Soil												X	3	
LTA-003-N-S001-01152025	1/15/2025	10:05	Soil	X	X	X										3	
LTA-003-N-S003-01152025	1/15/2025	10:10	Soil	X	X	X										3	
LTA-003-N-S006-01152025	1/15/2025	10:15	Soil												X	3	
LTA-003-N-S010-01152025	1/15/2025	10:20	Soil												X	3	
LTA-003-N-S015-01152025	1/15/2025	10:25	Soil												X	3	
LTA-003-N-S017-01152025	1/15/2025	10:30	Soil												X	3	
LTA-003-FD-S001-01152025	1/15/2025	10:30	Soil	X	X	X										3	

Sampled and Relinquished by	Received by	LIQUID										VOA Vial	Sampling Comments	
Sign <i>[Signature]</i>	Sign <i>[Signature]</i>													Amber Glass
Print <i>Luke Aden</i>	Print <i>Michael Mann</i>													Plastic Bottle
Firm <i>H&A</i>	Firm <i>EBZ&A</i>													Preservative
Date <i>1/16/25</i> Time <i>13:30</i>	Date <i>1/16/25 13:30</i>												Volume	
Relinquished by	Received by	SOLID										VOA Vial	Evidence samples were tampered with? YES NO If YES, please explain in section below.	
Sign	Sign													Amber Glass
Print	Print													Clear Glass
Firm	Firm													Preservative
Date Time	Date												Volume	
Relinquished by	Received by	PRESERVATION KEY												
Sign	Sign	A Sample chilled	C NaOH	E H ₂ SO ₄	G Methanol									
Print	Print	B Sample filtered	D HNO ₃	F HCL	H Water/NaHSO ₄ (circle)									
Firm	Firm													
Date Time	Date													

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, Initial all sections:

The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.

If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are re

Required Reporting Limits and Data Quality Objectives

<input type="checkbox"/> RC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		



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STE 450,
Spokane, WA 99201-0513

Phone (509) 960-7447
Fax (509) 960-7447

Page 3 of 4

H&A FILE NO. 0209800-002 LABORATORY Eurofins Environmental Testing DELIVERY DATE 1/16/25
PROJECT NAME Geiger Field PFAS Support ADDRESS 11922 E 1st Ave, Spokane Valley, WA 99206 TURNAROUND TIME Standard
H&A CONTACT Breeyn Greer CONTACT Randee Arrington PROJECT MANAGER Breeyn Greer

Sample No.	Date	Time	Type	Analysis Requested											HOLD	Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)	
				TOC	EPA 9060A	pH EPA SW-846 9045D	Moisture Content											
JTA-001-N-S000-01152025	1/15/2025	15:00	Soil													X	3	- PFAS Analysis to be conducted by Eurofins Sacramento Laboratory to use applicable DEP CAM methods, unless otherwise directed.
JTA-001-N-S001-01152025	1/15/2025	15:05	Soil	X	X	X											3	- TOC: Total Organic Carbon
JTA-001-N-S003-01152025	1/15/2025	15:10	Soil	X	X	X											3	
JTA-001-N-S006-01152025	1/15/2025	15:15	Soil												X		3	
JTA-001-N-S010-01152025	1/15/2025	15:20	Soil												X		3	
JTA-001-N-S015-01152025	1/15/2025	15:25	Soil												X		3	
JTA-001-N-S020-01152025	1/15/2025	15:30	Soil												X		3	
JTA-001-N-S023-01152025	1/15/2025	15:35	Soil												X		3	
JTA-001-PD-S006-01152025	1/15/2025	15:45	Soil												X		3	3.7 + 5 8 con (POOL)
JTA-002-N-S000-01152025	1/15/2025	15:55	Soil												X		3	

Sampled and Relinquished by		Received by		LIQUID											Sampling Comments			
Sign <u>ZZ</u>	Print <u>Luke Pabin</u>	Sign <u>WLU</u>	Print <u>Wacky Howe</u>														VOA Vial	
Firm <u>H&A</u>	Date <u>1/16/25</u> Time <u>3:30</u>	Firm <u>EST SPO</u>	Date <u>1/16/25</u> Time <u>1330</u>														Amber Glass	
																	Plastic Bottle	
																	Preservative	
																	Volume	
Relinquished by		Received by		SOLID														
Sign	Print	Sign	Print														VOA Vial	
Firm	Date	Firm	Date														Amber Glass	
																	Clear Glass	
																	Preservative	
																	Volume	
Relinquished by		Received by													Evidence samples were tampered with? YES NO			
Sign	Print	Sign	Print												If YES, please explain in section below.			
Firm	Date	Firm	Date															

PRESERVATION KEY

A Sample chilled	C NaOH	E H ₂ SO ₄	G Methanol
B Sample filtered	D HNO ₃	F HCL	H Water/NaHSO ₄ (circite)

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:

The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.

Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.

This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.

If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are re

Required Reporting Limits and Data Quality Objectives

<input type="checkbox"/> RC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042

List Source: Eurofins Spokane

List Number: 1

Creator: Morris, Mackenzie 1

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042

List Number: 2

Creator: Pike, Jacob 1

List Source: Eurofins Seattle

List Creation: 01/18/25 01:50 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR15 1.0c
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042

List Number: 3

Creator: Pike, Jacob 1

List Source: Eurofins Seattle

List Creation: 02/25/25 06:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR15 4.1c
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042
List Number: 5
Creator: Groves, Elizabeth

List Source: Eurofins Seattle
List Creation: 03/26/25 03:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR11 1.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042
List Number: 6
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 04/11/25 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR11 cor -1.6 un -0.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29042-7

Login Number: 29042
List Number: 7
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 06/05/25 12:54 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR15 cor 4.7 un 4.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Sarah Mass
Haley & Aldrich, Inc.
8101 E. Prentice Avenue
Suite 600
Greenwood Village, Colorado 80111

Generated 6/18/2025 4:19:46 PM

JOB DESCRIPTION

Geiger Field PFAS Support/0209800-001

JOB NUMBER

590-29043-7

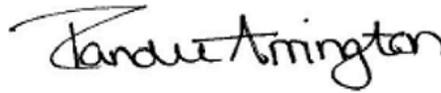
Eurofins Spokane

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northwest, LLC Project Manager.

Authorization



Generated
6/18/2025 4:19:46 PM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200



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Case Narrative

Client: Haley & Aldrich, Inc.
Project: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Job ID: 590-29043-7

Eurofins Spokane

Job Narrative 590-29043-7

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 1/17/2025 11:48 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 time was 2.9°C.

Receipt Exceptions

The following sample was activated for TOC and pH analysis by the client on 06/04/25: JTA-005-N-S025-01162025 (590-29043-28). This analysis was not originally requested on the chain-of-custody (COC).

General Chemistry

Method 9045D: The following sample was analyzed outside of analytical holding time due to client activation out of hold: JTA-005-N-S025-01162025 (590-29043-28).

Method 9060A: The method blank for analytical batch 580-495154 contained TOC above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 9060A: The following sample was activated out of holding time: JTA-005-N-S025-01162025 (590-29043-28).

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

Eurofins Spokane

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-29043-28	JTA-005-N-S025-01162025	Solid	01/16/25 14:30	01/17/25 11:48

1

2

3

4

5

6

7

8

9

10

11

12

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 590-29043-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/17/25 11:48

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup (SW846 9060A)	1400	J H B	2000	97	mg/Kg			06/17/25 19:30	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	7.9	H	0.1	0.1	SU			06/16/25 12:04	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Method: 9045D - pH

Lab Sample ID: LCS 590-54558/1
 Matrix: Solid
 Analysis Batch: 54558

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		101	98.6 - 101.4

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-495154/3
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup	1380	J	2000	97	mg/Kg			06/17/25 17:46	1

Lab Sample ID: LCS 580-495154/4
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average Dup	320000	322000		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 580-495154/5
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Organic Carbon - Average Dup	320000	329000		mg/Kg		103	80 - 120	2	20

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 590-29043-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/17/25 11:48

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	10.31 g	10 mL	54558	06/16/25 12:04	RMA	EET SPK
Total/NA	Analysis	9060A		1	200.4000 mg	200.4000 mg	495154	06/17/25 19:30	FCG	EET SEA
Total/NA	Analysis	Moisture		1			54344	06/04/25 16:00	M1M	EET SPK

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-27
ANAB	Dept. of Defense ELAP	L2236	01-19-27
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-26
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-24-28
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29043-7

Method	Method Description	Protocol	Laboratory
9045D	pH	SW846	EET SPK
9060A	Organic Carbon, Total (TOC)	SW846	EET SEA
Moisture	Percent Moisture	EPA	EET SPK

Protocol References:

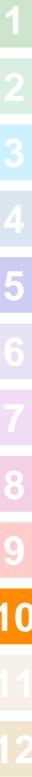
EPA = US Environmental Protection Agency

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

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



Eurofins Spokane
 11922 East 1st Ave
 Spokane, WA 99206
 Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record



eurofins | Environment Testing

Client Information (Sub Contract Lab)

Client Contact: N/A
 Shipping/Receiving: N/A
 Company: Eurofins Environment Testing Northwest L
 Address: 6755 8th Street East, Tacoma, WA, 98424
 City: Tacoma
 State Zip: WA, 98424
 Phone: 253-922-2310(Tel)
 Email: N/A
 Project Name: Gauger Field PFAS Support/0209800-001
 Site: N/A
 Sampler: N/A
 Lab P#: Arrington, Rande E
 E-Mail: RandeE.Arrington@et.eurofins.com
 Carrier Tracking No(s): N/A
 State of Origin: Washington
 Page: Page 1 of 1
 Job #: 590-29043-7
 Preservation Codes: 590-11168.1

Due Date Requested: 6/17/2025
 TAT Requested (days): N/A
 Analysis Requested

Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=soil, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note:
JTA-005-N-S025-01162025 (990-29043-28)	1/16/25	14:30 Pacific	G	Solid	X	X	9060A/ Standard Soil TOC	1	

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Unconfirmed

Possible Hazard Identification

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

Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by: _____ Date: _____ Time: _____ Method of Shipment: _____

Relinquished by: *Gunn Reine* Date/Time: 6/14/25 15:00 Company: ESTS Co Received by: *[Signature]* Date/Time: 6/25/25 9:05 Company: ESTS Co

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

Custody Seats Intact: Yes No **Custody Seal No.:** _____ Cooler Temperature(s) °C and Other Remarks: 1015 4.2/4.7

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

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043

List Source: Eurofins Spokane

List Number: 1

Creator: Morris, Mackenzie 1

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043
List Number: 2
Creator: Pike, Jacob 1

List Source: Eurofins Seattle
List Creation: 01/18/25 01:50 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR15 1.0c
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043
List Number: 3
Creator: Pike, Jacob 1

List Source: Eurofins Seattle
List Creation: 02/25/25 06:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR15 4.1c
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043
List Number: 6
Creator: Groves, Elizabeth

List Source: Eurofins Seattle
List Creation: 03/26/25 03:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR11 1.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043
List Number: 7
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 04/11/25 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR11 cor -1.6 un -0.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29043-7

Login Number: 29043
List Number: 8
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 06/05/25 12:54 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
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	IR15 cor 4.7 un 4.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

 **ANALYTICAL REPORT****PREPARED FOR**

Attn: Sarah Mass
Haley & Aldrich, Inc.
8101 E. Prentice Avenue
Suite 600
Greenwood Village, Colorado 80111

Generated 6/18/2025 4:23:26 PM

JOB DESCRIPTION

Geiger Field PFAS Support/0209800-001

JOB NUMBER

590-29051-7

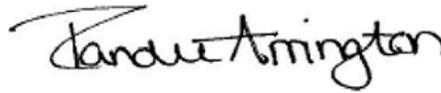
Eurofins Spokane

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northwest, LLC Project Manager.

Authorization



Generated
6/18/2025 4:23:26 PM

Authorized for release by
Randee Arrington, Business Unit Manager
Randee.Arrington@et.eurofinsus.com
(509)924-9200



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Case Narrative

Client: Haley & Aldrich, Inc.
Project: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Job ID: 590-29051-7

Eurofins Spokane

Job Narrative 590-29051-7

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt

The samples were received on 1/20/2025 8:40 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8°C and 3.7°C.

Receipt Exceptions

The following sample was activated for TOC and pH analysis by the client on 06/04/25: JTA-009-N-S030-01172025 (590-29051-23). This analysis was not originally requested on the chain-of-custody (COC).

General Chemistry

Method 9045D: The following sample was analyzed outside of analytical holding time due to client activation out of hold: JTA-009-N-S030-01172025 (590-29051-23).

Method 9060A: The method blank for analytical batch 580-495154 contained TOC above the method detection limit (MDL). This target analyte concentration was less than the reporting limit (RL) in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

Method 9060A: The matrix spike (MS) recoveries for analytical batch 580-495154 were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 9060A: The matrix spike / matrix spike duplicate (MS/MSD) precision for analytical batch 580-495154 was outside control limits. Sample non-homogeneity is suspected.

Method 9060A: The sample duplicate (DUP) precision for analytical batch 580-495154 was outside control limits. Sample non-homogeneity is suspected.

Method 9060A: The following sample was activated outside of holding time: JTA-009-N-S030-01172025 (590-29051-23).

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

Eurofins Spokane

Sample Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
590-29051-23	JTA-009-N-S030-01172025	Solid	01/17/25 12:15	01/20/25 08:40

1

2

3

4

5

6

7

8

9

10

11

12

Definitions/Glossary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL, and the absolute difference between results is < the upper reporting limits for both.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Client Sample Results

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 590-29051-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/20/25 08:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup (SW846 9060A)	2100	H B	2000	97	mg/Kg			06/17/25 18:30	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH (SW846 9045D)	8.1	H	0.1	0.1	SU			06/16/25 12:04	1

QC Sample Results

Client: Haley & Aldrich, Inc.
 Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Method: 9045D - pH

Lab Sample ID: LCS 590-54558/1
 Matrix: Solid
 Analysis Batch: 54558

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	7.00	7.0		SU		101	98.6 - 101.4

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 580-495154/3
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Average Dup	1380	J	2000	97	mg/Kg			06/17/25 17:46	1

Lab Sample ID: LCS 580-495154/4
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average Dup	320000	322000		mg/Kg		100	80 - 120

Lab Sample ID: LCSD 580-495154/5
 Matrix: Solid
 Analysis Batch: 495154

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Total Organic Carbon - Average Dup	320000	329000		mg/Kg		103	80 - 120	2	20

Lab Sample ID: 590-29051-23 MS
 Matrix: Solid
 Analysis Batch: 495154

Client Sample ID: JTA-009-N-S030-01172025
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Total Organic Carbon - Average Dup	2100	H B	79400	92100		mg/Kg		113	80 - 120

Lab Sample ID: 590-29051-23 MSD
 Matrix: Solid
 Analysis Batch: 495154

Client Sample ID: JTA-009-N-S030-01172025
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Total Organic Carbon - Average Dup	2100	H B	85000	86700		mg/Kg		100	80 - 120	6	20

Lab Sample ID: 590-29051-23 DU
 Matrix: Solid
 Analysis Batch: 495154

Client Sample ID: JTA-009-N-S030-01172025
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Total Organic Carbon - Average Dup	2100	H B		1690	J F5	mg/Kg				22	20

Eurofins Spokane

Lab Chronicle

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 590-29051-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/20/25 08:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9045D		1	10.12 g	10 mL	54558	06/16/25 12:04	RMA	EET SPK
Total/NA	Analysis	9060A		1	201.3000 mg	201.3000 mg	495154	06/17/25 18:30	FCG	EET SEA
Total/NA	Analysis	Moisture		1			54344	06/04/25 16:00	M1M	EET SPK

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



Accreditation/Certification Summary

Client: Haley & Aldrich, Inc.
 Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Laboratory: Eurofins Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-26
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: Eurofins Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-004	02-19-27
ANAB	Dept. of Defense ELAP	L2236	01-19-27
California	State	2954	07-07-25
Florida	NELAP	E87575	06-30-25
Louisiana	NELAP	03073	06-30-25
Louisiana (All)	NELAP	03073	06-30-25
Maine	State	WA01273	05-02-26
Montana (UST)	State	NA	04-14-27
New Jersey	NELAP	WA014	06-30-25
New York	NELAP	11662	04-01-26
Oregon	NELAP	4167	07-07-25
US Fish & Wildlife	US Federal Programs	A20571	06-30-25
USDA	US Federal Programs	525-23-4-22573	01-24-28
Washington	State	C788-24	07-13-25
Wisconsin	State	399133460	09-01-25

Method Summary

Client: Haley & Aldrich, Inc.
Project/Site: Geiger Field PFAS Support/0209800-001

Job ID: 590-29051-7

Method	Method Description	Protocol	Laboratory
9045D	pH	SW846	EET SPK
9060A	Organic Carbon, Total (TOC)	SW846	EET SEA
Moisture	Percent Moisture	EPA	EET SPK

Protocol References:

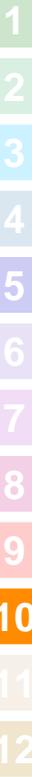
EPA = US Environmental Protection Agency

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

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

EET SPK = Eurofins Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200





Haley & Aldrich, Inc.
505 W Riverside Ave.
STE 450,
Spokane, WA 99201-0513

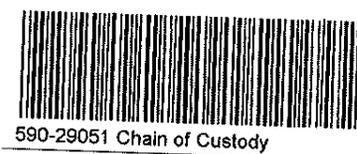
Phone (509) 960-7447
Fax (509) 960-7447

Page 1 of 4

H&A FILE NO. 0209800-001 LABORATORY Eurofins Environmental Testing DELIVERY DATE 1/20/25
PROJECT NAME Geiger Field PFAS Support ADDRESS 11922 E 1st Ave, Spokane Valley, WA 99206 TURNAROUND TIME Standard
H&A CONTACT Breeyn Greer CONTACT Randee Arrington PROJECT MANAGER Breeyn Greer

Sample No.	Date	Time	Type	Analysis Requested											Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)	
				TOC	EPA 9060A	PH EPA SW-846 9045D	Moisture	Content									
JTA-007-N-S000-01172025	1/17/2025	0950	Soil													2	Laboratory to use applicable DEP CAM methods, unless otherwise directed.
JTA-007-N-S001-01172025	1/17/2025	0955	Soil	X	X	X										2	- TOC Total Organic Carbon
JTA-007-N-S003-01172025	1/17/2025	1000	Soil	X	X	X									2		
JTA-007-FD-S003-01172025	1/17/2025	1030	Soil	X	X	X									2		
JTA-007-N-S006-01172025	1/17/2025	1005	Soil												2		
JTA-007-N-S010-01172025	1/17/2025	1010	Soil												2		
JTA-007-N-S013-01172025	1/17/2025	1035	Soil												2		
JTA-008-N-S000-01172025	1/17/2025	1055	Soil												2		
JTA-008-N-S001-01172025	1/17/2025	1100	Soil	X	X	X									2		
JTA-008-N-S003-01172025	1/17/2025	1105	Soil	X	X	X									2	3.7 + 0.8 cor. WPOOP	

Sampled and Relinquished by		Received by		LIQUID											Sampling Comments	
Sign <u>Breeyn Greer</u> Print <u>Breeyn Greer</u> Firm <u>HA</u> Date <u>1/20/25</u> Time <u>0840</u>		Sign <u>[Signature]</u> Print <u>Mackey Morris</u> Firm <u>EBT/SPO</u> Date <u>1/20/25</u> Time <u>840</u>													VOA Vial Amber Glass Plastic Bottle Preservative Volume	
Relinquished by		Received by		SOLID											Evidence samples were tampered with? YES NO (If YES, please explain in section below)	
Sign Print Firm Date Time		Sign Print Firm Date													VOA Vial Amber Glass Clear Glass Preservative Volume	
Relinquished by		Received by		PRESERVATION KEY												
Sign Print Firm Date Time		Sign Print Firm Date		A Sample chilled C NaOH E H ₂ SO ₄ G Methanol B Sample filtered D HNO ₃ F HCL H Water/NaHSO ₄ (circle)												



If Presumptive Certainty Data Package is needed, initial all sections:
 The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.
 Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.
 This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.
 If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required.

Required Reporting Limits and Data Quality Objectives

<input type="checkbox"/> RC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		



Haley & Aldrich, Inc.
505 W Riverside Ave.
STE 450,
Spokane, WA 99201-0513

Phone (509) 960-7447
Fax (509) 960-7447

Page 3 of 4

H&A FILE NO. 0209800-001 LABORATORY Eurofins Environmental Testing DELIVERY DATE 1/20/25
PROJECT NAME Geiger Field PFAS Support ADDRESS 11922 E 1st Ave Spokane Valley WA 99206 TURNAROUND TIME standard
H&A CONTACT Breeyn Greer CONTACT Randee Arrington PROJECT MANAGER Breeyn Greer

Sample No.	Date	Time	Type	Analysis Requested										Number of Containers	Comments (special instructions, precautions, additional method numbers, etc.)	
				TOC	EPA 9060A	PHEPA SW-846 9045D	Moisture	Content								
JTA-009-N-S015-01172025	1/17/2025	1205	Soil												2	- PFAS Analysis to be conducted by Eurofins Sacramento Laboratory to use applicable DEP CAM methods, unless otherwise directed.
JTA-009-N-S020-01172025	1/17/2025	1210	Soil												2	- TOC: Total Organic Carbon
JTA-009-N-S030-01172025	1/17/2025	1215	Soil												2	
RT-003-N-S000-01172025	1/17/2025	1405	Soil												2	
RT-003-N-S001-01172025	1/17/2025	1410	Soil		X	X	X								2	
RT-003-N-S003-01172025	1/17/2025	1415	Soil		X	X	X								2	
RT-003-FD-S003-01172025	1/17/2025	1420	Soil		X	X	X								2	
RT-003-N-S006-01172025	1/17/2025	1425	Soil												2	
RT-003-N-S010-01172025	1/17/2025	1430	Soil												2	
RT-003-N-S015-01172025	1/17/2025	1435	Soil												2	37 + 68 cor 1/20/25

Sampled and Relinquished by: Sign Breeyn Greer, Print Breeyn Greer, Firm HA, Date 1/20/25 Time 0840
Received by: Sign W. MacLay, Print W. MacLay, Firm ETSPO, Date 1/20/25 Time 840

LIQUID: VOA Vial, Amber Glass, Plastic Bottle, Preservative, Volume

SOLID: VOA Vial, Amber Glass, Clear Glass, Preservative, Volume

Evidence samples were tampered with? YES NO
If YES, please explain in section below.

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

If Presumptive Certainty Data Package is needed, initial all sections:
The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty.
Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.
This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.
If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are required.

Required Reporting Limits and Data Quality Objectives

<input type="checkbox"/> RC-S1	<input type="checkbox"/> S1	<input type="checkbox"/> GW1
<input type="checkbox"/> RC-S2	<input type="checkbox"/> S2	<input type="checkbox"/> GW2
<input type="checkbox"/> RC-GW1	<input type="checkbox"/> S3	<input type="checkbox"/> GW3
<input type="checkbox"/> RC-GW2		

Eurofins Spokane
 11922 East 1st Ave
 Spokane, WA 99206
 Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record



eurofins | Environment Testing

Client Information (Sub Contract Lab)
 Client Contact: N/A
 Shipping/Receiving: N/A
 Company: Eurofins Environment Testing Northwest L
 Address: 6753 8th Street East, Tacoma WA, 98424
 City: Tacoma
 State Zip: WA, 98424
 Phone: 253-922-2310(Tel)
 Email: N/A
 Project Name: Geiger Field PFAS Support/0209800-001
 Site: N/A
 Project #: 59003905
 SSOW#: N/A

Sampler: N/A
Lab Pk: Arrington, Rande E
Phone: N/A
E-Mail: Rande.Arrington@et.eurofins.com
Accreditations Required (See note): State - Washington
Carrier Tracking No(s): N/A
State of Origin: Washington
COC No: 590-11168.1
Page: Page 1 of 1
Job #: 590-29051-7
Preservation Codes:

Due Date Requested: 6/17/2025
TAT Requested (days): N/A
Analysis Requested:

Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=Water, S=solid, O=Oven-dried, BI=Issue, A=Add)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
JTA-009-N-S030-01172025 (990-29051-23)	1/17/25	12:15 Pacific	G	Solid	X	9060A/ Standard Soil TOC	1	

Empty Kit Relinquished by: Date: Time: Method of Shipment:
Relinquished by: *Sam Reim* Date/Time: 6/14/25 15:00 Company: EFTSP
Relinquished by: Date/Time: Company:
Custody Seals Intact: Custody Seal No.: Cooler Temperature(s) °C and Other Remarks: 12.5 41.7/41.7
 Δ Yes Δ No

Primary Deliverable Rank: 2
Special Instructions/QC Requirements:
 Return To Client
 Disposal By Lab
 Archive For _____ Months
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client
 Disposal By Lab
 Archive For _____ Months

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051

List Source: Eurofins Spokane

List Number: 1

Creator: Morris, Mackenzie 1

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

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051
List Number: 2
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 01/21/25 01:57 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR11 cor -1.3 un -0.3
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051
List Number: 3
Creator: Pike, Jacob 1

List Source: Eurofins Seattle
List Creation: 02/25/25 06:28 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR15 4.1c
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051
List Number: 5
Creator: Groves, Elizabeth

List Source: Eurofins Seattle
List Creation: 03/26/25 03:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR11 1.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051
List Number: 6
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 04/11/25 04:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR11 cor -1.6 un -0.8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.

Login Sample Receipt Checklist

Client: Haley & Aldrich, Inc.

Job Number: 590-29051-7

Login Number: 29051
List Number: 7
Creator: Moore, Brook 1

List Source: Eurofins Seattle
List Creation: 06/05/25 12:54 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
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	IR15 cor 4.7 un 4.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

This receipt checklist is generated for all samples received in this Login. It may not be applicable to all Jobs associated with this Login.



ANALYTICAL REPORT

PREPARED FOR

Attn: Kenia Whitehead
GSI Environmental Inc
1115 West Bay Drive NW
Suite 202
Olympia, Washington 98502

Generated 6/9/2025 2:30:29 PM

JOB DESCRIPTION

Spokane International Airport

JOB NUMBER

320-118375-6

Eurofins Sacramento

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northern California, LLC Project Manager.

Authorization



Generated
6/9/2025 2:30:29 PM

Authorized for release by
Afsaneh Salimpour, Senior Project Manager
Afsaneh.Salimpour@et.eurofinsus.com
(925)484-1919



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Definitions/Glossary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Qualifiers

LCMS

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

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

Case Narrative

Client: GSI Environmental Inc
Project: Spokane International Airport

Job ID: 320-118375-6

Job ID: 320-118375-6

Eurofins Sacramento

Job Narrative 320-118375-6

Receipt

The samples were received on 1/18/2025 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.3° C.

LCMS

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-856044 recovered above the upper control limit for Perfluorotridecanoic acid (PFTrDA). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry

Method Moisture: The reference method does not list a specific holding time for this procedure; therefore, the laboratory defaults to an in-house holding time of 28 days. The request for the analysis of the following samples in analytical batch 320-855265 was made outside this time period: JTA-005-N-S025-01162025 (320-118375-28).

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

Organic Prep

Method 1633 Shake: The following sample was prepared outside of preparation holding time due to activation past holding time: JTA-005-N-S025-01162025 (320-118375-28).

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

Eurofins Sacramento

Detection Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 320-118375-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.064	J H	0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.056	J H	0.20	0.049	ug/Kg	1	✳	1633	Total/NA

This Detection Summary does not include radiochemical test results.

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

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 320-118375-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 82.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.39	0.098	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoropentanoic acid (PFPeA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorohexanoic acid (PFHxA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorooctanoic acid (PFOA)	ND	H	0.20	0.061	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorononanoic acid (PFNA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorodecanoic acid (PFDA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorotridecanoic acid (PFTrDA)	ND	H ^+	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	0.20	0.057	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorohexanesulfonic acid (PFHxS)	0.064	J H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorooctanesulfonic acid (PFOS)	0.056	J H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.39	0.098	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.39	0.098	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.39	0.098	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	0.20	0.062	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.98	0.24	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.98	0.24	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.20	0.061	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 320-118375-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 82.3

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.20	0.073	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.39	0.098	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.98	0.24	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.98	0.24	ug/Kg	☼	06/05/25 04:25	06/07/25 05:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	94.0		8 - 130				06/05/25 04:25	06/07/25 05:33	1
13C5 PFPeA	99.5		35 - 130				06/05/25 04:25	06/07/25 05:33	1
13C5 PFHxA	85.6		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C4 PFHpA	93.9		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C8 PFOA	92.4		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C9 PFNA	89.2		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C6 PFDA	78.4		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C7 PFUnA	82.1		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C2 PFDoA	61.4		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C2 PFTeDA	58.6		20 - 130				06/05/25 04:25	06/07/25 05:33	1
13C3 PFBS	78.5		40 - 135				06/05/25 04:25	06/07/25 05:33	1
13C3 PFHxS	77.9		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C8 PFOS	73.8		40 - 130				06/05/25 04:25	06/07/25 05:33	1
13C8 FOSA	65.9		40 - 130				06/05/25 04:25	06/07/25 05:33	1
d3-NMeFOSAA	57.5		40 - 135				06/05/25 04:25	06/07/25 05:33	1
d5-NEtFOSAA	60.3		40 - 150				06/05/25 04:25	06/07/25 05:33	1
13C2 4:2 FTS	61.7		40 - 165				06/05/25 04:25	06/07/25 05:33	1
13C2 6:2 FTS	74.6		40 - 215				06/05/25 04:25	06/07/25 05:33	1
13C2 8:2 FTS	69.9		40 - 275				06/05/25 04:25	06/07/25 05:33	1
13C3 HFPO-DA	98.6		40 - 130				06/05/25 04:25	06/07/25 05:33	1
d7-N-MeFOSE-M	53.3		20 - 130				06/05/25 04:25	06/07/25 05:33	1
d9-N-EtFOSE-M	47.7		15 - 130				06/05/25 04:25	06/07/25 05:33	1
d5-NEtPFOSA	42.5		10 - 130				06/05/25 04:25	06/07/25 05:33	1
d3-NMePFOSA	40.8		10 - 130				06/05/25 04:25	06/07/25 05:33	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA 1633)	18	H	0.10	0.10	%			06/03/25 13:44	1
Percent Solids (EPA 1633)	82	H	0.10	0.10	%			06/03/25 13:44	1

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Isotope Dilution Summary

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (8-130)	PFPeA (35-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (40-130)
320-118375-28	JTA-005-N-S025-01162025	94.0	99.5	85.6	93.9	92.4	89.2	78.4	82.1
LCS 320-855628/3-A	Lab Control Sample	107	111	99.7	102	105	99.8	84.8	82.3
LCSD 320-855628/4-A	Lab Control Sample Dup	106	107	96.1	100	100	97.3	84.3	83.5
LLCS 320-855628/2-A	Lab Control Sample	107	104	104	101	105	102	88.6	88.8
MB 320-855628/1-A	Method Blank	106	114	107	109	101	98.0	85.5	91.2

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (40-130)	PFTDA (20-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-135)	d5NEFOS (40-150)
320-118375-28	JTA-005-N-S025-01162025	61.4	58.6	78.5	77.9	73.8	65.9	57.5	60.3
LCS 320-855628/3-A	Lab Control Sample	65.2	63.1	97.4	88.4	82.4	77.1	65.3	65.5
LCSD 320-855628/4-A	Lab Control Sample Dup	65.2	62.6	100	92.1	75.8	66.2	66.3	66.7
LLCS 320-855628/2-A	Lab Control Sample	75.2	67.9	95.4	91.9	84.1	82.1	71.6	76.2
MB 320-855628/1-A	Method Blank	77.6	70.7	95.1	90.8	81.9	77.5	71.3	72.9

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (40-165)	M262FTS (40-215)	M282FTS (40-275)	HFPODA (40-130)	NMFM (20-130)	NEFM (15-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
320-118375-28	JTA-005-N-S025-01162025	61.7	74.6	69.9	98.6	53.3	47.7	42.5	40.8
LCS 320-855628/3-A	Lab Control Sample	79.1	88.0	83.0	93.1	58.9	53.6	50.9	53.2
LCSD 320-855628/4-A	Lab Control Sample Dup	81.5	89.8	82.7	89.5	51.5	49.4	46.6	45.4
LLCS 320-855628/2-A	Lab Control Sample	78.2	87.9	88.5	92.9	68.4	61.8	57.1	55.5
MB 320-855628/1-A	Method Blank	76.8	94.0	88.1	96.8	63.0	57.4	46.7	46.0

Surrogate Legend

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

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: MB 320-855628/1-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 855628

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.062	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.058	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.063	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.20	0.062	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: MB 320-855628/1-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 855628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.075	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	106		8 - 130	06/05/25 04:25	06/07/25 04:27	1
13C5 PFPeA	114		35 - 130	06/05/25 04:25	06/07/25 04:27	1
13C5 PFHxA	107		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C4 PFHpA	109		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 PFOA	101		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C9 PFNA	98.0		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C6 PFDA	85.5		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C7 PFUnA	91.2		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C2 PFDoA	77.6		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C2 PFTeDA	70.7		20 - 130	06/05/25 04:25	06/07/25 04:27	1
13C3 PFBS	95.1		40 - 135	06/05/25 04:25	06/07/25 04:27	1
13C3 PFHxS	90.8		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 PFOS	81.9		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 FOSA	77.5		40 - 130	06/05/25 04:25	06/07/25 04:27	1
d3-NMeFOSAA	71.3		40 - 135	06/05/25 04:25	06/07/25 04:27	1
d5-NEtFOSAA	72.9		40 - 150	06/05/25 04:25	06/07/25 04:27	1
13C2 4:2 FTS	76.8		40 - 165	06/05/25 04:25	06/07/25 04:27	1
13C2 6:2 FTS	94.0		40 - 215	06/05/25 04:25	06/07/25 04:27	1
13C2 8:2 FTS	88.1		40 - 275	06/05/25 04:25	06/07/25 04:27	1
13C3 HFPO-DA	96.8		40 - 130	06/05/25 04:25	06/07/25 04:27	1
d7-N-MeFOSE-M	63.0		20 - 130	06/05/25 04:25	06/07/25 04:27	1
d9-N-EtFOSE-M	57.4		15 - 130	06/05/25 04:25	06/07/25 04:27	1
d5-NEtPFOSA	46.7		10 - 130	06/05/25 04:25	06/07/25 04:27	1
d3-NMePFOSA	46.0		10 - 130	06/05/25 04:25	06/07/25 04:27	1

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	5.00	4.66		ug/Kg		93	70 - 140
Perfluoropentanoic acid (PFPeA)	2.50	1.94		ug/Kg		78	60 - 150
Perfluorohexanoic acid (PFHxA)	2.50	2.14		ug/Kg		86	65 - 140
Perfluoroheptanoic acid (PFHpA)	2.50	2.30		ug/Kg		92	65 - 145
Perfluorooctanoic acid (PFOA)	2.50	2.18		ug/Kg		87	70 - 150
Perfluorononanoic acid (PFNA)	2.50	2.12		ug/Kg		85	70 - 155
Perfluorodecanoic acid (PFDA)	2.50	2.45		ug/Kg		98	70 - 155

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.50	2.17		ug/Kg		87	70 - 155
Perfluorododecanoic acid (PFDoA)	2.50	2.49		ug/Kg		100	70 - 150
Perfluorotridecanoic acid (PFTrDA)	2.50	2.74		ug/Kg		109	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.70		ug/Kg		108	65 - 150
Perfluorobutanesulfonic acid (PFBS)	2.22	1.99		ug/Kg		90	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.25		ug/Kg		96	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.17		ug/Kg		95	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.42		ug/Kg		101	65 - 155
Perfluorooctanesulfonic acid (PFOS)	2.33	2.24		ug/Kg		96	65 - 160
Perfluorononanesulfonic acid (PFNS)	2.41	2.18		ug/Kg		91	55 - 140
Perfluorodecanesulfonic acid (PFDS)	2.41	1.90		ug/Kg		79	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	2.43	1.83		ug/Kg		75	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.48		ug/Kg		95	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.36		ug/Kg		92	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.43		ug/Kg		92	70 - 150
Perfluorooctanesulfonamide (PFOSA)	2.50	2.38		ug/Kg		95	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	2.46		ug/Kg		98	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.78		ug/Kg		111	70 - 140
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	2.50	2.53		ug/Kg		101	65 - 155
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	2.50	2.43		ug/Kg		97	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	12.5		ug/Kg		100	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	12.9		ug/Kg		103	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	2.05		ug/Kg		109	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.41		ug/Kg		102	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.99		ug/Kg		80	30 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.09		ug/Kg		84	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.50	2.06		ug/Kg		83	60 - 155

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9Cl-PF3ONS)	2.34	2.18		ug/Kg		93	70 - 150
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	2.36	1.85		ug/Kg		78	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	2.07		ug/Kg		93	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.04		ug/Kg		81	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	10.3		ug/Kg		82	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	11.3		ug/Kg		91	60 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	107		8 - 130
13C5 PFPeA	111		35 - 130
13C5 PFHxA	99.7		40 - 130
13C4 PFHpA	102		40 - 130
13C8 PFOA	105		40 - 130
13C9 PFNA	99.8		40 - 130
13C6 PFDA	84.8		40 - 130
13C7 PFUnA	82.3		40 - 130
13C2 PFDoA	65.2		40 - 130
13C2 PFTeDA	63.1		20 - 130
13C3 PFBS	97.4		40 - 135
13C3 PFHxS	88.4		40 - 130
13C8 PFOS	82.4		40 - 130
13C8 FOSA	77.1		40 - 130
d3-NMeFOSAA	65.3		40 - 135
d5-NEtFOSAA	65.5		40 - 150
13C2 4:2 FTS	79.1		40 - 165
13C2 6:2 FTS	88.0		40 - 215
13C2 8:2 FTS	83.0		40 - 275
13C3 HFPO-DA	93.1		40 - 130
d7-N-MeFOSE-M	58.9		20 - 130
d9-N-EtFOSE-M	53.6		15 - 130
d5-NEtPFOSA	50.9		10 - 130
d3-NMePFOSA	53.2		10 - 130

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	5.00	4.62		ug/Kg		92	70 - 140	1	30
Perfluoropentanoic acid (PFPeA)	2.50	1.79		ug/Kg		72	60 - 150	8	30
Perfluorohexanoic acid (PFHxA)	2.50	2.26		ug/Kg		90	65 - 140	6	30
Perfluoroheptanoic acid (PFHpA)	2.50	2.24		ug/Kg		89	65 - 145	3	30
Perfluorooctanoic acid (PFOA)	2.50	2.23		ug/Kg		89	70 - 150	2	30

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorononanoic acid (PFNA)	2.50	2.12		ug/Kg		85	70 - 155	0	30	
Perfluorodecanoic acid (PFDA)	2.50	2.50		ug/Kg		100	70 - 155	2	30	
Perfluoroundecanoic acid (PFUnA)	2.50	2.16		ug/Kg		86	70 - 155	0	30	
Perfluorododecanoic acid (PFDoA)	2.50	2.51		ug/Kg		100	70 - 150	1	30	
Perfluorotridecanoic acid (PFTrDA)	2.50	2.74		ug/Kg		110	65 - 150	0	30	
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.86		ug/Kg		115	65 - 150	6	30	
Perfluorobutanesulfonic acid (PFBS)	2.22	2.18		ug/Kg		98	65 - 145	9	30	
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.27		ug/Kg		97	55 - 160	1	30	
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.15		ug/Kg		94	60 - 150	1	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.50		ug/Kg		105	65 - 155	3	30	
Perfluorooctanesulfonic acid (PFOS)	2.33	2.33		ug/Kg		100	65 - 160	4	30	
Perfluorononanesulfonic acid (PFNS)	2.41	2.25		ug/Kg		94	55 - 140	3	30	
Perfluorodecanesulfonic acid (PFDS)	2.41	1.87		ug/Kg		77	40 - 155	2	30	
Perfluorododecanesulfonic acid (PFDoS)	2.43	1.84		ug/Kg		76	25 - 160	1	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.59		ug/Kg		98	60 - 150	2	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.26		ug/Kg		89	55 - 200	2	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.72		ug/Kg		98	70 - 150	6	30	
Perfluorooctanesulfonamide (PFOSA)	2.50	2.42		ug/Kg		97	70 - 140	1	30	
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	2.55		ug/Kg		102	70 - 155	4	30	
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.74		ug/Kg		109	70 - 140	2	30	
N-methylperfluorooctanesulfonamideacetate (NMeFOSAA)	2.50	2.58		ug/Kg		103	65 - 155	2	30	
N-ethylperfluorooctanesulfonamideacetate (NEtFOSAA)	2.50	2.51		ug/Kg		100	65 - 165	3	30	
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	13.0		ug/Kg		104	70 - 140	5	30	
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	12.3		ug/Kg		99	70 - 135	5	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	1.90		ug/Kg		101	70 - 145	7	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.50		ug/Kg		106	70 - 160	4	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.99		ug/Kg		79	30 - 140	0	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.19		ug/Kg		88	60 - 150	5	30	

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	2.50	1.84		ug/Kg		73	60 - 155	12	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	2.34	2.05		ug/Kg		88	70 - 150	6	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	2.36	1.69		ug/Kg		72	45 - 160	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	2.09		ug/Kg		94	70 - 140	1	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.09		ug/Kg		82	45 - 130	1	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	10.8		ug/Kg		86	60 - 130	5	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	11.1		ug/Kg		89	60 - 150	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	106		8 - 130
13C5 PFPeA	107		35 - 130
13C5 PFHxA	96.1		40 - 130
13C4 PFHpA	100		40 - 130
13C8 PFOA	100		40 - 130
13C9 PFNA	97.3		40 - 130
13C6 PFDA	84.3		40 - 130
13C7 PFUnA	83.5		40 - 130
13C2 PFDoA	65.2		40 - 130
13C2 PFTeDA	62.6		20 - 130
13C3 PFBS	100		40 - 135
13C3 PFHxS	92.1		40 - 130
13C8 PFOS	75.8		40 - 130
13C8 FOSA	66.2		40 - 130
d3-NMeFOSAA	66.3		40 - 135
d5-NEtFOSAA	66.7		40 - 150
13C2 4:2 FTS	81.5		40 - 165
13C2 6:2 FTS	89.8		40 - 215
13C2 8:2 FTS	82.7		40 - 275
13C3 HFPO-DA	89.5		40 - 130
d7-N-MeFOSE-M	51.5		20 - 130
d9-N-EtFOSE-M	49.4		15 - 130
d5-NEtPFOSA	46.6		10 - 130
d3-NMePFOSA	45.4		10 - 130

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	0.800	0.729		ug/Kg		91	70 - 140
Perfluoropentanoic acid (PFPeA)	0.400	0.343		ug/Kg		86	60 - 150
Perfluorohexanoic acid (PFHxA)	0.400	0.319		ug/Kg		80	65 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	0.400	0.376		ug/Kg		94	65 - 145
Perfluorooctanoic acid (PFOA)	0.400	0.346		ug/Kg		86	70 - 150
Perfluorononanoic acid (PFNA)	0.400	0.336		ug/Kg		84	70 - 155
Perfluorodecanoic acid (PFDA)	0.400	0.398		ug/Kg		99	70 - 155
Perfluoroundecanoic acid (PFUnA)	0.400	0.350		ug/Kg		88	70 - 155
Perfluorododecanoic acid (PFDoA)	0.400	0.419		ug/Kg		105	70 - 150
Perfluorotridecanoic acid (PFTrDA)	0.400	0.463		ug/Kg		116	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	0.400	0.433		ug/Kg		108	65 - 150
Perfluorobutanesulfonic acid (PFBS)	0.355	0.314		ug/Kg		88	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	0.376	0.356		ug/Kg		95	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	0.365	0.346		ug/Kg		95	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	0.382	0.384		ug/Kg		101	65 - 155
Perfluorooctanesulfonic acid (PFOS)	0.372	0.390		ug/Kg		105	65 - 160
Perfluorononanesulfonic acid (PFNS)	0.385	0.381		ug/Kg		99	55 - 140
Perfluorodecanesulfonic acid (PFDS)	0.386	0.340		ug/Kg		88	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	0.388	0.331		ug/Kg		85	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0.750	0.696		ug/Kg		93	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0.762	0.661		ug/Kg		87	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0.768	0.730		ug/Kg		95	70 - 150
Perfluorooctanesulfonamide (PFOSA)	0.400	0.391		ug/Kg		98	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	0.400	0.411		ug/Kg		103	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0.400	0.454		ug/Kg		114	70 - 140
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	0.400	0.405		ug/Kg		101	65 - 155
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	0.400	0.411		ug/Kg		103	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	2.00	1.96		ug/Kg		98	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	2.00	2.08		ug/Kg		104	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.300	0.301		ug/Kg		100	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.378	0.393		ug/Kg		104	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.400	0.320		ug/Kg		80	30 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

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

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.400	0.329		ug/Kg		82	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.400	0.323		ug/Kg		81	60 - 155
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.374	0.350		ug/Kg		94	70 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.378	0.333		ug/Kg		88	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0.357	0.286		ug/Kg		80	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	0.800	0.665		ug/Kg		83	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	2.00	1.59		ug/Kg		80	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	2.00	1.60		ug/Kg		80	60 - 150

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	107		8 - 130
13C5 PFPeA	104		35 - 130
13C5 PFHxA	104		40 - 130
13C4 PFHpA	101		40 - 130
13C8 PFOA	105		40 - 130
13C9 PFNA	102		40 - 130
13C6 PFDA	88.6		40 - 130
13C7 PFUnA	88.8		40 - 130
13C2 PFDoA	75.2		40 - 130
13C2 PFTeDA	67.9		20 - 130
13C3 PFBS	95.4		40 - 135
13C3 PFHxS	91.9		40 - 130
13C8 PFOS	84.1		40 - 130
13C8 FOSA	82.1		40 - 130
d3-NMeFOSAA	71.6		40 - 135
d5-NEtFOSAA	76.2		40 - 150
13C2 4:2 FTS	78.2		40 - 165
13C2 6:2 FTS	87.9		40 - 215
13C2 8:2 FTS	88.5		40 - 275
13C3 HFPO-DA	92.9		40 - 130
d7-N-MeFOSE-M	68.4		20 - 130
d9-N-EtFOSE-M	61.8		15 - 130
d5-NEtPFOSA	57.1		10 - 130
d3-NMePFOSA	55.5		10 - 130

QC Association Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

LCMS

Prep Batch: 855628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118375-28	JTA-005-N-S025-01162025	Total/NA	Solid	1633 Shake	
MB 320-855628/1-A	Method Blank	Total/NA	Solid	1633 Shake	
LCS 320-855628/3-A	Lab Control Sample	Total/NA	Solid	1633 Shake	
LCSD 320-855628/4-A	Lab Control Sample Dup	Total/NA	Solid	1633 Shake	
LLCS 320-855628/2-A	Lab Control Sample	Total/NA	Solid	1633 Shake	

Analysis Batch: 856045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118375-28	JTA-005-N-S025-01162025	Total/NA	Solid	1633	855628
MB 320-855628/1-A	Method Blank	Total/NA	Solid	1633	855628
LCS 320-855628/3-A	Lab Control Sample	Total/NA	Solid	1633	855628
LCSD 320-855628/4-A	Lab Control Sample Dup	Total/NA	Solid	1633	855628
LLCS 320-855628/2-A	Lab Control Sample	Total/NA	Solid	1633	855628

General Chemistry

Analysis Batch: 855265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118375-28	JTA-005-N-S025-01162025	Total/NA	Solid	1633	

Lab Chronicle

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118375-6

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 320-118375-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/18/25 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1633		1			855265	06/03/25 13:44	JCB	EET SAC

Client Sample ID: JTA-005-N-S025-01162025

Lab Sample ID: 320-118375-28

Date Collected: 01/16/25 14:30

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake			2.48 g	5.0 mL	855628	06/05/25 04:25	R1T	EET SAC
Total/NA	Analysis	1633		1			856045	06/07/25 05:33	RS1	EET SAC

Laboratory References:

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

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Accreditation/Certification Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C581	05-06-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1633		Solid	Percent Moisture
1633		Solid	Percent Solids



Method Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Method	Method Description	Protocol	Laboratory
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Percent Moisture	EPA	EET SAC
1633 Shake	Shake Extraction with SPE	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

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Sample Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118375-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-118375-28	JTA-005-N-S025-01162025	Solid	01/16/25 14:30	01/18/25 09:00

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Afsaneh Salimpour

From: Emily K. Stashak <EKStashak@gsi-net.com>
Sent: Monday, June 2, 2025 1:50 PM
To: Randee Arrington; Afsaneh Salimpour
Cc: Kenia Whitehead; Mass, Sarah; Caleb Grant
Subject: Spokane International Airport / Geiger Field PFAS Support : Sixth Sample Run

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hello Afsaneh & Randee,

See below for a list of the next batch of samples we'd like to have analyzed for the Spokane International Airport / Geiger Field PFAS Support projects.

- JTA-002-N-S025-01152025 (590-29042/ 320-118378)
- JTA-005-N-S025-01162025 (590-29043/ 320-118375)
- JTA-009-N-S030-01172025 (590-29051/ 320-118424)

Please let me know if you have any questions.

Thanks!

Emily K. Stashak
Environmental Scientist



GSI Environmental Inc.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kenia Whitehead
GSI Environmental Inc
1115 West Bay Drive NW
Suite 202
Olympia, Washington 98502

Generated 6/9/2025 3:27:26 PM

JOB DESCRIPTION

Spokane International Airport

JOB NUMBER

320-118378-6

Eurofins Sacramento

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northern California, LLC Project Manager.

Authorization



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Authorized for release by
Afsaneh Salimpour, Senior Project Manager
Afsaneh.Salimpour@et.eurofinsus.com
(925)484-1919



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Definitions/Glossary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Qualifiers

LCMS

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

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

Case Narrative

Client: GSI Environmental Inc
Project: Spokane International Airport

Job ID: 320-118378-6

Job ID: 320-118378-6

Eurofins Sacramento

Job Narrative 320-118378-6

Receipt

The samples were received on 1/18/2025 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.4° C.

LCMS

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-856044 recovered above the upper control limit for Perfluorotridecanoic acid (PFTTrDA). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

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

General Chemistry

Method Moisture: The reference method does not list a specific holding time for this procedure; therefore, the laboratory defaults to an in-house holding time of 28 days. The request for the analysis of the following samples in analytical batch 320-855265 was made outside this time period: JTA-002-N-S025-01152025 (320-118378-38).

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

Organic Prep

Method 1633 Shake: The following sample was prepared outside of preparation holding time due to activation past holding time: JTA-002-N-S025-01152025 (320-118378-38).

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

Eurofins Sacramento

Detection Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 320-118378-38

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 320-118378-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 80.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.40	0.099	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoropentanoic acid (PFPeA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorohexanoic acid (PFHxA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorooctanoic acid (PFOA)	ND	H	0.20	0.061	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorononanoic acid (PFNA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorodecanoic acid (PFDA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorotridecanoic acid (PFTrDA)	ND	H ^+	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorotetradecanoic acid (PFTeDA)	ND	H	0.20	0.057	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.40	0.099	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.40	0.099	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.40	0.099	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluorooctanesulfonamide (PFOSA)	ND	H	0.20	0.062	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.99	0.25	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.99	0.25	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.20	0.061	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 320-118378-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 80.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.20	0.074	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H	0.20	0.049	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.40	0.099	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.99	0.25	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.99	0.25	ug/Kg	☼	06/05/25 04:25	06/07/25 05:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	93.5		8 - 130				06/05/25 04:25	06/07/25 05:50	1
13C5 PFPeA	94.5		35 - 130				06/05/25 04:25	06/07/25 05:50	1
13C5 PFHxA	93.4		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C4 PFHpA	95.6		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C8 PFOA	91.6		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C9 PFNA	87.2		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C6 PFDA	78.4		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C7 PFUnA	74.4		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C2 PFDoA	59.3		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C2 PFTeDA	57.4		20 - 130				06/05/25 04:25	06/07/25 05:50	1
13C3 PFBS	84.9		40 - 135				06/05/25 04:25	06/07/25 05:50	1
13C3 PFHxS	80.8		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C8 PFOS	72.7		40 - 130				06/05/25 04:25	06/07/25 05:50	1
13C8 FOSA	63.5		40 - 130				06/05/25 04:25	06/07/25 05:50	1
d3-NMeFOSAA	51.4		40 - 135				06/05/25 04:25	06/07/25 05:50	1
d5-NEtFOSAA	53.3		40 - 150				06/05/25 04:25	06/07/25 05:50	1
13C2 4:2 FTS	62.5		40 - 165				06/05/25 04:25	06/07/25 05:50	1
13C2 6:2 FTS	72.6		40 - 215				06/05/25 04:25	06/07/25 05:50	1
13C2 8:2 FTS	68.4		40 - 275				06/05/25 04:25	06/07/25 05:50	1
13C3 HFPO-DA	88.8		40 - 130				06/05/25 04:25	06/07/25 05:50	1
d7-N-MeFOSE-M	53.2		20 - 130				06/05/25 04:25	06/07/25 05:50	1
d9-N-EtFOSE-M	47.3		15 - 130				06/05/25 04:25	06/07/25 05:50	1
d5-NEtPFOSA	44.6		10 - 130				06/05/25 04:25	06/07/25 05:50	1
d3-NMePFOSA	44.6		10 - 130				06/05/25 04:25	06/07/25 05:50	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA 1633)	20	H	0.10	0.10	%			06/03/25 13:44	1
Percent Solids (EPA 1633)	80	H	0.10	0.10	%			06/03/25 13:44	1

Eurofins Sacramento

Isotope Dilution Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Matrix: Solid

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (8-130)	PFPeA (35-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (40-130)
320-118378-38	JTA-002-N-S025-01152025	93.5	94.5	93.4	95.6	91.6	87.2	78.4	74.4
LCS 320-855628/3-A	Lab Control Sample	107	111	99.7	102	105	99.8	84.8	82.3
LCSD 320-855628/4-A	Lab Control Sample Dup	106	107	96.1	100	100	97.3	84.3	83.5
LLCS 320-855628/2-A	Lab Control Sample	107	104	104	101	105	102	88.6	88.8
MB 320-855628/1-A	Method Blank	106	114	107	109	101	98.0	85.5	91.2

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (40-130)	PFTDA (20-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-135)	d5NEFOS (40-150)
320-118378-38	JTA-002-N-S025-01152025	59.3	57.4	84.9	80.8	72.7	63.5	51.4	53.3
LCS 320-855628/3-A	Lab Control Sample	65.2	63.1	97.4	88.4	82.4	77.1	65.3	65.5
LCSD 320-855628/4-A	Lab Control Sample Dup	65.2	62.6	100	92.1	75.8	66.2	66.3	66.7
LLCS 320-855628/2-A	Lab Control Sample	75.2	67.9	95.4	91.9	84.1	82.1	71.6	76.2
MB 320-855628/1-A	Method Blank	77.6	70.7	95.1	90.8	81.9	77.5	71.3	72.9

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (40-165)	M262FTS (40-215)	M282FTS (40-275)	HFPODA (40-130)	NMFM (20-130)	NEFM (15-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
320-118378-38	JTA-002-N-S025-01152025	62.5	72.6	68.4	88.8	53.2	47.3	44.6	44.6
LCS 320-855628/3-A	Lab Control Sample	79.1	88.0	83.0	93.1	58.9	53.6	50.9	53.2
LCSD 320-855628/4-A	Lab Control Sample Dup	81.5	89.8	82.7	89.5	51.5	49.4	46.6	45.4
LLCS 320-855628/2-A	Lab Control Sample	78.2	87.9	88.5	92.9	68.4	61.8	57.1	55.5
MB 320-855628/1-A	Method Blank	76.8	94.0	88.1	96.8	63.0	57.4	46.7	46.0

Surrogate Legend

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

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: MB 320-855628/1-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 855628

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.062	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.058	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.063	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.20	0.062	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: MB 320-855628/1-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 855628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.075	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		0.20	0.050	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.40	0.10	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0	0.25	ug/Kg		06/05/25 04:25	06/07/25 04:27	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	106		8 - 130	06/05/25 04:25	06/07/25 04:27	1
13C5 PFPeA	114		35 - 130	06/05/25 04:25	06/07/25 04:27	1
13C5 PFHxA	107		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C4 PFHpA	109		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 PFOA	101		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C9 PFNA	98.0		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C6 PFDA	85.5		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C7 PFUnA	91.2		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C2 PFDoA	77.6		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C2 PFTeDA	70.7		20 - 130	06/05/25 04:25	06/07/25 04:27	1
13C3 PFBS	95.1		40 - 135	06/05/25 04:25	06/07/25 04:27	1
13C3 PFHxS	90.8		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 PFOS	81.9		40 - 130	06/05/25 04:25	06/07/25 04:27	1
13C8 FOSA	77.5		40 - 130	06/05/25 04:25	06/07/25 04:27	1
d3-NMeFOSAA	71.3		40 - 135	06/05/25 04:25	06/07/25 04:27	1
d5-NEtFOSAA	72.9		40 - 150	06/05/25 04:25	06/07/25 04:27	1
13C2 4:2 FTS	76.8		40 - 165	06/05/25 04:25	06/07/25 04:27	1
13C2 6:2 FTS	94.0		40 - 215	06/05/25 04:25	06/07/25 04:27	1
13C2 8:2 FTS	88.1		40 - 275	06/05/25 04:25	06/07/25 04:27	1
13C3 HFPO-DA	96.8		40 - 130	06/05/25 04:25	06/07/25 04:27	1
d7-N-MeFOSE-M	63.0		20 - 130	06/05/25 04:25	06/07/25 04:27	1
d9-N-EtFOSE-M	57.4		15 - 130	06/05/25 04:25	06/07/25 04:27	1
d5-NEtPFOSA	46.7		10 - 130	06/05/25 04:25	06/07/25 04:27	1
d3-NMePFOSA	46.0		10 - 130	06/05/25 04:25	06/07/25 04:27	1

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	5.00	4.66		ug/Kg		93	70 - 140
Perfluoropentanoic acid (PFPeA)	2.50	1.94		ug/Kg		78	60 - 150
Perfluorohexanoic acid (PFHxA)	2.50	2.14		ug/Kg		86	65 - 140
Perfluoroheptanoic acid (PFHpA)	2.50	2.30		ug/Kg		92	65 - 145
Perfluorooctanoic acid (PFOA)	2.50	2.18		ug/Kg		87	70 - 150
Perfluorononanoic acid (PFNA)	2.50	2.12		ug/Kg		85	70 - 155
Perfluorodecanoic acid (PFDA)	2.50	2.45		ug/Kg		98	70 - 155

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.50	2.17		ug/Kg		87	70 - 155
Perfluorododecanoic acid (PFDoA)	2.50	2.49		ug/Kg		100	70 - 150
Perfluorotridecanoic acid (PFTrDA)	2.50	2.74		ug/Kg		109	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.70		ug/Kg		108	65 - 150
Perfluorobutanesulfonic acid (PFBS)	2.22	1.99		ug/Kg		90	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.25		ug/Kg		96	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.17		ug/Kg		95	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.42		ug/Kg		101	65 - 155
Perfluorooctanesulfonic acid (PFOS)	2.33	2.24		ug/Kg		96	65 - 160
Perfluorononanesulfonic acid (PFNS)	2.41	2.18		ug/Kg		91	55 - 140
Perfluorodecanesulfonic acid (PFDS)	2.41	1.90		ug/Kg		79	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	2.43	1.83		ug/Kg		75	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.48		ug/Kg		95	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.36		ug/Kg		92	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.43		ug/Kg		92	70 - 150
Perfluorooctanesulfonamide (PFOSA)	2.50	2.38		ug/Kg		95	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	2.46		ug/Kg		98	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.78		ug/Kg		111	70 - 140
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	2.50	2.53		ug/Kg		101	65 - 155
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	2.50	2.43		ug/Kg		97	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	12.5		ug/Kg		100	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	12.9		ug/Kg		103	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	2.05		ug/Kg		109	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.41		ug/Kg		102	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.99		ug/Kg		80	30 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.09		ug/Kg		84	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.50	2.06		ug/Kg		83	60 - 155

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LCS 320-855628/3-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9Cl-PF3ONS)	2.34	2.18		ug/Kg		93	70 - 150
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	2.36	1.85		ug/Kg		78	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	2.07		ug/Kg		93	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.04		ug/Kg		81	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	10.3		ug/Kg		82	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	11.3		ug/Kg		91	60 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	107		8 - 130
13C5 PFPeA	111		35 - 130
13C5 PFHxA	99.7		40 - 130
13C4 PFHpA	102		40 - 130
13C8 PFOA	105		40 - 130
13C9 PFNA	99.8		40 - 130
13C6 PFDA	84.8		40 - 130
13C7 PFUnA	82.3		40 - 130
13C2 PFDoA	65.2		40 - 130
13C2 PFTeDA	63.1		20 - 130
13C3 PFBS	97.4		40 - 135
13C3 PFHxS	88.4		40 - 130
13C8 PFOS	82.4		40 - 130
13C8 FOSA	77.1		40 - 130
d3-NMeFOSAA	65.3		40 - 135
d5-NEtFOSAA	65.5		40 - 150
13C2 4:2 FTS	79.1		40 - 165
13C2 6:2 FTS	88.0		40 - 215
13C2 8:2 FTS	83.0		40 - 275
13C3 HFPO-DA	93.1		40 - 130
d7-N-MeFOSE-M	58.9		20 - 130
d9-N-EtFOSE-M	53.6		15 - 130
d5-NEtPFOSA	50.9		10 - 130
d3-NMePFOSA	53.2		10 - 130

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	5.00	4.62		ug/Kg		92	70 - 140	1	30
Perfluoropentanoic acid (PFPeA)	2.50	1.79		ug/Kg		72	60 - 150	8	30
Perfluorohexanoic acid (PFHxA)	2.50	2.26		ug/Kg		90	65 - 140	6	30
Perfluoroheptanoic acid (PFHpA)	2.50	2.24		ug/Kg		89	65 - 145	3	30
Perfluorooctanoic acid (PFOA)	2.50	2.23		ug/Kg		89	70 - 150	2	30

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluorononanoic acid (PFNA)	2.50	2.12		ug/Kg		85	70 - 155	0	30	
Perfluorodecanoic acid (PFDA)	2.50	2.50		ug/Kg		100	70 - 155	2	30	
Perfluoroundecanoic acid (PFUnA)	2.50	2.16		ug/Kg		86	70 - 155	0	30	
Perfluorododecanoic acid (PFDoA)	2.50	2.51		ug/Kg		100	70 - 150	1	30	
Perfluorotridecanoic acid (PFTTrDA)	2.50	2.74		ug/Kg		110	65 - 150	0	30	
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.86		ug/Kg		115	65 - 150	6	30	
Perfluorobutanesulfonic acid (PFBS)	2.22	2.18		ug/Kg		98	65 - 145	9	30	
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.27		ug/Kg		97	55 - 160	1	30	
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.15		ug/Kg		94	60 - 150	1	30	
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.50		ug/Kg		105	65 - 155	3	30	
Perfluorooctanesulfonic acid (PFOS)	2.33	2.33		ug/Kg		100	65 - 160	4	30	
Perfluorononanesulfonic acid (PFNS)	2.41	2.25		ug/Kg		94	55 - 140	3	30	
Perfluorodecanesulfonic acid (PFDS)	2.41	1.87		ug/Kg		77	40 - 155	2	30	
Perfluorododecanesulfonic acid (PFDoS)	2.43	1.84		ug/Kg		76	25 - 160	1	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.59		ug/Kg		98	60 - 150	2	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.26		ug/Kg		89	55 - 200	2	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.72		ug/Kg		98	70 - 150	6	30	
Perfluorooctanesulfonamide (PFOSA)	2.50	2.42		ug/Kg		97	70 - 140	1	30	
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	2.55		ug/Kg		102	70 - 155	4	30	
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.74		ug/Kg		109	70 - 140	2	30	
N-methylperfluorooctanesulfonamideacetate (NMeFOSAA)	2.50	2.58		ug/Kg		103	65 - 155	2	30	
N-ethylperfluorooctanesulfonamideacetate (NEtFOSAA)	2.50	2.51		ug/Kg		100	65 - 165	3	30	
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	13.0		ug/Kg		104	70 - 140	5	30	
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	12.3		ug/Kg		99	70 - 135	5	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	1.90		ug/Kg		101	70 - 145	7	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.50		ug/Kg		106	70 - 160	4	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.99		ug/Kg		79	30 - 140	0	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.19		ug/Kg		88	60 - 150	5	30	

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LCSD 320-855628/4-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	2.50	1.84		ug/Kg		73	60 - 155	12	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	2.34	2.05		ug/Kg		88	70 - 150	6	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	2.36	1.69		ug/Kg		72	45 - 160	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	2.09		ug/Kg		94	70 - 140	1	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.09		ug/Kg		82	45 - 130	1	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	10.8		ug/Kg		86	60 - 130	5	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	11.1		ug/Kg		89	60 - 150	2	30

Isotope Dilution	%Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	106		8 - 130
13C5 PFPeA	107		35 - 130
13C5 PFHxA	96.1		40 - 130
13C4 PFHpA	100		40 - 130
13C8 PFOA	100		40 - 130
13C9 PFNA	97.3		40 - 130
13C6 PFDA	84.3		40 - 130
13C7 PFUnA	83.5		40 - 130
13C2 PFDoA	65.2		40 - 130
13C2 PFTeDA	62.6		20 - 130
13C3 PFBS	100		40 - 135
13C3 PFHxS	92.1		40 - 130
13C8 PFOS	75.8		40 - 130
13C8 FOSA	66.2		40 - 130
d3-NMeFOSAA	66.3		40 - 135
d5-NEtFOSAA	66.7		40 - 150
13C2 4:2 FTS	81.5		40 - 165
13C2 6:2 FTS	89.8		40 - 215
13C2 8:2 FTS	82.7		40 - 275
13C3 HFPO-DA	89.5		40 - 130
d7-N-MeFOSE-M	51.5		20 - 130
d9-N-EtFOSE-M	49.4		15 - 130
d5-NEtPFOSA	46.6		10 - 130
d3-NMePFOSA	45.4		10 - 130

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	0.800	0.729		ug/Kg		91	70 - 140
Perfluoropentanoic acid (PFPeA)	0.400	0.343		ug/Kg		86	60 - 150
Perfluorohexanoic acid (PFHxA)	0.400	0.319		ug/Kg		80	65 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	0.400	0.376		ug/Kg		94	65 - 145
Perfluorooctanoic acid (PFOA)	0.400	0.346		ug/Kg		86	70 - 150
Perfluorononanoic acid (PFNA)	0.400	0.336		ug/Kg		84	70 - 155
Perfluorodecanoic acid (PFDA)	0.400	0.398		ug/Kg		99	70 - 155
Perfluoroundecanoic acid (PFUnA)	0.400	0.350		ug/Kg		88	70 - 155
Perfluorododecanoic acid (PFDoA)	0.400	0.419		ug/Kg		105	70 - 150
Perfluorotridecanoic acid (PFTrDA)	0.400	0.463		ug/Kg		116	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	0.400	0.433		ug/Kg		108	65 - 150
Perfluorobutanesulfonic acid (PFBS)	0.355	0.314		ug/Kg		88	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	0.376	0.356		ug/Kg		95	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	0.365	0.346		ug/Kg		95	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	0.382	0.384		ug/Kg		101	65 - 155
Perfluorooctanesulfonic acid (PFOS)	0.372	0.390		ug/Kg		105	65 - 160
Perfluorononanesulfonic acid (PFNS)	0.385	0.381		ug/Kg		99	55 - 140
Perfluorodecanesulfonic acid (PFDS)	0.386	0.340		ug/Kg		88	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	0.388	0.331		ug/Kg		85	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0.750	0.696		ug/Kg		93	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0.762	0.661		ug/Kg		87	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0.768	0.730		ug/Kg		95	70 - 150
Perfluorooctanesulfonamide (PFOSA)	0.400	0.391		ug/Kg		98	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	0.400	0.411		ug/Kg		103	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0.400	0.454		ug/Kg		114	70 - 140
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	0.400	0.405		ug/Kg		101	65 - 155
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	0.400	0.411		ug/Kg		103	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	2.00	1.96		ug/Kg		98	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	2.00	2.08		ug/Kg		104	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.300	0.301		ug/Kg		100	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.378	0.393		ug/Kg		104	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.400	0.320		ug/Kg		80	30 - 140

Eurofins Sacramento

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

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

Lab Sample ID: LLCS 320-855628/2-A
Matrix: Solid
Analysis Batch: 856045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 855628

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.400	0.329		ug/Kg		82	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.400	0.323		ug/Kg		81	60 - 155
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.374	0.350		ug/Kg		94	70 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.378	0.333		ug/Kg		88	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0.357	0.286		ug/Kg		80	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	0.800	0.665		ug/Kg		83	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	2.00	1.59		ug/Kg		80	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	2.00	1.60		ug/Kg		80	60 - 150

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	107		8 - 130
13C5 PFPeA	104		35 - 130
13C5 PFHxA	104		40 - 130
13C4 PFHpA	101		40 - 130
13C8 PFOA	105		40 - 130
13C9 PFNA	102		40 - 130
13C6 PFDA	88.6		40 - 130
13C7 PFUnA	88.8		40 - 130
13C2 PFDoA	75.2		40 - 130
13C2 PFTeDA	67.9		20 - 130
13C3 PFBS	95.4		40 - 135
13C3 PFHxS	91.9		40 - 130
13C8 PFOS	84.1		40 - 130
13C8 FOSA	82.1		40 - 130
d3-NMeFOSAA	71.6		40 - 135
d5-NEtFOSAA	76.2		40 - 150
13C2 4:2 FTS	78.2		40 - 165
13C2 6:2 FTS	87.9		40 - 215
13C2 8:2 FTS	88.5		40 - 275
13C3 HFPO-DA	92.9		40 - 130
d7-N-MeFOSE-M	68.4		20 - 130
d9-N-EtFOSE-M	61.8		15 - 130
d5-NEtPFOSA	57.1		10 - 130
d3-NMePFOSA	55.5		10 - 130

QC Association Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

LCMS

Prep Batch: 855628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118378-38	JTA-002-N-S025-01152025	Total/NA	Solid	1633 Shake	
MB 320-855628/1-A	Method Blank	Total/NA	Solid	1633 Shake	
LCS 320-855628/3-A	Lab Control Sample	Total/NA	Solid	1633 Shake	
LCSD 320-855628/4-A	Lab Control Sample Dup	Total/NA	Solid	1633 Shake	
LLCS 320-855628/2-A	Lab Control Sample	Total/NA	Solid	1633 Shake	

Analysis Batch: 856045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118378-38	JTA-002-N-S025-01152025	Total/NA	Solid	1633	855628
MB 320-855628/1-A	Method Blank	Total/NA	Solid	1633	855628
LCS 320-855628/3-A	Lab Control Sample	Total/NA	Solid	1633	855628
LCSD 320-855628/4-A	Lab Control Sample Dup	Total/NA	Solid	1633	855628
LLCS 320-855628/2-A	Lab Control Sample	Total/NA	Solid	1633	855628

General Chemistry

Analysis Batch: 855265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118378-38	JTA-002-N-S025-01152025	Total/NA	Solid	1633	

Lab Chronicle

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118378-6

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 320-118378-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/18/25 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1633		1			855265	06/03/25 13:44	JCB	EET SAC

Client Sample ID: JTA-002-N-S025-01152025

Lab Sample ID: 320-118378-38

Date Collected: 01/15/25 16:28

Matrix: Solid

Date Received: 01/18/25 09:00

Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake			2.52 g	5.0 mL	855628	06/05/25 04:25	R1T	EET SAC
Total/NA	Analysis	1633		1			856045	06/07/25 05:50	RS1	EET SAC

Laboratory References:

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

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- 14

Accreditation/Certification Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C581	05-06-26

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1633		Solid	Percent Moisture
1633		Solid	Percent Solids

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

Method Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Method	Method Description	Protocol	Laboratory
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Percent Moisture	EPA	EET SAC
1633 Shake	Shake Extraction with SPE	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118378-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-118378-38	JTA-002-N-S025-01152025	Solid	01/15/25 16:28	01/18/25 09:00

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

Afsaneh Salimpour

From: Emily K. Stashak <EKStashak@gsi-net.com>
Sent: Monday, June 2, 2025 1:50 PM
To: Randee Arrington; Afsaneh Salimpour
Cc: Kenia Whitehead; Mass, Sarah; Caleb Grant
Subject: Spokane International Airport / Geiger Field PFAS Support : Sixth Sample Run

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hello Afsaneh & Randee,

See below for a list of the next batch of samples we'd like to have analyzed for the Spokane International Airport / Geiger Field PFAS Support projects.

- JTA-002-N-S025-01152025 (590-29042/ 320-118378)
- JTA-005-N-S025-01162025 (590-29043/ 320-118375)
- JTA-009-N-S030-01172025 (590-29051/ 320-118424)

Please let me know if you have any questions.

Thanks!

Emily K. Stashak
Environmental Scientist



GSI Environmental Inc.

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ANALYTICAL REPORT

PREPARED FOR

Attn: Kenia Whitehead
GSI Environmental Inc
1115 West Bay Drive NW
Suite 202
Olympia, Washington 98502
Generated 6/3/2025 9:22:20 AM Revision 1

JOB DESCRIPTION

Spokane International Airport

JOB NUMBER

320-118424-5

Eurofins Sacramento

Job Notes

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Authorization



Authorized for release by
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Revision 1



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Definitions/Glossary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Qualifiers

LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
*3	ISTD response or retention time outside acceptable limits.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

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

Case Narrative

Client: GSI Environmental Inc
Project: Spokane International Airport

Job ID: 320-118424-5

Job ID: 320-118424-5

Eurofins Sacramento

Job Narrative 320-118424-5

Revised on 6/3/2025 to add sample JTA-009-N-S030-01172025 .

Receipt

The samples were received on 1/21/2025 11:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.8° C.

LCMS

Method 1633: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 320-845047 and analytical batch 320-846428 recovered outside control limits for the following analytes: Nonfluoro-3,6-dioxaheptanoic acid (NFDHA).

Method 1633: The low level laboratory control sample (LLCS), the laboratory control sample (LCS) and The laboratory control sample duplicate (LCSD) for preparation batch 320-845047 and analytical batch 320-846428 recovered outside control limits for the following analytes: 3-Perfluoropropylpropanoic acid (3:3 FTCA). The associated samples were re-prepared outside holding time. Both sets of data are reported. JTA-008-N-S017-01172025 (320-118424-14), JTA-009-N-S020-01172025 (320-118424-22), (LCS 320-845047/3-A), (LCSD 320-845047/4-A) and (LLCS 320-845047/2-A).

Method 1633: Results for sample JTA-008-N-S017-01172025 (320-118424-14) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

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

General Chemistry

Method Moisture: The reference method does not list a specific holding time for this procedure; therefore, the laboratory defaults to an in-house holding time of 28 days. The request for the analysis of the following samples in analytical batch 320-844782 occurred outside this time period: JTA-008-N-S017-01172025 (320-118424-14), JTA-009-N-S020-01172025 (320-118424-22) and JTA-009-N-S030-01172025 (320-118424-23).

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

Organic Prep

Method 1633 Shake: The following samples were re-prepared outside of preparation holding time due to low 3:3 FTCA in QCs: JTA-008-N-S017-01172025 (320-118424-14), JTA-009-N-S020-01172025 (320-118424-22) and JTA-009-N-S030-01172025 (320-118424-23).

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

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Detection Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.18	J	0.39	0.098	ug/Kg	1	✳	1633	Total/NA
Perfluoropentanoic acid (PFPeA)	0.45		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorohexanoic acid (PFHxA)	3.2		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.24		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorooctanoic acid (PFOA)	1.3		0.20	0.061	ug/Kg	1	✳	1633	Total/NA
Perfluorononanoic acid (PFNA)	0.064	J	0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.97		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.2		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	17		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.41		0.20	0.049	ug/Kg	1	✳	1633	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	37		2.0	0.49	ug/Kg	10	✳	1633	Total/NA

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.051	J	0.20	0.049	ug/Kg	1	✳	1633	Total/NA

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Date Collected: 01/17/25 11:30

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 96.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.18	J	0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoropentanoic acid (PFPeA)	0.45		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorohexanoic acid (PFHxA)	3.2		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoroheptanoic acid (PFHpA)	0.24		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorooctanoic acid (PFOA)	1.3		0.20	0.061	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorononanoic acid (PFNA)	0.064	J	0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.057	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorobutanesulfonic acid (PFBS)	0.97		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoropentanesulfonic acid (PFPeS)	1.2		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorohexanesulfonic acid (PFHxS)	17		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoroheptanesulfonic acid (PFHpS)	0.41		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.062	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.98	0.24	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.98	0.24	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*1	0.20	0.061	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Date Collected: 01/17/25 11:30

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 96.4

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.073	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*	0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.98	0.24	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.98	0.24	ug/Kg	☼	04/09/25 11:54	04/15/25 12:43	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	21.6		8 - 130	04/09/25 11:54	04/15/25 12:43	1
13C5 PFPeA	80.7		35 - 130	04/09/25 11:54	04/15/25 12:43	1
13C5 PFHxA	71.9		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C4 PFHpA	77.3		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C8 PFOA	84.0		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C9 PFNA	69.6		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C6 PFDA	75.0		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C7 PFUnA	70.6		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C2 PFDoA	74.0		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C2 PFTeDA	56.7		20 - 130	04/09/25 11:54	04/15/25 12:43	1
13C3 PFBS	69.8		40 - 135	04/09/25 11:54	04/15/25 12:43	1
13C3 PFHxS	62.3		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C8 PFOS	68.6		40 - 130	04/09/25 11:54	04/15/25 12:43	1
13C8 FOSA	82.8		40 - 130	04/09/25 11:54	04/15/25 12:43	1
d3-NMeFOSAA	85.7		40 - 135	04/09/25 11:54	04/15/25 12:43	1
d5-NEtFOSAA	85.6		40 - 150	04/09/25 11:54	04/15/25 12:43	1
13C2 4:2 FTS	71.5		40 - 165	04/09/25 11:54	04/15/25 12:43	1
13C2 6:2 FTS	64.4		40 - 215	04/09/25 11:54	04/15/25 12:43	1
13C2 8:2 FTS	68.2		40 - 275	04/09/25 11:54	04/15/25 12:43	1
13C3 HFPO-DA	71.7		40 - 130	04/09/25 11:54	04/15/25 12:43	1
d7-N-MeFOSE-M	66.6		20 - 130	04/09/25 11:54	04/15/25 12:43	1
d9-N-EtFOSE-M	64.0		15 - 130	04/09/25 11:54	04/15/25 12:43	1
d5-NEtPFOSA	73.8		10 - 130	04/09/25 11:54	04/15/25 12:43	1
d3-NMePFOSA	64.0		10 - 130	04/09/25 11:54	04/15/25 12:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	37		2.0	0.49	ug/Kg	☼	04/09/25 11:54	04/30/25 00:27	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	80.7	*3	40 - 130	04/09/25 11:54	04/30/25 00:27	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.40	0.099	ug/Kg	☼	04/21/25 04:10	04/22/25 12:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	92.7		35 - 130	04/21/25 04:10	04/22/25 12:58	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Date Collected: 01/17/25 11:30

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 96.4

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA 1633)	3.6	H	0.10	0.10	%			04/08/25 12:26	1
Percent Solids (EPA 1633)	96	H	0.10	0.10	%			04/08/25 12:26	1

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Date Collected: 01/17/25 12:10

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 85.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.39	0.098	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.061	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.057	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorooctanesulfonic acid (PFOS)	0.051	J	0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.39	0.098	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.39	0.098	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.39	0.098	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.062	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.98	0.25	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.98	0.25	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.049	ug/Kg	✱	04/09/25 11:54	04/15/25 13:00	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Date Collected: 01/17/25 12:10

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 85.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*1	0.20	0.061	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.074	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.20	0.049	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*-	0.39	0.098	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.98	0.25	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.98	0.25	ug/Kg	☼	04/09/25 11:54	04/15/25 13:00	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	16.3		8 - 130	04/09/25 11:54	04/15/25 13:00	1
13C5 PFPeA	69.6		35 - 130	04/09/25 11:54	04/15/25 13:00	1
13C5 PFHxA	68.8		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C4 PFHpA	81.0		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C8 PFOA	74.1		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C9 PFNA	67.5		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C6 PFDA	78.6		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C7 PFUnA	71.6		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C2 PFDoA	73.2		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C2 PFTeDA	56.4		20 - 130	04/09/25 11:54	04/15/25 13:00	1
13C3 PFBS	59.8		40 - 135	04/09/25 11:54	04/15/25 13:00	1
13C3 PFHxS	62.3		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C8 PFOS	64.5		40 - 130	04/09/25 11:54	04/15/25 13:00	1
13C8 FOSA	74.9		40 - 130	04/09/25 11:54	04/15/25 13:00	1
d3-NMeFOSAA	76.0		40 - 135	04/09/25 11:54	04/15/25 13:00	1
d5-NEtFOSAA	72.9		40 - 150	04/09/25 11:54	04/15/25 13:00	1
13C2 4:2 FTS	65.3		40 - 165	04/09/25 11:54	04/15/25 13:00	1
13C2 6:2 FTS	59.0		40 - 215	04/09/25 11:54	04/15/25 13:00	1
13C2 8:2 FTS	52.1		40 - 275	04/09/25 11:54	04/15/25 13:00	1
13C3 HFPO-DA	72.8		40 - 130	04/09/25 11:54	04/15/25 13:00	1
d7-N-MeFOSE-M	52.5		20 - 130	04/09/25 11:54	04/15/25 13:00	1
d9-N-EtFOSE-M	52.3		15 - 130	04/09/25 11:54	04/15/25 13:00	1
d5-NEtPFOSA	66.4		10 - 130	04/09/25 11:54	04/15/25 13:00	1
d3-NMePFOSA	59.2		10 - 130	04/09/25 11:54	04/15/25 13:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.40	0.10	ug/Kg	☼	04/21/25 04:10	04/22/25 13:15	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	89.4		35 - 130	04/21/25 04:10	04/22/25 13:15	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Date Collected: 01/17/25 12:10

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 85.7

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA 1633)	14	H	0.10	0.10	%			04/08/25 12:26	1
Percent Solids (EPA 1633)	86	H	0.10	0.10	%			04/08/25 12:26	1

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 83.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.40	0.099	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.061	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.058	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.40	0.099	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.40	0.099	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.40	0.099	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.062	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99	0.25	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99	0.25	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.050	ug/Kg	✧	04/09/25 11:54	04/15/25 13:16	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 83.7

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.050	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.050	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.050	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	*1	0.20	0.061	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.050	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.074	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.20	0.050	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	*-	0.40	0.099	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99	0.25	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99	0.25	ug/Kg	☼	04/09/25 11:54	04/15/25 13:16	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	20.8		8 - 130	04/09/25 11:54	04/15/25 13:16	1
13C5 PFPeA	71.1		35 - 130	04/09/25 11:54	04/15/25 13:16	1
13C5 PFHxA	60.8		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C4 PFHpA	66.4		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C8 PFOA	71.7		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C9 PFNA	65.9		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C6 PFDA	70.7		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C7 PFUnA	69.5		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C2 PFDoA	73.3		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C2 PFTeDA	59.5		20 - 130	04/09/25 11:54	04/15/25 13:16	1
13C3 PFBS	62.4		40 - 135	04/09/25 11:54	04/15/25 13:16	1
13C3 PFHxS	58.3		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C8 PFOS	67.7		40 - 130	04/09/25 11:54	04/15/25 13:16	1
13C8 FOSA	72.3		40 - 130	04/09/25 11:54	04/15/25 13:16	1
d3-NMeFOSAA	74.4		40 - 135	04/09/25 11:54	04/15/25 13:16	1
d5-NEtFOSAA	69.9		40 - 150	04/09/25 11:54	04/15/25 13:16	1
13C2 4:2 FTS	62.1		40 - 165	04/09/25 11:54	04/15/25 13:16	1
13C2 6:2 FTS	63.6		40 - 215	04/09/25 11:54	04/15/25 13:16	1
13C2 8:2 FTS	63.7		40 - 275	04/09/25 11:54	04/15/25 13:16	1
13C3 HFPO-DA	67.7		40 - 130	04/09/25 11:54	04/15/25 13:16	1
d7-N-MeFOSE-M	65.9		20 - 130	04/09/25 11:54	04/15/25 13:16	1
d9-N-EtFOSE-M	59.3		15 - 130	04/09/25 11:54	04/15/25 13:16	1
d5-NEtPFOSA	63.2		10 - 130	04/09/25 11:54	04/15/25 13:16	1
d3-NMePFOSA	55.4		10 - 130	04/09/25 11:54	04/15/25 13:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.40	0.099	ug/Kg	☼	04/21/25 04:10	04/22/25 13:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	80.2		35 - 130	04/21/25 04:10	04/22/25 13:31	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 83.7

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (EPA 1633)	16	H	0.10	0.10	%			04/08/25 12:26	1
Percent Solids (EPA 1633)	84	H	0.10	0.10	%			04/08/25 12:26	1

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

Isotope Dilution Summary

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (8-130)	PFPeA (35-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (40-130)
320-118424-14	JTA-008-N-S017-01172025	21.6	80.7	71.9	77.3	84.0	69.6	75.0	70.6
320-118424-14 - RE	JTA-008-N-S017-01172025		92.7						
320-118424-14 - DL	JTA-008-N-S017-01172025								
320-118424-22	JTA-009-N-S020-01172025	16.3	69.6	68.8	81.0	74.1	67.5	78.6	71.6
320-118424-22 - RE	JTA-009-N-S020-01172025		89.4						
320-118424-23	JTA-009-N-S030-01172025	20.8	71.1	60.8	66.4	71.7	65.9	70.7	69.5
320-118424-23 - RE	JTA-009-N-S030-01172025		80.2						
LCS 320-845047/3-A	Lab Control Sample	16.6	54.2	55.1	55.0	53.7	49.7	59.8	55.0
LCS 320-847070/3-A	Lab Control Sample		91.4						
LCSD 320-845047/4-A	Lab Control Sample Dup	24.1	85.2	86.0	94.6	86.2	76.3	80.7	80.1
LCSD 320-847070/4-A	Lab Control Sample Dup		92.7						
LLCS 320-845047/2-A	Lab Control Sample	19.4	83.5	68.7	87.0	78.6	67.1	76.1	76.7
LLCS 320-847070/2-A	Lab Control Sample		84.2						
MB 320-845047/1-A	Method Blank	16.9	74.2	74.7	80.9	76.6	66.8	78.3	70.6
MB 320-847070/1-A	Method Blank		89.4						

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (40-130)	PFTDA (20-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-135)	d5NEFOS (40-150)
320-118424-14	JTA-008-N-S017-01172025	74.0	56.7	69.8	62.3	68.6	82.8	85.7	85.6
320-118424-14 - RE	JTA-008-N-S017-01172025								
320-118424-14 - DL	JTA-008-N-S017-01172025					80.7 *3			
320-118424-22	JTA-009-N-S020-01172025	73.2	56.4	59.8	62.3	64.5	74.9	76.0	72.9
320-118424-22 - RE	JTA-009-N-S020-01172025								
320-118424-23	JTA-009-N-S030-01172025	73.3	59.5	62.4	58.3	67.7	72.3	74.4	69.9
320-118424-23 - RE	JTA-009-N-S030-01172025								
LCS 320-845047/3-A	Lab Control Sample	61.3	51.4	50.5	46.2	48.8	54.1	61.4	55.6
LCS 320-847070/3-A	Lab Control Sample								
LCSD 320-845047/4-A	Lab Control Sample Dup	88.4	73.3	74.7	71.0	77.8	81.4	93.9	88.8
LCSD 320-847070/4-A	Lab Control Sample Dup								
LLCS 320-845047/2-A	Lab Control Sample	78.0	70.8	68.5	58.7	72.2	77.7	87.4	80.0
LLCS 320-847070/2-A	Lab Control Sample								
MB 320-845047/1-A	Method Blank	77.1	68.8	64.6	62.9	61.8	71.6	80.1	78.9
MB 320-847070/1-A	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-165)	M262FTS (40-215)	M282FTS (40-275)	HFPODA (40-130)	NMFM (20-130)	NEFM (15-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
320-118424-14	JTA-008-N-S017-01172025	71.5	64.4	68.2	71.7	66.6	64.0	73.8	64.0
320-118424-14 - RE	JTA-008-N-S017-01172025								
320-118424-14 - DL	JTA-008-N-S017-01172025								
320-118424-22	JTA-009-N-S020-01172025	65.3	59.0	52.1	72.8	52.5	52.3	66.4	59.2
320-118424-22 - RE	JTA-009-N-S020-01172025								
320-118424-23	JTA-009-N-S030-01172025	62.1	63.6	63.7	67.7	65.9	59.3	63.2	55.4
320-118424-23 - RE	JTA-009-N-S030-01172025								
LCS 320-845047/3-A	Lab Control Sample	53.6	52.2	51.2	51.2	41.8	39.6	46.7	39.2
LCS 320-847070/3-A	Lab Control Sample								
LCSD 320-845047/4-A	Lab Control Sample Dup	78.9	72.4	73.7	84.9	73.5	74.9	79.7	71.1
LCSD 320-847070/4-A	Lab Control Sample Dup								
LLCS 320-845047/2-A	Lab Control Sample	72.9	62.1	66.7	76.8	71.8	69.3	73.8	64.5
LLCS 320-847070/2-A	Lab Control Sample								

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Isotope Dilution Summary

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS (40-165)	M262FTS (40-215)	M282FTS (40-275)	HFPODA (40-130)	NMFM (20-130)	NEFM (15-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
MB 320-845047/1-A	Method Blank	76.4	67.0	59.3	69.7	56.5	55.3	53.5	46.6
MB 320-847070/1-A	Method Blank								

Surrogate Legend

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



QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: MB 320-845047/1-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 845047

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		0.40	0.10	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoropentanoic acid (PFPeA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.062	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorotetradecanoic acid (PFTeDA)	ND		0.20	0.058	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorononanesulfonic acid (PFNS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.40	0.10	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.40	0.10	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.40	0.10	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluorooctanesulfonamide (PFOSA)	ND		0.20	0.063	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0	0.25	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0	0.25	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.20	0.062	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: MB 320-845047/1-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 845047

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.20	0.075	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		0.20	0.050	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.40	0.10	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0	0.25	ug/Kg		04/09/25 11:54	04/15/25 11:21	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0	0.25	ug/Kg		04/09/25 11:54	04/15/25 11:21	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	16.9		8 - 130	04/09/25 11:54	04/15/25 11:21	1
13C5 PFPeA	74.2		35 - 130	04/09/25 11:54	04/15/25 11:21	1
13C5 PFHxA	74.7		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C4 PFHpA	80.9		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C8 PFOA	76.6		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C9 PFNA	66.8		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C6 PFDA	78.3		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C7 PFUnA	70.6		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C2 PFDoA	77.1		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C2 PFTeDA	68.8		20 - 130	04/09/25 11:54	04/15/25 11:21	1
13C3 PFBS	64.6		40 - 135	04/09/25 11:54	04/15/25 11:21	1
13C3 PFHxS	62.9		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C8 PFOS	61.8		40 - 130	04/09/25 11:54	04/15/25 11:21	1
13C8 FOSA	71.6		40 - 130	04/09/25 11:54	04/15/25 11:21	1
d3-NMeFOSAA	80.1		40 - 135	04/09/25 11:54	04/15/25 11:21	1
d5-NEtFOSAA	78.9		40 - 150	04/09/25 11:54	04/15/25 11:21	1
13C2 4:2 FTS	76.4		40 - 165	04/09/25 11:54	04/15/25 11:21	1
13C2 6:2 FTS	67.0		40 - 215	04/09/25 11:54	04/15/25 11:21	1
13C2 8:2 FTS	59.3		40 - 275	04/09/25 11:54	04/15/25 11:21	1
13C3 HFPO-DA	69.7		40 - 130	04/09/25 11:54	04/15/25 11:21	1
d7-N-MeFOSE-M	56.5		20 - 130	04/09/25 11:54	04/15/25 11:21	1
d9-N-EtFOSE-M	55.3		15 - 130	04/09/25 11:54	04/15/25 11:21	1
d5-NEtPFOSA	53.5		10 - 130	04/09/25 11:54	04/15/25 11:21	1
d3-NMePFOSA	46.6		10 - 130	04/09/25 11:54	04/15/25 11:21	1

Lab Sample ID: LCS 320-845047/3-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	5.00	4.31		ug/Kg		86	70 - 140
Perfluoropentanoic acid (PFPeA)	2.50	2.20		ug/Kg		88	60 - 150
Perfluorohexanoic acid (PFHxA)	2.50	2.30		ug/Kg		92	65 - 140
Perfluoroheptanoic acid (PFHpA)	2.50	2.55		ug/Kg		102	65 - 145
Perfluorooctanoic acid (PFOA)	2.50	2.50		ug/Kg		100	70 - 150
Perfluorononanoic acid (PFNA)	2.50	2.60		ug/Kg		104	70 - 155
Perfluorodecanoic acid (PFDA)	2.50	2.37		ug/Kg		95	70 - 155

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LCS 320-845047/3-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.50	2.60		ug/Kg		104	70 - 155
Perfluorododecanoic acid (PFDoA)	2.50	2.58		ug/Kg		103	70 - 150
Perfluorotridecanoic acid (PFTrDA)	2.50	2.48		ug/Kg		99	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.48		ug/Kg		99	65 - 150
Perfluorobutanesulfonic acid (PFBS)	2.22	1.71		ug/Kg		77	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.30		ug/Kg		98	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.02		ug/Kg		89	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.69		ug/Kg		113	65 - 155
Perfluorooctanesulfonic acid (PFOS)	2.33	2.32		ug/Kg		100	65 - 160
Perfluorononanesulfonic acid (PFNS)	2.41	2.56		ug/Kg		107	55 - 140
Perfluorodecanesulfonic acid (PFDS)	2.41	2.43		ug/Kg		101	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	2.43	2.41		ug/Kg		99	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.60		ug/Kg		98	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.23		ug/Kg		89	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.68		ug/Kg		98	70 - 150
Perfluorooctanesulfonamide (PFOSA)	2.50	2.57		ug/Kg		103	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	3.00		ug/Kg		120	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.40		ug/Kg		96	70 - 140
N-methylperfluorooctanesulfonamide (NMeFOSAA)	2.50	2.32		ug/Kg		93	65 - 155
N-ethylperfluorooctanesulfonamide (NEtFOSAA)	2.50	2.26		ug/Kg		91	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	11.2		ug/Kg		90	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	10.8		ug/Kg		86	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	1.75		ug/Kg		93	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.51		ug/Kg		106	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.24		ug/Kg		49	30 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.23		ug/Kg		89	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.50	1.78		ug/Kg		71	60 - 155

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LCS 320-845047/3-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9Cl-PF3ONS)	2.34	2.45		ug/Kg		105	70 - 150
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	2.36	2.37		ug/Kg		100	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	2.00		ug/Kg		90	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	1.76	*	ug/Kg		35	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	11.8		ug/Kg		95	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	12.4		ug/Kg		99	60 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	16.6		8 - 130
13C5 PFPeA	54.2		35 - 130
13C5 PFHxA	55.1		40 - 130
13C4 PFHpA	55.0		40 - 130
13C8 PFOA	53.7		40 - 130
13C9 PFNA	49.7		40 - 130
13C6 PFDA	59.8		40 - 130
13C7 PFUnA	55.0		40 - 130
13C2 PFDoA	61.3		40 - 130
13C2 PFTeDA	51.4		20 - 130
13C3 PFBS	50.5		40 - 135
13C3 PFHxS	46.2		40 - 130
13C8 PFOS	48.8		40 - 130
13C8 FOSA	54.1		40 - 130
d3-NMeFOSAA	61.4		40 - 135
d5-NEtFOSAA	55.6		40 - 150
13C2 4:2 FTS	53.6		40 - 165
13C2 6:2 FTS	52.2		40 - 215
13C2 8:2 FTS	51.2		40 - 275
13C3 HFPO-DA	51.2		40 - 130
d7-N-MeFOSE-M	41.8		20 - 130
d9-N-EtFOSE-M	39.6		15 - 130
d5-NEtPFOSA	46.7		10 - 130
d3-NMePFOSA	39.2		10 - 130

Lab Sample ID: LCSD 320-845047/4-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	5.00	4.88		ug/Kg		98	70 - 140	12	30
Perfluoropentanoic acid (PFPeA)	2.50	2.13		ug/Kg		85	60 - 150	3	30
Perfluorohexanoic acid (PFHxA)	2.50	2.39		ug/Kg		95	65 - 140	3	30
Perfluoroheptanoic acid (PFHpA)	2.50	2.34		ug/Kg		94	65 - 145	9	30
Perfluorooctanoic acid (PFOA)	2.50	2.63		ug/Kg		105	70 - 150	5	30

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LCSD 320-845047/4-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorononanoic acid (PFNA)	2.50	2.53		ug/Kg		101	70 - 155	2	30
Perfluorodecanoic acid (PFDA)	2.50	2.64		ug/Kg		106	70 - 155	11	30
Perfluoroundecanoic acid (PFUnA)	2.50	2.52		ug/Kg		101	70 - 155	3	30
Perfluorododecanoic acid (PFDoA)	2.50	2.54		ug/Kg		102	70 - 150	1	30
Perfluorotridecanoic acid (PFTTrDA)	2.50	2.61		ug/Kg		104	65 - 150	5	30
Perfluorotetradecanoic acid (PFTeDA)	2.50	2.91		ug/Kg		116	65 - 150	16	30
Perfluorobutanesulfonic acid (PFBS)	2.22	1.81		ug/Kg		81	65 - 145	6	30
Perfluoropentanesulfonic acid (PFPeS)	2.35	2.08		ug/Kg		89	55 - 160	10	30
Perfluorohexanesulfonic acid (PFHxS)	2.28	2.00		ug/Kg		88	60 - 150	1	30
Perfluoroheptanesulfonic acid (PFHpS)	2.39	2.37		ug/Kg		100	65 - 155	13	30
Perfluorooctanesulfonic acid (PFOS)	2.33	2.17		ug/Kg		93	65 - 160	7	30
Perfluorononanesulfonic acid (PFNS)	2.41	2.39		ug/Kg		99	55 - 140	7	30
Perfluorodecanesulfonic acid (PFDS)	2.41	2.49		ug/Kg		103	40 - 155	3	30
Perfluorododecanesulfonic acid (PFDoS)	2.43	2.61		ug/Kg		108	25 - 160	8	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	4.69	4.45		ug/Kg		95	60 - 150	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	4.76	4.74		ug/Kg		100	55 - 200	11	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	4.80	4.69		ug/Kg		98	70 - 150	0	30
Perfluorooctanesulfonamide (PFOSA)	2.50	2.54		ug/Kg		102	70 - 140	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	2.50	2.74		ug/Kg		110	70 - 155	9	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	2.50	2.29		ug/Kg		92	70 - 140	4	30
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	2.50	2.31		ug/Kg		92	65 - 155	0	30
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	2.50	2.22		ug/Kg		89	65 - 165	2	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	12.5	11.3		ug/Kg		90	70 - 140	1	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	12.5	10.6		ug/Kg		85	70 - 135	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1.88	1.73		ug/Kg		92	70 - 145	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.37	2.28		ug/Kg		96	70 - 160	10	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.50	1.29		ug/Kg		52	30 - 140	5	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.50	2.40		ug/Kg		96	60 - 150	8	30

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LCSD 320-845047/4-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	2.50	2.51	*1	ug/Kg		100	60 - 155	34	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	2.34	2.21		ug/Kg		95	70 - 150	10	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	2.36	2.26		ug/Kg		96	45 - 160	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.23	1.92		ug/Kg		86	70 - 140	4	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	1.60	*-	ug/Kg		32	45 - 130	10	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	12.5	12.4		ug/Kg		99	60 - 130	4	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	12.5	12.5		ug/Kg		100	60 - 150	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	24.1		8 - 130
13C5 PFPeA	85.2		35 - 130
13C5 PFHxA	86.0		40 - 130
13C4 PFHpA	94.6		40 - 130
13C8 PFOA	86.2		40 - 130
13C9 PFNA	76.3		40 - 130
13C6 PFDA	80.7		40 - 130
13C7 PFUnA	80.1		40 - 130
13C2 PFDoA	88.4		40 - 130
13C2 PFTeDA	73.3		20 - 130
13C3 PFBS	74.7		40 - 135
13C3 PFHxS	71.0		40 - 130
13C8 PFOS	77.8		40 - 130
13C8 FOSA	81.4		40 - 130
d3-NMeFOSAA	93.9		40 - 135
d5-NEtFOSAA	88.8		40 - 150
13C2 4:2 FTS	78.9		40 - 165
13C2 6:2 FTS	72.4		40 - 215
13C2 8:2 FTS	73.7		40 - 275
13C3 HFPO-DA	84.9		40 - 130
d7-N-MeFOSE-M	73.5		20 - 130
d9-N-EtFOSE-M	74.9		15 - 130
d5-NEtPFOSA	79.7		10 - 130
d3-NMePFOSA	71.1		10 - 130

Lab Sample ID: LLCS 320-845047/2-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	0.800	0.847		ug/Kg		106	70 - 140
Perfluoropentanoic acid (PFPeA)	0.400	0.418		ug/Kg		105	60 - 150
Perfluorohexanoic acid (PFHxA)	0.400	0.437		ug/Kg		109	65 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LLCS 320-845047/2-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	0.400	0.396		ug/Kg		99	65 - 145
Perfluorooctanoic acid (PFOA)	0.400	0.425		ug/Kg		106	70 - 150
Perfluorononanoic acid (PFNA)	0.400	0.445		ug/Kg		111	70 - 155
Perfluorodecanoic acid (PFDA)	0.400	0.413		ug/Kg		103	70 - 155
Perfluoroundecanoic acid (PFUnA)	0.400	0.419		ug/Kg		105	70 - 155
Perfluorododecanoic acid (PFDoA)	0.400	0.423		ug/Kg		106	70 - 150
Perfluorotridecanoic acid (PFTrDA)	0.400	0.433		ug/Kg		108	65 - 150
Perfluorotetradecanoic acid (PFTeDA)	0.400	0.466		ug/Kg		116	65 - 150
Perfluorobutanesulfonic acid (PFBS)	0.355	0.319		ug/Kg		90	65 - 145
Perfluoropentanesulfonic acid (PFPeS)	0.376	0.378		ug/Kg		100	55 - 160
Perfluorohexanesulfonic acid (PFHxS)	0.365	0.380		ug/Kg		104	60 - 150
Perfluoroheptanesulfonic acid (PFHpS)	0.382	0.396		ug/Kg		104	65 - 155
Perfluorooctanesulfonic acid (PFOS)	0.372	0.378		ug/Kg		102	65 - 160
Perfluorononanesulfonic acid (PFNS)	0.385	0.426		ug/Kg		111	55 - 140
Perfluorodecanesulfonic acid (PFDS)	0.386	0.428		ug/Kg		111	40 - 155
Perfluorododecanesulfonic acid (PFDoS)	0.388	0.441		ug/Kg		114	25 - 160
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	0.750	0.800		ug/Kg		107	60 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0.762	0.847		ug/Kg		111	55 - 200
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	0.768	0.849		ug/Kg		110	70 - 150
Perfluorooctanesulfonamide (PFOSA)	0.400	0.417		ug/Kg		104	70 - 140
N-methylperfluorooctane sulfonamide (NMeFOSA)	0.400	0.460		ug/Kg		115	70 - 155
N-ethylperfluorooctane sulfonamide (NEtFOSA)	0.400	0.368		ug/Kg		92	70 - 140
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	0.400	0.385		ug/Kg		96	65 - 155
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	0.400	0.384		ug/Kg		96	65 - 165
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	2.00	1.95		ug/Kg		97	70 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	2.00	1.85		ug/Kg		93	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	0.300	0.296		ug/Kg		99	70 - 145
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.378	0.372		ug/Kg		98	70 - 160
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.400	0.199	J	ug/Kg		50	30 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: LLCS 320-845047/2-A
Matrix: Solid
Analysis Batch: 846428

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 845047

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.400	0.369		ug/Kg		92	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.400	0.415		ug/Kg		104	60 - 155
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.374	0.395		ug/Kg		106	70 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.378	0.440		ug/Kg		116	45 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	0.357	0.400		ug/Kg		112	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	0.800	0.213	J *	ug/Kg		27	45 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	2.00	2.43		ug/Kg		121	60 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	2.00	2.32		ug/Kg		116	60 - 150

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	LLCS Limits
13C4 PFBA	19.4		8 - 130
13C5 PFPeA	83.5		35 - 130
13C5 PFHxA	68.7		40 - 130
13C4 PFHpA	87.0		40 - 130
13C8 PFOA	78.6		40 - 130
13C9 PFNA	67.1		40 - 130
13C6 PFDA	76.1		40 - 130
13C7 PFUnA	76.7		40 - 130
13C2 PFDoA	78.0		40 - 130
13C2 PFTeDA	70.8		20 - 130
13C3 PFBS	68.5		40 - 135
13C3 PFHxS	58.7		40 - 130
13C8 PFOS	72.2		40 - 130
13C8 FOSA	77.7		40 - 130
d3-NMeFOSAA	87.4		40 - 135
d5-NEtFOSAA	80.0		40 - 150
13C2 4:2 FTS	72.9		40 - 165
13C2 6:2 FTS	62.1		40 - 215
13C2 8:2 FTS	66.7		40 - 275
13C3 HFPO-DA	76.8		40 - 130
d7-N-MeFOSE-M	71.8		20 - 130
d9-N-EtFOSE-M	69.3		15 - 130
d5-NEtPFOSA	73.8		10 - 130
d3-NMePFOSA	64.5		10 - 130

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118424-5

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

Lab Sample ID: MB 320-847070/1-A
Matrix: Solid
Analysis Batch: 847416

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 847070

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.40	0.10	ug/Kg		04/21/25 04:10	04/22/25 11:36	1
Isotope Dilution	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C5 PFPeA	89.4		35 - 130				04/21/25 04:10	04/22/25 11:36	1

Lab Sample ID: LCS 320-847070/3-A
Matrix: Solid
Analysis Batch: 847416

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 847070

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.87		ug/Kg		97	45 - 130
Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits				
13C5 PFPeA	91.4		35 - 130				

Lab Sample ID: LCSD 320-847070/4-A
Matrix: Solid
Analysis Batch: 847416

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 847070

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
3-Perfluoropropylpropanoic acid (3:3 FTCA)	5.00	4.88		ug/Kg		98	45 - 130	0	30
Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits						
13C5 PFPeA	92.7		35 - 130						

Lab Sample ID: LLCS 320-847070/2-A
Matrix: Solid
Analysis Batch: 847416

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 847070

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA)	0.800	0.849		ug/Kg		106	45 - 130
Isotope Dilution	LLCS %Recovery	LLCS Qualifier	Limits				
13C5 PFPeA	84.2		35 - 130				

QC Association Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

LCMS

Prep Batch: 845047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14 - DL	JTA-008-N-S017-01172025	Total/NA	Solid	1633 Shake	
320-118424-14	JTA-008-N-S017-01172025	Total/NA	Solid	1633 Shake	
320-118424-22	JTA-009-N-S020-01172025	Total/NA	Solid	1633 Shake	
320-118424-23	JTA-009-N-S030-01172025	Total/NA	Solid	1633 Shake	
MB 320-845047/1-A	Method Blank	Total/NA	Solid	1633 Shake	
LCS 320-845047/3-A	Lab Control Sample	Total/NA	Solid	1633 Shake	
LCSD 320-845047/4-A	Lab Control Sample Dup	Total/NA	Solid	1633 Shake	
LLCS 320-845047/2-A	Lab Control Sample	Total/NA	Solid	1633 Shake	

Analysis Batch: 846428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14	JTA-008-N-S017-01172025	Total/NA	Solid	1633	845047
320-118424-22	JTA-009-N-S020-01172025	Total/NA	Solid	1633	845047
320-118424-23	JTA-009-N-S030-01172025	Total/NA	Solid	1633	845047
MB 320-845047/1-A	Method Blank	Total/NA	Solid	1633	845047
LCS 320-845047/3-A	Lab Control Sample	Total/NA	Solid	1633	845047
LCSD 320-845047/4-A	Lab Control Sample Dup	Total/NA	Solid	1633	845047
LLCS 320-845047/2-A	Lab Control Sample	Total/NA	Solid	1633	845047

Prep Batch: 847070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14 - RE	JTA-008-N-S017-01172025	Total/NA	Solid	1633 Shake	
320-118424-22 - RE	JTA-009-N-S020-01172025	Total/NA	Solid	1633 Shake	
320-118424-23 - RE	JTA-009-N-S030-01172025	Total/NA	Solid	1633 Shake	
MB 320-847070/1-A	Method Blank	Total/NA	Solid	1633 Shake	
LCS 320-847070/3-A	Lab Control Sample	Total/NA	Solid	1633 Shake	
LCSD 320-847070/4-A	Lab Control Sample Dup	Total/NA	Solid	1633 Shake	
LLCS 320-847070/2-A	Lab Control Sample	Total/NA	Solid	1633 Shake	

Analysis Batch: 847416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14 - RE	JTA-008-N-S017-01172025	Total/NA	Solid	1633	847070
320-118424-22 - RE	JTA-009-N-S020-01172025	Total/NA	Solid	1633	847070
320-118424-23 - RE	JTA-009-N-S030-01172025	Total/NA	Solid	1633	847070
MB 320-847070/1-A	Method Blank	Total/NA	Solid	1633	847070
LCS 320-847070/3-A	Lab Control Sample	Total/NA	Solid	1633	847070
LCSD 320-847070/4-A	Lab Control Sample Dup	Total/NA	Solid	1633	847070
LLCS 320-847070/2-A	Lab Control Sample	Total/NA	Solid	1633	847070

Analysis Batch: 848753

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14 - DL	JTA-008-N-S017-01172025	Total/NA	Solid	1633	845047

General Chemistry

Analysis Batch: 844782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118424-14	JTA-008-N-S017-01172025	Total/NA	Solid	1633	
320-118424-22	JTA-009-N-S020-01172025	Total/NA	Solid	1633	
320-118424-23	JTA-009-N-S030-01172025	Total/NA	Solid	1633	

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Lab Chronicle

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Date Collected: 01/17/25 11:30

Matrix: Solid

Date Received: 01/21/25 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1633		1			844782	04/08/25 12:26	JCB	EET SAC

Client Sample ID: JTA-008-N-S017-01172025

Lab Sample ID: 320-118424-14

Date Collected: 01/17/25 11:30

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake	RE		2.10 g	5.0 mL	847070	04/21/25 04:10	RMF	EET SAC
Total/NA	Analysis	1633	RE	1			847416	04/22/25 12:58	RS1	EET SAC
Total/NA	Prep	1633 Shake	DL		2.12 g	5.0 mL	845047	04/09/25 11:54	ATB	EET SAC
Total/NA	Analysis	1633	DL	10			848753	04/30/25 00:27	K1D	EET SAC
Total/NA	Prep	1633 Shake			2.12 g	5.0 mL	845047	04/09/25 11:54	ATB	EET SAC
Total/NA	Analysis	1633		1			846428	04/15/25 12:43	N1K	EET SAC

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Date Collected: 01/17/25 12:10

Matrix: Solid

Date Received: 01/21/25 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1633		1			844782	04/08/25 12:26	JCB	EET SAC

Client Sample ID: JTA-009-N-S020-01172025

Lab Sample ID: 320-118424-22

Date Collected: 01/17/25 12:10

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake	RE		2.31 g	5.0 mL	847070	04/21/25 04:10	RMF	EET SAC
Total/NA	Analysis	1633	RE	1			847416	04/22/25 13:15	RS1	EET SAC
Total/NA	Prep	1633 Shake			2.37 g	5.0 mL	845047	04/09/25 11:54	ATB	EET SAC
Total/NA	Analysis	1633		1			846428	04/15/25 13:00	N1K	EET SAC

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	1633		1			844782	04/08/25 12:26	JCB	EET SAC

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake	RE		2.41 g	5.0 mL	847070	04/21/25 04:10	RMF	EET SAC
Total/NA	Analysis	1633	RE	1			847416	04/22/25 13:31	RS1	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Client Sample ID: JTA-009-N-S030-01172025

Lab Sample ID: 320-118424-23

Date Collected: 01/17/25 12:15

Matrix: Solid

Date Received: 01/21/25 11:15

Percent Solids: 83.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633 Shake			2.41 g	5.0 mL	845047	04/09/25 11:54	ATB	EET SAC
Total/NA	Analysis	1633		1			846428	04/15/25 13:16	N1K	EET SAC

Laboratory References:

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

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Accreditation/Certification Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Washington	State	C581	05-05-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
1633		Solid	Percent Moisture
1633		Solid	Percent Solids

- 1
- 2
- 3
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Method Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Method	Method Description	Protocol	Laboratory
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Percent Moisture	EPA	EET SAC
1633 Shake	Shake Extraction with SPE	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118424-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-118424-14	JTA-008-N-S017-01172025	Solid	01/17/25 11:30	01/21/25 11:15
320-118424-22	JTA-009-N-S020-01172025	Solid	01/17/25 12:10	01/21/25 11:15
320-118424-23	JTA-009-N-S030-01172025	Solid	01/17/25 12:15	01/21/25 11:15

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Afsaneh Salimpour

From: Emily K. Stashak <ekstashak@gsi-net.com>
Sent: Tuesday, April 8, 2025 9:27 AM
To: Afsaneh Salimpour
Cc: Greer, Breeyn; Caleb Grant; Kenia Whitehead; Mass, Sarah
Subject: RE: Eurofins Environment Testing Northern California, LLC sample confirmation files from 320-118424-5 Spokane International Airport

Unverified Sender: The sender of this email has not been verified. Review the content of the message carefully and verify the identity of the sender before acting on this email: replying, opening attachments or clicking links.

Hello Afsaneh,

After reviewing the files your re-transmitted this morning can we update job 320-118424-5?
I originally requested the extraction for all three samples but would like to update to run 1633 for two of those samples and hold the extraction for one sample.
See the table below for details.

Lab Sample #	Client Sample ID	1633 Final
320-118424-14	JTA-008-N-S017-01172025	Run
320-118424-22	JTA-009-N-S020-01172025	Run
320-118424-23	JTA-009-N-S030-01172025	HOLD

Apologies for the hassle, please let me know if you have any questions.

Best,

Emily K. Stashak
Environmental Scientist

GSI Environmental Inc.
O 512.346.4474 | C 832.295.1607

From: Afsaneh Salimpour <TALS@reports.et.eurofinsus.com>
Sent: Tuesday, April 8, 2025 10:56 AM
To: Greer, Breeyn <bgreer@haleyaldrich.com>; Caleb Grant <cgrant@gsi-net.com>; Emily K. Stashak <ekstashak@gsi-net.com>; Kenia Whitehead <kwhitehead@gsienv.com>; Mass, Sarah <smass@haleyaldrich.com>
Subject: Eurofins Environment Testing Northern California, LLC sample confirmation files from 320-118424-5 Spokane International Airport

Hello,

Attached please find the sample confirmation files for job 320-118424-5; Spokane International Airport

The samples were received on 1/21/2025 11:15 AM.

Please review the attachments for accuracy and notify your Project Manager of any discrepancies as quickly as possible.

Any discrepancies not communicated in a timely fashion could result in missed holding times, TAT delays and may potentially incur additional charges.

Please feel free to contact me if you have any questions.

Thank you.

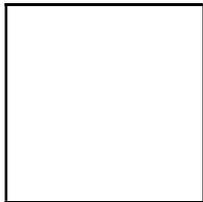
Afsaneh F Salimpour
Project Manager

Eurofins Sacramento
Phone: 925-484-1919
Mobile: 925-212-8723

E-mail: Afsaneh.Salimpour@et.eurofinsus.com
www.eurofinsus.com/env



Reference: [320-680155]
Attachments: 2



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ANALYTICAL REPORT

PREPARED FOR

Attn: Kenia Whitehead
GSI Environmental Inc
1115 West Bay Drive NW
Suite 202
Olympia, Washington 98502

Generated 1/22/2025 10:39:42 AM

JOB DESCRIPTION

Spokane International Airport

JOB NUMBER

320-118205-1

Eurofins Sacramento

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 Environment Testing Northern California, LLC Project Manager.

Authorization



Generated
1/22/2025 10:39:42 AM

Authorized for release by
Afsaneh Salimpour, Senior Project Manager
Afsaneh.Salimpour@et.eurofinsus.com
(925)484-1919



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Definitions/Glossary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: GSI Environmental Inc
Project: Spokane International Airport

Job ID: 320-118205-1

Job ID: 320-118205-1

Eurofins Sacramento

Job Narrative 320-118205-1

Receipt

The samples were received on 1/13/2025 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 3.0° C.

LCMS

Method 1633: The low level continuing calibration verification (CCVL) associated with batch 320-828092 recovered above the upper control limit for Perfluorododecanesulfonic acid (PFDoS) and Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA). The samples associated with this CCVL were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: FB-01082025 (320-118205-1), EA-MW-8A-N-01082025 (320-118205-3), EB-1-01082025 (320-118205-5), EA-MW-5A-N-01082025 (320-118205-6), EA-MW-5A-FD-01082025 (320-118205-7) and EB-2-01082025 (320-118205-8).

Method 1633: The continuing calibration verification (CCV) associated with batch 320-828092 recovered above the upper control limit for Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA). The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: FB-01082025 (320-118205-1), EA-MW-8A-N-01082025 (320-118205-3), EB-1-01082025 (320-118205-5) and (CCV 320-828092/6).

Method 1633: Results for samples EA-MW-13B-N-01082025 (320-118205-2) and SWN-MW-321-N-01082025 (320-118205-4) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

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

Organic Prep

Method 1633: Due to screen results, the following sample EA-MW-13B-N-01082025 (320-118205-2) in preparation batch 320-827655 deviated from the standard procedure. A 10x dilution was made on the sample, then fortified with Isotope Dilution Analyte (IDA) and extracted. The reporting limits (RLs) have been adjusted proportionately.

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

Eurofins Sacramento

Detection Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: FB-01082025

Lab Sample ID: 320-118205-1

No Detections.

Client Sample ID: EA-MW-13B-N-01082025

Lab Sample ID: 320-118205-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	200		40	10	ng/L	1		1633	Total/NA
Perfluoropentanoic acid (PFPeA)	440		20	5.0	ng/L	1		1633	Total/NA
Perfluorohexanoic acid (PFHxA)	1100		20	5.0	ng/L	1		1633	Total/NA
Perfluoroheptanoic acid (PFHpA)	230		20	5.0	ng/L	1		1633	Total/NA
Perfluorooctanoic acid (PFOA)	710		20	5.0	ng/L	1		1633	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	960		20	5.0	ng/L	1		1633	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	290		20	5.0	ng/L	1		1633	Total/NA
Perfluorononanesulfonic acid (PFNS)	6.6	J	20	5.0	ng/L	1		1633	Total/NA
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	22	J	40	10	ng/L	1		1633	Total/NA
Perfluorooctanesulfonamide (PFOSA)	36		20	5.0	ng/L	1		1633	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	12000		200	50	ng/L	10		1633	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	7200		200	50	ng/L	10		1633	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RA	720		20	5.0	ng/L	1		1633	Total/NA

Client Sample ID: EA-MW-8A-N-01082025

Lab Sample ID: 320-118205-3

No Detections.

Client Sample ID: SWN-MW-321-N-01082025

Lab Sample ID: 320-118205-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	17		3.4	0.85	ng/L	1		1633	Total/NA
Perfluoropentanoic acid (PFPeA)	32		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorohexanoic acid (PFHxA)	140		1.7	0.42	ng/L	1		1633	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorooctanoic acid (PFOA)	62		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorononanoic acid (PFNA)	3.5		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorodecanoic acid (PFDA)	1.8		1.7	0.42	ng/L	1		1633	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	17		1.7	0.42	ng/L	1		1633	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	4.7		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorooctanesulfonic acid (PFOS)	86		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorooctanesulfonamide (PFOSA)	3.7		1.7	0.42	ng/L	1		1633	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	1100		17	4.2	ng/L	10		1633	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RA	22		1.7	0.42	ng/L	1		1633	Total/NA

Client Sample ID: EB-1-01082025

Lab Sample ID: 320-118205-5

No Detections.

Client Sample ID: EA-MW-5A-N-01082025

Lab Sample ID: 320-118205-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.46	J	1.7	0.42	ng/L	1		1633	Total/NA

This Detection Summary does not include radiochemical test results.

Euromins Sacramento

Detection Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-FD-01082025

Lab Sample ID: 320-118205-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.44	J	1.7	0.42	ng/L	1		1633	Total/NA

Client Sample ID: EB-2-01082025

Lab Sample ID: 320-118205-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	2.6	J	8.1	2.0	ng/L	1		1633	Total/NA
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	2.7	J	8.1	2.0	ng/L	1		1633	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: FB-01082025

Lab Sample ID: 320-118205-1

Date Collected: 01/08/25 00:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.9	0.72	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoropentanoic acid (PFPeA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorohexanoic acid (PFHxA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoroheptanoic acid (PFHpA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorooctanoic acid (PFOA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorononanoic acid (PFNA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorodecanoic acid (PFDA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.4	0.39	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.4	0.42	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.4	0.58	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorononanesulfonic acid (PFNS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.4	0.38	ng/L		01/15/25 12:50	01/17/25 12:49	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.9	0.72	ng/L		01/15/25 12:50	01/17/25 12:49	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.9	0.72	ng/L		01/15/25 12:50	01/17/25 12:49	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.9	0.72	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		7.2	1.8	ng/L		01/15/25 12:50	01/17/25 12:49	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		7.2	1.8	ng/L		01/15/25 12:50	01/17/25 12:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.1	0.28	ng/L		01/15/25 12:50	01/17/25 12:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.4	0.52	ng/L		01/15/25 12:50	01/17/25 12:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.4	0.42	ng/L		01/15/25 12:50	01/17/25 12:49	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: FB-01082025

Lab Sample ID: 320-118205-1

Date Collected: 01/08/25 00:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		1.4	0.36	ng/L		01/15/25 12:50	01/17/25 12:49	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.9	0.72	ng/L		01/15/25 12:50	01/17/25 12:49	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		7.2	1.8	ng/L		01/15/25 12:50	01/17/25 12:49	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		7.2	1.8	ng/L		01/15/25 12:50	01/17/25 12:49	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	114		5 - 130	01/15/25 12:50	01/17/25 12:49	1
13C5 PFPeA	105		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C5 PFHxA	110		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C4 PFHpA	117		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C8 PFOA	100		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C9 PFNA	88.9		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C6 PFDA	88.7		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C7 PFUnA	97.0		30 - 130	01/15/25 12:50	01/17/25 12:49	1
13C2 PFDoA	101		10 - 130	01/15/25 12:50	01/17/25 12:49	1
13C2 PFTeDA	89.1		10 - 130	01/15/25 12:50	01/17/25 12:49	1
13C3 PFBS	95.2		40 - 135	01/15/25 12:50	01/17/25 12:49	1
13C3 PFHxS	94.0		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C8 PFOS	93.3		40 - 130	01/15/25 12:50	01/17/25 12:49	1
13C8 FOSA	77.8		40 - 130	01/15/25 12:50	01/17/25 12:49	1
d3-NMeFOSAA	85.0		40 - 170	01/15/25 12:50	01/17/25 12:49	1
d5-NEtFOSAA	91.7		25 - 135	01/15/25 12:50	01/17/25 12:49	1
13C2 4:2 FTS	111		40 - 200	01/15/25 12:50	01/17/25 12:49	1
13C2 6:2 FTS	102		40 - 200	01/15/25 12:50	01/17/25 12:49	1
13C2 8:2 FTS	110		40 - 300	01/15/25 12:50	01/17/25 12:49	1
13C3 HFPO-DA	99.9		40 - 130	01/15/25 12:50	01/17/25 12:49	1
d7-N-MeFOSE-M	93.7		10 - 130	01/15/25 12:50	01/17/25 12:49	1
d9-N-EtFOSE-M	95.8		10 - 130	01/15/25 12:50	01/17/25 12:49	1
d5-NEtPFOSA	86.8		10 - 130	01/15/25 12:50	01/17/25 12:49	1
d3-NMePFOSA	85.9		10 - 130	01/15/25 12:50	01/17/25 12:49	1

Client Sample ID: EA-MW-13B-N-01082025

Lab Sample ID: 320-118205-2

Date Collected: 01/08/25 10:35

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	200		40	10	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoropentanoic acid (PFPeA)	440		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorohexanoic acid (PFHxA)	1100		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoroheptanoic acid (PFHpA)	230		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorooctanoic acid (PFOA)	710		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorononanoic acid (PFNA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorodecanoic acid (PFDA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoroundecanoic acid (PFUnA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorododecanoic acid (PFDoA)	ND		20	5.5	ng/L		01/15/25 12:50	01/18/25 07:58	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-13B-N-01082025

Lab Sample ID: 320-118205-2

Date Collected: 01/08/25 10:35

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	ND		20	5.8	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorotetradecanoic acid (PFTeDA)	ND		20	8.1	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoropentanesulfonic acid (PFPeS)	960		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoroheptanesulfonic acid (PFHpS)	290		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorononanesulfonic acid (PFNS)	6.6 J		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorododecanesulfonic acid (PFDoS)	ND		20	5.3	ng/L		01/15/25 12:50	01/18/25 07:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		40	10	ng/L		01/15/25 12:50	01/18/25 07:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	22 J		40	10	ng/L		01/15/25 12:50	01/18/25 07:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		40	10	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluorooctanesulfonamide (PFOSA)	36		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		100	25	ng/L		01/15/25 12:50	01/18/25 07:58	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		100	25	ng/L		01/15/25 12:50	01/18/25 07:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		15	3.9	ng/L		01/15/25 12:50	01/18/25 07:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		20	7.2	ng/L		01/15/25 12:50	01/18/25 07:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		20	5.8	ng/L		01/15/25 12:50	01/18/25 07:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		20	5.0	ng/L		01/15/25 12:50	01/18/25 07:58	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		40	10	ng/L		01/15/25 12:50	01/18/25 07:58	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		100	25	ng/L		01/15/25 12:50	01/18/25 07:58	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		100	25	ng/L		01/15/25 12:50	01/18/25 07:58	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	109		5 - 130				01/15/25 12:50	01/18/25 07:58	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-13B-N-01082025

Lab Sample ID: 320-118205-2

Date Collected: 01/08/25 10:35

Matrix: Water

Date Received: 01/13/25 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFPeA	101		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C5 PFHxA	112		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C4 PFHpA	89.1		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C8 PFOA	97.6		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C9 PFNA	93.3		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C6 PFDA	76.3		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C7 PFUnA	82.6		30 - 130	01/15/25 12:50	01/18/25 07:58	1
13C2 PFDoA	88.6		10 - 130	01/15/25 12:50	01/18/25 07:58	1
13C2 PFTeDA	79.5		10 - 130	01/15/25 12:50	01/18/25 07:58	1
13C3 PFHxS	102		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C8 PFOS	99.2		40 - 130	01/15/25 12:50	01/18/25 07:58	1
13C8 FOSA	95.0		40 - 130	01/15/25 12:50	01/18/25 07:58	1
d3-NMeFOSAA	124		40 - 170	01/15/25 12:50	01/18/25 07:58	1
d5-NEtFOSAA	112		25 - 135	01/15/25 12:50	01/18/25 07:58	1
13C2 4:2 FTS	83.2		40 - 200	01/15/25 12:50	01/18/25 07:58	1
13C2 6:2 FTS	122		40 - 200	01/15/25 12:50	01/18/25 07:58	1
13C2 8:2 FTS	118		40 - 300	01/15/25 12:50	01/18/25 07:58	1
13C3 HFPO-DA	79.3		40 - 130	01/15/25 12:50	01/18/25 07:58	1
d7-N-MeFOSE-M	97.9		10 - 130	01/15/25 12:50	01/18/25 07:58	1
d9-N-EtFOSE-M	100		10 - 130	01/15/25 12:50	01/18/25 07:58	1
d5-NEtPFOSA	99.7		10 - 130	01/15/25 12:50	01/18/25 07:58	1
d3-NMePFOSA	95.3		10 - 130	01/15/25 12:50	01/18/25 07:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	12000		200	50	ng/L		01/15/25 12:50	01/17/25 13:06	10
Perfluorooctanesulfonic acid (PFOS)	7200		200	50	ng/L		01/15/25 12:50	01/17/25 13:06	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFHxS	93.3	*3	40 - 130	01/15/25 12:50	01/17/25 13:06	10
13C8 PFOS	94.4	*3	40 - 130	01/15/25 12:50	01/17/25 13:06	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	720		20	5.0	ng/L		01/15/25 12:50	01/20/25 20:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	114		40 - 135	01/15/25 12:50	01/20/25 20:40	1

Client Sample ID: EA-MW-8A-N-01082025

Lab Sample ID: 320-118205-3

Date Collected: 01/08/25 12:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-8A-N-01082025

Lab Sample ID: 320-118205-3

Date Collected: 01/08/25 12:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.69	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.45	ng/L		01/15/25 12:50	01/17/25 13:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 13:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 13:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 13:23	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 13:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3	0.33	ng/L		01/15/25 12:50	01/17/25 13:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.61	ng/L		01/15/25 12:50	01/17/25 13:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 13:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:23	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 13:23	1

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-8A-N-01082025

Lab Sample ID: 320-118205-3

Date Collected: 01/08/25 12:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 13:23	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 13:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	107		5 - 130				01/15/25 12:50	01/17/25 13:23	1
13C5 PFPeA	99.5		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C5 PFHxA	98.9		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C4 PFHpA	115		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C8 PFOA	95.8		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C9 PFNA	81.2		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C6 PFDA	79.5		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C7 PFUnA	82.8		30 - 130				01/15/25 12:50	01/17/25 13:23	1
13C2 PFDoA	102		10 - 130				01/15/25 12:50	01/17/25 13:23	1
13C2 PFTeDA	91.8		10 - 130				01/15/25 12:50	01/17/25 13:23	1
13C3 PFBS	85.4		40 - 135				01/15/25 12:50	01/17/25 13:23	1
13C3 PFHxS	90.2		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C8 PFOS	90.6		40 - 130				01/15/25 12:50	01/17/25 13:23	1
13C8 FOSA	91.0		40 - 130				01/15/25 12:50	01/17/25 13:23	1
d3-NMeFOSAA	87.5		40 - 170				01/15/25 12:50	01/17/25 13:23	1
d5-NEtFOSAA	97.8		25 - 135				01/15/25 12:50	01/17/25 13:23	1
13C2 4:2 FTS	97.9		40 - 200				01/15/25 12:50	01/17/25 13:23	1
13C2 6:2 FTS	102		40 - 200				01/15/25 12:50	01/17/25 13:23	1
13C2 8:2 FTS	109		40 - 300				01/15/25 12:50	01/17/25 13:23	1
13C3 HFPO-DA	93.2		40 - 130				01/15/25 12:50	01/17/25 13:23	1
d7-N-MeFOSE-M	102		10 - 130				01/15/25 12:50	01/17/25 13:23	1
d9-N-EtFOSE-M	100		10 - 130				01/15/25 12:50	01/17/25 13:23	1
d5-NEtPFOSA	92.3		10 - 130				01/15/25 12:50	01/17/25 13:23	1
d3-NMePFOSA	88.1		10 - 130				01/15/25 12:50	01/17/25 13:23	1

Client Sample ID: SWN-MW-321-N-01082025

Lab Sample ID: 320-118205-4

Date Collected: 01/08/25 14:55

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	17		3.4	0.85	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoropentanoic acid (PFPeA)	32		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorohexanoic acid (PFHxA)	140		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoroheptanoic acid (PFHpA)	13		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorooctanoic acid (PFOA)	62		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorononanoic acid (PFNA)	3.5		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorodecanoic acid (PFDA)	1.8		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.69	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoropentanesulfonic acid (PFPeS)	17		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoroheptanesulfonic acid (PFHpS)	4.7		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: SWN-MW-321-N-01082025

Lab Sample ID: 320-118205-4

Date Collected: 01/08/25 14:55

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	86		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.45	ng/L		01/15/25 12:50	01/18/25 08:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/18/25 08:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/18/25 08:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluorooctanesulfonamide (PFOSA)	3.7		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/18/25 08:14	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/18/25 08:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3	0.33	ng/L		01/15/25 12:50	01/18/25 08:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.61	ng/L		01/15/25 12:50	01/18/25 08:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/18/25 08:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/18/25 08:14	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/18/25 08:14	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/18/25 08:14	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/18/25 08:14	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	112		5 - 130				01/15/25 12:50	01/18/25 08:14	1
13C5 PFPeA	86.5		40 - 130				01/15/25 12:50	01/18/25 08:14	1
13C5 PFHxA	95.2		40 - 130				01/15/25 12:50	01/18/25 08:14	1
13C4 PFHpA	104		40 - 130				01/15/25 12:50	01/18/25 08:14	1
13C8 PFOA	95.2		40 - 130				01/15/25 12:50	01/18/25 08:14	1
13C9 PFNA	82.7		40 - 130				01/15/25 12:50	01/18/25 08:14	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: SWN-MW-321-N-01082025

Lab Sample ID: 320-118205-4

Date Collected: 01/08/25 14:55

Matrix: Water

Date Received: 01/13/25 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C6 PFDA	87.3		40 - 130	01/15/25 12:50	01/18/25 08:14	1
13C7 PFUnA	86.6		30 - 130	01/15/25 12:50	01/18/25 08:14	1
13C2 PFDoA	105		10 - 130	01/15/25 12:50	01/18/25 08:14	1
13C2 PFTeDA	102		10 - 130	01/15/25 12:50	01/18/25 08:14	1
13C3 PFHxS	93.4		40 - 130	01/15/25 12:50	01/18/25 08:14	1
13C8 PFOS	81.4		40 - 130	01/15/25 12:50	01/18/25 08:14	1
13C8 FOSA	70.6		40 - 130	01/15/25 12:50	01/18/25 08:14	1
d3-NMeFOSAA	89.5		40 - 170	01/15/25 12:50	01/18/25 08:14	1
d5-NEtFOSAA	85.0		25 - 135	01/15/25 12:50	01/18/25 08:14	1
13C2 4:2 FTS	102		40 - 200	01/15/25 12:50	01/18/25 08:14	1
13C2 6:2 FTS	132		40 - 200	01/15/25 12:50	01/18/25 08:14	1
13C2 8:2 FTS	85.5		40 - 300	01/15/25 12:50	01/18/25 08:14	1
13C3 HFPO-DA	83.9		40 - 130	01/15/25 12:50	01/18/25 08:14	1
d7-N-MeFOSE-M	67.3		10 - 130	01/15/25 12:50	01/18/25 08:14	1
d9-N-EtFOSE-M	67.4		10 - 130	01/15/25 12:50	01/18/25 08:14	1
d5-NEtPFOSA	62.1		10 - 130	01/15/25 12:50	01/18/25 08:14	1
d3-NMePFOSA	67.0		10 - 130	01/15/25 12:50	01/18/25 08:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	1100		17	4.2	ng/L		01/15/25 12:50	01/17/25 13:39	10
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFHxS	92.7	*3	40 - 130	01/15/25 12:50	01/17/25 13:39	10			

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	22		1.7	0.42	ng/L		01/15/25 12:50	01/20/25 20:57	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	117		40 - 135	01/15/25 12:50	01/20/25 20:57	1			

Client Sample ID: EB-1-01082025

Lab Sample ID: 320-118205-5

Date Collected: 01/08/25 15:25

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.4	0.84	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.68	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1

Eurofins Sacramento

Client Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EB-1-01082025

Lab Sample ID: 320-118205-5

Date Collected: 01/08/25 15:25

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.45	ng/L		01/15/25 12:50	01/17/25 13:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.4	0.84	ng/L		01/15/25 12:50	01/17/25 13:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.4	0.84	ng/L		01/15/25 12:50	01/17/25 13:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.4	0.84	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.4	2.1	ng/L		01/15/25 12:50	01/17/25 13:56	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.4	2.1	ng/L		01/15/25 12:50	01/17/25 13:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3	0.33	ng/L		01/15/25 12:50	01/17/25 13:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.61	ng/L		01/15/25 12:50	01/17/25 13:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 13:56	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 13:56	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.4	0.84	ng/L		01/15/25 12:50	01/17/25 13:56	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.4	2.1	ng/L		01/15/25 12:50	01/17/25 13:56	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.4	2.1	ng/L		01/15/25 12:50	01/17/25 13:56	1
Isotope Dilution							Prepared	Analyzed	Dil Fac
13C4 PFBA	111			5 - 130			01/15/25 12:50	01/17/25 13:56	1
13C5 PFPeA	87.6			40 - 130			01/15/25 12:50	01/17/25 13:56	1
13C5 PFHxA	86.8			40 - 130			01/15/25 12:50	01/17/25 13:56	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EB-1-01082025

Lab Sample ID: 320-118205-5

Date Collected: 01/08/25 15:25

Matrix: Water

Date Received: 01/13/25 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	105		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C8 PFOA	97.1		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C9 PFNA	91.6		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C6 PFDA	88.2		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C7 PFUnA	86.7		30 - 130	01/15/25 12:50	01/17/25 13:56	1
13C2 PFDoA	101		10 - 130	01/15/25 12:50	01/17/25 13:56	1
13C2 PFTeDA	87.6		10 - 130	01/15/25 12:50	01/17/25 13:56	1
13C3 PFBS	91.5		40 - 135	01/15/25 12:50	01/17/25 13:56	1
13C3 PFHxS	102		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C8 PFOS	93.3		40 - 130	01/15/25 12:50	01/17/25 13:56	1
13C8 FOSA	86.2		40 - 130	01/15/25 12:50	01/17/25 13:56	1
d3-NMeFOSAA	93.6		40 - 170	01/15/25 12:50	01/17/25 13:56	1
d5-NEtFOSAA	91.0		25 - 135	01/15/25 12:50	01/17/25 13:56	1
13C2 4:2 FTS	105		40 - 200	01/15/25 12:50	01/17/25 13:56	1
13C2 6:2 FTS	111		40 - 200	01/15/25 12:50	01/17/25 13:56	1
13C2 8:2 FTS	124		40 - 300	01/15/25 12:50	01/17/25 13:56	1
13C3 HFPO-DA	73.9		40 - 130	01/15/25 12:50	01/17/25 13:56	1
d7-N-MeFOSE-M	99.9		10 - 130	01/15/25 12:50	01/17/25 13:56	1
d9-N-EtFOSE-M	97.4		10 - 130	01/15/25 12:50	01/17/25 13:56	1
d5-NEtPFOSA	92.8		10 - 130	01/15/25 12:50	01/17/25 13:56	1
d3-NMePFOSA	86.5		10 - 130	01/15/25 12:50	01/17/25 13:56	1

Client Sample ID: EA-MW-5A-N-01082025

Lab Sample ID: 320-118205-6

Date Collected: 01/08/25 13:15

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.3	0.83	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.7	0.48	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.67	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorooctanesulfonic acid (PFOS)	0.46	J	1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.44	ng/L		01/15/25 12:50	01/17/25 14:46	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-N-01082025

Lab Sample ID: 320-118205-6

Date Collected: 01/08/25 13:15

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.3	0.83	ng/L		01/15/25 12:50	01/17/25 14:46	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.3	0.83	ng/L		01/15/25 12:50	01/17/25 14:46	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.3	0.83	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.3	2.1	ng/L		01/15/25 12:50	01/17/25 14:46	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.3	2.1	ng/L		01/15/25 12:50	01/17/25 14:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.32	ng/L		01/15/25 12:50	01/17/25 14:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.60	ng/L		01/15/25 12:50	01/17/25 14:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.48	ng/L		01/15/25 12:50	01/17/25 14:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 14:46	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.3	0.83	ng/L		01/15/25 12:50	01/17/25 14:46	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.3	2.1	ng/L		01/15/25 12:50	01/17/25 14:46	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.3	2.1	ng/L		01/15/25 12:50	01/17/25 14:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	109		5 - 130				01/15/25 12:50	01/17/25 14:46	1
13C5 PFPeA	103		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C5 PFHxA	101		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C4 PFHpA	114		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C8 PFOA	97.5		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C9 PFNA	91.3		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C6 PFDA	82.6		40 - 130				01/15/25 12:50	01/17/25 14:46	1
13C7 PFUnA	82.0		30 - 130				01/15/25 12:50	01/17/25 14:46	1
13C2 PFDoA	99.2		10 - 130				01/15/25 12:50	01/17/25 14:46	1
13C2 PFTeDA	91.4		10 - 130				01/15/25 12:50	01/17/25 14:46	1
13C3 PFBS	92.8		40 - 135				01/15/25 12:50	01/17/25 14:46	1
13C3 PFHxS	95.4		40 - 130				01/15/25 12:50	01/17/25 14:46	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-N-01082025

Lab Sample ID: 320-118205-6

Date Collected: 01/08/25 13:15

Matrix: Water

Date Received: 01/13/25 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	87.6		40 - 130	01/15/25 12:50	01/17/25 14:46	1
13C8 FOSA	90.0		40 - 130	01/15/25 12:50	01/17/25 14:46	1
d3-NMeFOSAA	92.5		40 - 170	01/15/25 12:50	01/17/25 14:46	1
d5-NEtFOSAA	95.5		25 - 135	01/15/25 12:50	01/17/25 14:46	1
13C2 4:2 FTS	110		40 - 200	01/15/25 12:50	01/17/25 14:46	1
13C2 6:2 FTS	107		40 - 200	01/15/25 12:50	01/17/25 14:46	1
13C2 8:2 FTS	121		40 - 300	01/15/25 12:50	01/17/25 14:46	1
13C3 HFPO-DA	97.6		40 - 130	01/15/25 12:50	01/17/25 14:46	1
d7-N-MeFOSE-M	99.6		10 - 130	01/15/25 12:50	01/17/25 14:46	1
d9-N-EtFOSE-M	96.4		10 - 130	01/15/25 12:50	01/17/25 14:46	1
d5-NEtPFOSA	86.4		10 - 130	01/15/25 12:50	01/17/25 14:46	1
d3-NMePFOSA	85.9		10 - 130	01/15/25 12:50	01/17/25 14:46	1

Client Sample ID: EA-MW-5A-FD-01082025

Lab Sample ID: 320-118205-7

Date Collected: 01/08/25 13:30

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoropentanoic acid (PFPeA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorotridecanoic acid (PFTrDA)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.7	0.69	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorooctanesulfonic acid (PFOS)	0.44	J	1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorononanesulfonic acid (PFNS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.7	0.45	ng/L		01/15/25 12:50	01/17/25 15:02	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 15:02	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 15:02	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-FD-01082025

Lab Sample ID: 320-118205-7

Date Collected: 01/08/25 13:30

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 15:02	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 15:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.3	0.33	ng/L		01/15/25 12:50	01/17/25 15:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.7	0.61	ng/L		01/15/25 12:50	01/17/25 15:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.7	0.49	ng/L		01/15/25 12:50	01/17/25 15:02	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.7	0.42	ng/L		01/15/25 12:50	01/17/25 15:02	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.4	0.85	ng/L		01/15/25 12:50	01/17/25 15:02	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 15:02	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.5	2.1	ng/L		01/15/25 12:50	01/17/25 15:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	108		5 - 130	01/15/25 12:50	01/17/25 15:02	1
13C5 PFPeA	99.5		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C5 PFHxA	102		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C4 PFHpA	108		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C8 PFOA	94.0		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C9 PFNA	87.0		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C6 PFDA	79.9		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C7 PFUnA	88.9		30 - 130	01/15/25 12:50	01/17/25 15:02	1
13C2 PFDoA	104		10 - 130	01/15/25 12:50	01/17/25 15:02	1
13C2 PFTeDA	102		10 - 130	01/15/25 12:50	01/17/25 15:02	1
13C3 PFBS	110		40 - 135	01/15/25 12:50	01/17/25 15:02	1
13C3 PFHxS	97.0		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C8 PFOS	84.9		40 - 130	01/15/25 12:50	01/17/25 15:02	1
13C8 FOSA	89.1		40 - 130	01/15/25 12:50	01/17/25 15:02	1
d3-NMeFOSAA	111		40 - 170	01/15/25 12:50	01/17/25 15:02	1
d5-NEtFOSAA	92.3		25 - 135	01/15/25 12:50	01/17/25 15:02	1
13C2 4:2 FTS	116		40 - 200	01/15/25 12:50	01/17/25 15:02	1
13C2 6:2 FTS	117		40 - 200	01/15/25 12:50	01/17/25 15:02	1
13C2 8:2 FTS	117		40 - 300	01/15/25 12:50	01/17/25 15:02	1
13C3 HFPO-DA	90.4		40 - 130	01/15/25 12:50	01/17/25 15:02	1

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Client Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-FD-01082025

Lab Sample ID: 320-118205-7

Date Collected: 01/08/25 13:30

Matrix: Water

Date Received: 01/13/25 11:30

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d7-N-MeFOSE-M	95.7		10 - 130	01/15/25 12:50	01/17/25 15:02	1
d9-N-EtFOSE-M	95.0		10 - 130	01/15/25 12:50	01/17/25 15:02	1
d5-NEtPFOSA	83.2		10 - 130	01/15/25 12:50	01/17/25 15:02	1
d3-NMePFOSA	84.0		10 - 130	01/15/25 12:50	01/17/25 15:02	1

Client Sample ID: EB-2-01082025

Lab Sample ID: 320-118205-8

Date Collected: 01/08/25 16:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		3.2	0.81	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoropentanoic acid (PFPeA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.6	0.47	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorotetradecanoic acid (PFTeDA)	ND		1.6	0.65	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorononanesulfonic acid (PFNS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.6	0.43	ng/L		01/15/25 12:50	01/17/25 15:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		3.2	0.81	ng/L		01/15/25 12:50	01/17/25 15:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		3.2	0.81	ng/L		01/15/25 12:50	01/17/25 15:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		3.2	0.81	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluorooctanesulfonamide (PFOSA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	2.6	J	8.1	2.0	ng/L		01/15/25 12:50	01/17/25 15:19	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	2.7	J	8.1	2.0	ng/L		01/15/25 12:50	01/17/25 15:19	1

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Client Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EB-2-01082025

Lab Sample ID: 320-118205-8

Date Collected: 01/08/25 16:00

Matrix: Water

Date Received: 01/13/25 11:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.2	0.31	ng/L		01/15/25 12:50	01/17/25 15:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.6	0.58	ng/L		01/15/25 12:50	01/17/25 15:19	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		1.6	0.47	ng/L		01/15/25 12:50	01/17/25 15:19	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		1.6	0.40	ng/L		01/15/25 12:50	01/17/25 15:19	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		3.2	0.81	ng/L		01/15/25 12:50	01/17/25 15:19	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		8.1	2.0	ng/L		01/15/25 12:50	01/17/25 15:19	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		8.1	2.0	ng/L		01/15/25 12:50	01/17/25 15:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	115		5 - 130	01/15/25 12:50	01/17/25 15:19	1
13C5 PFPeA	102		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C5 PFHxA	93.4		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C4 PFHpA	117		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C8 PFOA	95.2		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C9 PFNA	87.2		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C6 PFDA	95.2		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C7 PFUnA	102		30 - 130	01/15/25 12:50	01/17/25 15:19	1
13C2 PFDoA	108		10 - 130	01/15/25 12:50	01/17/25 15:19	1
13C2 PFTeDA	96.6		10 - 130	01/15/25 12:50	01/17/25 15:19	1
13C3 PFBS	96.7		40 - 135	01/15/25 12:50	01/17/25 15:19	1
13C3 PFHxS	96.0		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C8 PFOS	95.0		40 - 130	01/15/25 12:50	01/17/25 15:19	1
13C8 FOSA	87.9		40 - 130	01/15/25 12:50	01/17/25 15:19	1
d3-NMeFOSAA	98.1		40 - 170	01/15/25 12:50	01/17/25 15:19	1
d5-NEtFOSAA	99.7		25 - 135	01/15/25 12:50	01/17/25 15:19	1
13C2 4:2 FTS	115		40 - 200	01/15/25 12:50	01/17/25 15:19	1
13C2 6:2 FTS	108		40 - 200	01/15/25 12:50	01/17/25 15:19	1
13C2 8:2 FTS	143		40 - 300	01/15/25 12:50	01/17/25 15:19	1
13C3 HFPO-DA	96.7		40 - 130	01/15/25 12:50	01/17/25 15:19	1
d7-N-MeFOSE-M	98.8		10 - 130	01/15/25 12:50	01/17/25 15:19	1
d9-N-EtFOSE-M	97.1		10 - 130	01/15/25 12:50	01/17/25 15:19	1
d5-NEtPFOSA	87.7		10 - 130	01/15/25 12:50	01/17/25 15:19	1
d3-NMePFOSA	89.1		10 - 130	01/15/25 12:50	01/17/25 15:19	1

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Isotope Dilution Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
320-118205-1	FB-01082025	114	105	110	117	100	88.9	88.7	97.0
320-118205-2 - DL	EA-MW-13B-N-01082025								
320-118205-2	EA-MW-13B-N-01082025	109	101	112	89.1	97.6	93.3	76.3	82.6
320-118205-2 - RA	EA-MW-13B-N-01082025								
320-118205-3	EA-MW-8A-N-01082025	107	99.5	98.9	115	95.8	81.2	79.5	82.8
320-118205-4 - DL	SWN-MW-321-N-01082025								
320-118205-4	SWN-MW-321-N-01082025	112	86.5	95.2	104	95.2	82.7	87.3	86.6
320-118205-4 - RA	SWN-MW-321-N-01082025								
320-118205-5	EB-1-01082025	111	87.6	86.8	105	97.1	91.6	88.2	86.7
320-118205-6	EA-MW-5A-N-01082025	109	103	101	114	97.5	91.3	82.6	82.0
320-118205-7	EA-MW-5A-FD-01082025	108	99.5	102	108	94.0	87.0	79.9	88.9
320-118205-8	EB-2-01082025	115	102	93.4	117	95.2	87.2	95.2	102
LCS 320-827655/3-A	Lab Control Sample	113	89.8	103	102	94.6	87.0	87.5	91.7
LCSD 320-827655/4-A	Lab Control Sample Dup	110	101	111	116	96.7	83.0	88.1	85.2
LLCS 320-827655/2-A	Lab Control Sample	119	89.0	97.8	114	100	84.2	91.0	93.8
LLCS 320-827655/2-A - RA	Lab Control Sample								
MB 320-827655/1-A	Method Blank	119	95.7	114	123	95.2	85.7	87.4	89.3

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDaA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	d5NEFOS (25-135)
320-118205-1	FB-01082025	101	89.1	95.2	94.0	93.3	77.8	85.0	91.7
320-118205-2 - DL	EA-MW-13B-N-01082025				93.3 *3	94.4 *3			
320-118205-2	EA-MW-13B-N-01082025	88.6	79.5		102	99.2	95.0	124	112
320-118205-2 - RA	EA-MW-13B-N-01082025			114					
320-118205-3	EA-MW-8A-N-01082025	102	91.8	85.4	90.2	90.6	91.0	87.5	97.8
320-118205-4 - DL	SWN-MW-321-N-01082025				92.7 *3				
320-118205-4	SWN-MW-321-N-01082025	105	102		93.4	81.4	70.6	89.5	85.0
320-118205-4 - RA	SWN-MW-321-N-01082025			117					
320-118205-5	EB-1-01082025	101	87.6	91.5	102	93.3	86.2	93.6	91.0
320-118205-6	EA-MW-5A-N-01082025	99.2	91.4	92.8	95.4	87.6	90.0	92.5	95.5
320-118205-7	EA-MW-5A-FD-01082025	104	102	110	97.0	84.9	89.1	111	92.3
320-118205-8	EB-2-01082025	108	96.6	96.7	96.0	95.0	87.9	98.1	99.7
LCS 320-827655/3-A	Lab Control Sample	102	88.7	91.9	97.7	93.8	84.5	90.4	89.9
LCSD 320-827655/4-A	Lab Control Sample Dup	106	88.1	91.9	98.3	93.2	83.9	89.8	96.6
LLCS 320-827655/2-A	Lab Control Sample	108	91.1	93.7	97.2	93.1	86.7	87.5	92.3
LLCS 320-827655/2-A - RA	Lab Control Sample								
MB 320-827655/1-A	Method Blank	110	96.3	76.8	90.6	89.2	94.3	93.7	88.8

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
320-118205-1	FB-01082025	111	102	110	99.9	93.7	95.8	86.8	85.9
320-118205-2 - DL	EA-MW-13B-N-01082025								
320-118205-2	EA-MW-13B-N-01082025	83.2	122	118	79.3	97.9	100	99.7	95.3
320-118205-2 - RA	EA-MW-13B-N-01082025								
320-118205-3	EA-MW-8A-N-01082025	97.9	102	109	93.2	102	100	92.3	88.1
320-118205-4 - DL	SWN-MW-321-N-01082025								
320-118205-4	SWN-MW-321-N-01082025	102	132	85.5	83.9	67.3	67.4	62.1	67.0
320-118205-4 - RA	SWN-MW-321-N-01082025								
320-118205-5	EB-1-01082025	105	111	124	73.9	99.9	97.4	92.8	86.5

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Isotope Dilution Summary

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS (40-200)	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NMFM (10-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
320-118205-6	EA-MW-5A-N-01082025	110	107	121	97.6	99.6	96.4	86.4	85.9
320-118205-7	EA-MW-5A-FD-01082025	116	117	117	90.4	95.7	95.0	83.2	84.0
320-118205-8	EB-2-01082025	115	108	143	96.7	98.8	97.1	87.7	89.1
LCS 320-827655/3-A	Lab Control Sample	83.0	99.3	106	81.8	96.9	98.0	92.8	88.4
LCSD 320-827655/4-A	Lab Control Sample Dup	97.8	107	107	98.3	101	97.4	92.4	91.5
LLCS 320-827655/2-A	Lab Control Sample	98.7	95.7	92.9	120	99.8	103	93.3	88.9
LLCS 320-827655/2-A - RA	Lab Control Sample				91.8				
MB 320-827655/1-A	Method Blank	105	94.7	97.5	104	107	115	87.2	91.6

Surrogate Legend

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

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: MB 320-827655/1-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 827655

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		4.0	1.0	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	0.58	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorotetradecanoic acid (PFTeDA)	ND		2.0	0.81	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0	0.53	ng/L		01/15/25 12:50	01/17/25 11:25	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		4.0	1.0	ng/L		01/15/25 12:50	01/17/25 11:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		4.0	1.0	ng/L		01/15/25 12:50	01/17/25 11:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		4.0	1.0	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluorooctanesulfonamide (PFOSA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		10	2.5	ng/L		01/15/25 12:50	01/17/25 11:25	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		10	2.5	ng/L		01/15/25 12:50	01/17/25 11:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.5	0.39	ng/L		01/15/25 12:50	01/17/25 11:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	0.72	ng/L		01/15/25 12:50	01/17/25 11:25	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		2.0	0.58	ng/L		01/15/25 12:50	01/17/25 11:25	1

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: MB 320-827655/1-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 827655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	0.50	ng/L		01/15/25 12:50	01/17/25 11:25	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		4.0	1.0	ng/L		01/15/25 12:50	01/17/25 11:25	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		10	2.5	ng/L		01/15/25 12:50	01/17/25 11:25	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		10	2.5	ng/L		01/15/25 12:50	01/17/25 11:25	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	119		5 - 130	01/15/25 12:50	01/17/25 11:25	1
13C5 PFPeA	95.7		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C5 PFHxA	114		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C4 PFHpA	123		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C8 PFOA	95.2		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C9 PFNA	85.7		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C6 PFDA	87.4		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C7 PFUnA	89.3		30 - 130	01/15/25 12:50	01/17/25 11:25	1
13C2 PFDoA	110		10 - 130	01/15/25 12:50	01/17/25 11:25	1
13C2 PFTeDA	96.3		10 - 130	01/15/25 12:50	01/17/25 11:25	1
13C3 PFBS	76.8		40 - 135	01/15/25 12:50	01/17/25 11:25	1
13C3 PFHxS	90.6		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C8 PFOS	89.2		40 - 130	01/15/25 12:50	01/17/25 11:25	1
13C8 FOSA	94.3		40 - 130	01/15/25 12:50	01/17/25 11:25	1
d3-NMeFOSAA	93.7		40 - 170	01/15/25 12:50	01/17/25 11:25	1
d5-NEtFOSAA	88.8		25 - 135	01/15/25 12:50	01/17/25 11:25	1
13C2 4:2 FTS	105		40 - 200	01/15/25 12:50	01/17/25 11:25	1
13C2 6:2 FTS	94.7		40 - 200	01/15/25 12:50	01/17/25 11:25	1
13C2 8:2 FTS	97.5		40 - 300	01/15/25 12:50	01/17/25 11:25	1
13C3 HFPO-DA	104		40 - 130	01/15/25 12:50	01/17/25 11:25	1
d7-N-MeFOSE-M	107		10 - 130	01/15/25 12:50	01/17/25 11:25	1
d9-N-EtFOSE-M	115		10 - 130	01/15/25 12:50	01/17/25 11:25	1
d5-NEtPFOSA	87.2		10 - 130	01/15/25 12:50	01/17/25 11:25	1
d3-NMePFOSA	91.6		10 - 130	01/15/25 12:50	01/17/25 11:25	1

Lab Sample ID: LCS 320-827655/3-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	80.0	72.1		ng/L		90	70 - 140
Perfluoropentanoic acid (PFPeA)	40.0	40.5		ng/L		101	65 - 135
Perfluorohexanoic acid (PFHxA)	40.0	34.4		ng/L		86	70 - 145
Perfluoroheptanoic acid (PFHpA)	40.0	39.2		ng/L		98	70 - 150
Perfluorooctanoic acid (PFOA)	40.0	39.4		ng/L		99	70 - 150
Perfluorononanoic acid (PFNA)	40.0	41.2		ng/L		103	70 - 150
Perfluorodecanoic acid (PFDA)	40.0	37.2		ng/L		93	70 - 140

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QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LCS 320-827655/3-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	40.0	35.3		ng/L		88	70 - 145
Perfluorododecanoic acid (PFDoA)	40.0	37.5		ng/L		94	70 - 140
Perfluorotridecanoic acid (PFTrDA)	40.0	38.8		ng/L		97	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	40.0	38.6		ng/L		96	60 - 140
Perfluorobutanesulfonic acid (PFBS)	35.5	37.8		ng/L		106	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	37.6	41.0		ng/L		109	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	36.5	38.4		ng/L		105	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	38.2	39.6		ng/L		104	70 - 150
Perfluorooctanesulfonic acid (PFOS)	37.2	35.9		ng/L		97	55 - 150
Perfluorononanesulfonic acid (PFNS)	38.5	40.5		ng/L		105	65 - 145
Perfluorodecanesulfonic acid (PFDS)	38.6	37.6		ng/L		98	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	38.8	40.6		ng/L		105	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	75.0	94.3		ng/L		126	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	76.2	75.2		ng/L		99	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	76.8	71.4		ng/L		93	60 - 150
Perfluorooctanesulfonamide (PFOSA)	40.0	41.8		ng/L		104	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	39.6		ng/L		99	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	37.6		ng/L		94	65 - 145
N-methylperfluorooctanesulfonamide (NMeFOSAA)	40.0	40.0		ng/L		100	50 - 140
N-ethylperfluorooctanesulfonamide (NEtFOSAA)	40.0	40.2		ng/L		100	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	200	196		ng/L		98	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	200	201		ng/L		100	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	31.1		ng/L		104	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	46.0		ng/L		122	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	41.3		ng/L		103	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	40.0		ng/L		100	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	33.6		ng/L		84	50 - 150

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LCS 320-827655/3-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	37.4	35.4		ng/L		95	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.8	37.7		ng/L		100	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	35.7	46.5		ng/L		130	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	77.1		ng/L		96	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	203		ng/L		102	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	153		ng/L		77	50 - 145

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	113		5 - 130
13C5 PFPeA	89.8		40 - 130
13C5 PFHxA	103		40 - 130
13C4 PFHpA	102		40 - 130
13C8 PFOA	94.6		40 - 130
13C9 PFNA	87.0		40 - 130
13C6 PFDA	87.5		40 - 130
13C7 PFUnA	91.7		30 - 130
13C2 PFDoA	102		10 - 130
13C2 PFTeDA	88.7		10 - 130
13C3 PFBS	91.9		40 - 135
13C3 PFHxS	97.7		40 - 130
13C8 PFOS	93.8		40 - 130
13C8 FOSA	84.5		40 - 130
d3-NMeFOSAA	90.4		40 - 170
d5-NEtFOSAA	89.9		25 - 135
13C2 4:2 FTS	83.0		40 - 200
13C2 6:2 FTS	99.3		40 - 200
13C2 8:2 FTS	106		40 - 300
13C3 HFPO-DA	81.8		40 - 130
d7-N-MeFOSE-M	96.9		10 - 130
d9-N-EtFOSE-M	98.0		10 - 130
d5-NEtPFOSA	92.8		10 - 130
d3-NMePFOSA	88.4		10 - 130

Lab Sample ID: LCSD 320-827655/4-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	80.0	73.7		ng/L		92	70 - 140	2	30
Perfluoropentanoic acid (PFPeA)	40.0	44.9		ng/L		112	65 - 135	10	30
Perfluorohexanoic acid (PFHxA)	40.0	34.2		ng/L		86	70 - 145	0	30
Perfluoroheptanoic acid (PFHpA)	40.0	37.5		ng/L		94	70 - 150	4	30
Perfluorooctanoic acid (PFOA)	40.0	37.4		ng/L		94	70 - 150	5	30

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LCSD 320-827655/4-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
Perfluorononanoic acid (PFNA)	40.0	41.6		ng/L		104	70 - 150	1	30
Perfluorodecanoic acid (PFDA)	40.0	36.5		ng/L		91	70 - 140	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	39.9		ng/L		100	70 - 145	12	30
Perfluorododecanoic acid (PFDoA)	40.0	37.6		ng/L		94	70 - 140	0	30
Perfluorotridecanoic acid (PFTrDA)	40.0	41.1		ng/L		103	65 - 140	6	30
Perfluorotetradecanoic acid (PFTeDA)	40.0	41.0		ng/L		103	60 - 140	6	30
Perfluorobutanesulfonic acid (PFBS)	35.5	33.9		ng/L		95	60 - 145	11	30
Perfluoropentanesulfonic acid (PFPeS)	37.6	38.5		ng/L		102	65 - 140	6	30
Perfluorohexanesulfonic acid (PFHxS)	36.5	35.3		ng/L		97	65 - 145	8	30
Perfluoroheptanesulfonic acid (PFHpS)	38.2	38.7		ng/L		101	70 - 150	2	30
Perfluorooctanesulfonic acid (PFOS)	37.2	35.7		ng/L		96	55 - 150	0	30
Perfluorononanesulfonic acid (PFNS)	38.5	39.4		ng/L		102	65 - 145	3	30
Perfluorodecanesulfonic acid (PFDS)	38.6	38.5		ng/L		100	60 - 145	2	30
Perfluorododecanesulfonic acid (PFDoS)	38.8	41.4		ng/L		107	50 - 145	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	75.0	83.0		ng/L		111	70 - 145	13	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	76.2	67.0		ng/L		88	65 - 155	12	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	76.8	79.0		ng/L		103	60 - 150	10	30
Perfluorooctanesulfonamide (PFOSA)	40.0	40.3		ng/L		101	70 - 145	4	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	43.1		ng/L		108	60 - 150	9	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	39.0		ng/L		97	65 - 145	4	30
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	40.0	44.3		ng/L		111	50 - 140	10	30
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	40.0	39.3		ng/L		98	70 - 145	2	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	200	186		ng/L		93	70 - 145	5	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	200	193		ng/L		97	70 - 135	4	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	30.0	24.9		ng/L		83	70 - 140	22	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	39.2		ng/L		104	65 - 145	16	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	41.6		ng/L		104	55 - 140	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	39.9		ng/L		100	60 - 150	0	30

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QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LCSD 320-827655/4-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	38.7		ng/L		97	50 - 150	14	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9CI-PF3ONS)	37.4	31.0		ng/L		83	70 - 155	13	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	37.8	34.6		ng/L		92	55 - 160	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	35.7	38.7		ng/L		109	70 - 140	18	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	80.0	73.6		ng/L		92	65 - 130	5	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	200	190		ng/L		95	70 - 135	7	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	200	160		ng/L		80	50 - 145	4	30

Isotope Dilution	%Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	110		5 - 130
13C5 PFPeA	101		40 - 130
13C5 PFHxA	111		40 - 130
13C4 PFHpA	116		40 - 130
13C8 PFOA	96.7		40 - 130
13C9 PFNA	83.0		40 - 130
13C6 PFDA	88.1		40 - 130
13C7 PFUnA	85.2		30 - 130
13C2 PFDoA	106		10 - 130
13C2 PFTeDA	88.1		10 - 130
13C3 PFBS	91.9		40 - 135
13C3 PFHxS	98.3		40 - 130
13C8 PFOS	93.2		40 - 130
13C8 FOSA	83.9		40 - 130
d3-NMeFOSAA	89.8		40 - 170
d5-NEtFOSAA	96.6		25 - 135
13C2 4:2 FTS	97.8		40 - 200
13C2 6:2 FTS	107		40 - 200
13C2 8:2 FTS	107		40 - 300
13C3 HFPO-DA	98.3		40 - 130
d7-N-MeFOSE-M	101		10 - 130
d9-N-EtFOSE-M	97.4		10 - 130
d5-NEtPFOSA	92.4		10 - 130
d3-NMePFOSA	91.5		10 - 130

Lab Sample ID: LLCS 320-827655/2-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	8.00	7.30		ng/L		91	70 - 140
Perfluoropentanoic acid (PFPeA)	4.00	4.40		ng/L		110	65 - 135
Perfluorohexanoic acid (PFHxA)	4.00	3.66		ng/L		92	70 - 145

Eurofins Sacramento

QC Sample Results

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LLCS 320-827655/2-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	4.00	3.56		ng/L		89	70 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.54		ng/L		89	70 - 150
Perfluorononanoic acid (PFNA)	4.00	4.32		ng/L		108	70 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.50		ng/L		87	70 - 140
Perfluoroundecanoic acid (PFUnA)	4.00	3.58		ng/L		90	70 - 145
Perfluorododecanoic acid (PFDoA)	4.00	3.53		ng/L		88	70 - 140
Perfluorotridecanoic acid (PFTrDA)	4.00	4.14		ng/L		104	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	4.00	4.40		ng/L		110	60 - 140
Perfluorobutanesulfonic acid (PFBS)	3.55	3.88		ng/L		109	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.76	4.55		ng/L		121	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	3.65	3.79		ng/L		104	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.82	3.74		ng/L		98	70 - 150
Perfluorooctanesulfonic acid (PFOS)	3.72	4.09		ng/L		110	55 - 150
Perfluorononanesulfonic acid (PFNS)	3.85	3.64		ng/L		95	65 - 145
Perfluorodecanesulfonic acid (PFDS)	3.86	3.77		ng/L		98	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.88	4.25		ng/L		110	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	7.50	7.53		ng/L		100	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	7.62	8.25		ng/L		108	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	7.68	8.11		ng/L		106	60 - 150
Perfluorooctanesulfonamide (PFOSA)	4.00	4.23		ng/L		106	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	4.00	4.00		ng/L		100	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	4.00	3.48		ng/L		87	65 - 145
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	4.00	3.94		ng/L		99	50 - 140
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	4.00	3.75		ng/L		94	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	20.0	19.0		ng/L		95	70 - 145
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	20.0	18.1		ng/L		90	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	3.00	2.17		ng/L		72	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.78	3.28		ng/L		87	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.00	4.48		ng/L		112	55 - 140

Eurofins Sacramento

QC Sample Results

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

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

Lab Sample ID: LLCS 320-827655/2-A
Matrix: Water
Analysis Batch: 828092

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 827655

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.00	4.33		ng/L		108	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.00	4.71		ng/L		118	50 - 150
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	3.78	2.62		ng/L		69	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	3.57	4.06		ng/L		114	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	8.00	8.48		ng/L		106	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	20.0	20.9		ng/L		105	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	20.0	18.4		ng/L		92	50 - 145

Isotope Dilution	LLCS %Recovery	LLCS Qualifier	LLCS Limits
13C4 PFBA	119		5 - 130
13C5 PFPeA	89.0		40 - 130
13C5 PFHxA	97.8		40 - 130
13C4 PFHpA	114		40 - 130
13C8 PFOA	100		40 - 130
13C9 PFNA	84.2		40 - 130
13C6 PFDA	91.0		40 - 130
13C7 PFUnA	93.8		30 - 130
13C2 PFDoA	108		10 - 130
13C2 PFTeDA	91.1		10 - 130
13C3 PFBS	93.7		40 - 135
13C3 PFHxS	97.2		40 - 130
13C8 PFOS	93.1		40 - 130
13C8 FOSA	86.7		40 - 130
d3-NMeFOSAA	87.5		40 - 170
d5-NEtFOSAA	92.3		25 - 135
13C2 4:2 FTS	98.7		40 - 200
13C2 6:2 FTS	95.7		40 - 200
13C2 8:2 FTS	92.9		40 - 300
13C3 HFPO-DA	120		40 - 130
d7-N-MeFOSE-M	99.8		10 - 130
d9-N-EtFOSE-M	103		10 - 130
d5-NEtPFOSA	93.3		10 - 130
d3-NMePFOSA	88.9		10 - 130

QC Association Summary

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

LCMS

Prep Batch: 827655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118205-1	FB-01082025	Total/NA	Water	1633	
320-118205-2 - DL	EA-MW-13B-N-01082025	Total/NA	Water	1633	
320-118205-2	EA-MW-13B-N-01082025	Total/NA	Water	1633	
320-118205-2 - RA	EA-MW-13B-N-01082025	Total/NA	Water	1633	
320-118205-3	EA-MW-8A-N-01082025	Total/NA	Water	1633	
320-118205-4 - DL	SWN-MW-321-N-01082025	Total/NA	Water	1633	
320-118205-4	SWN-MW-321-N-01082025	Total/NA	Water	1633	
320-118205-4 - RA	SWN-MW-321-N-01082025	Total/NA	Water	1633	
320-118205-5	EB-1-01082025	Total/NA	Water	1633	
320-118205-6	EA-MW-5A-N-01082025	Total/NA	Water	1633	
320-118205-7	EA-MW-5A-FD-01082025	Total/NA	Water	1633	
320-118205-8	EB-2-01082025	Total/NA	Water	1633	
MB 320-827655/1-A	Method Blank	Total/NA	Water	1633	
LCS 320-827655/3-A	Lab Control Sample	Total/NA	Water	1633	
LCSD 320-827655/4-A	Lab Control Sample Dup	Total/NA	Water	1633	
LLCS 320-827655/2-A	Lab Control Sample	Total/NA	Water	1633	
LLCS 320-827655/2-A - RA	Lab Control Sample	Total/NA	Water	1633	

Analysis Batch: 828092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118205-1	FB-01082025	Total/NA	Water	1633	827655
320-118205-2 - DL	EA-MW-13B-N-01082025	Total/NA	Water	1633	827655
320-118205-3	EA-MW-8A-N-01082025	Total/NA	Water	1633	827655
320-118205-4 - DL	SWN-MW-321-N-01082025	Total/NA	Water	1633	827655
320-118205-5	EB-1-01082025	Total/NA	Water	1633	827655
320-118205-6	EA-MW-5A-N-01082025	Total/NA	Water	1633	827655
320-118205-7	EA-MW-5A-FD-01082025	Total/NA	Water	1633	827655
320-118205-8	EB-2-01082025	Total/NA	Water	1633	827655
MB 320-827655/1-A	Method Blank	Total/NA	Water	1633	827655
LCS 320-827655/3-A	Lab Control Sample	Total/NA	Water	1633	827655
LCSD 320-827655/4-A	Lab Control Sample Dup	Total/NA	Water	1633	827655
LLCS 320-827655/2-A	Lab Control Sample	Total/NA	Water	1633	827655

Analysis Batch: 828188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118205-2	EA-MW-13B-N-01082025	Total/NA	Water	1633	827655
320-118205-4	SWN-MW-321-N-01082025	Total/NA	Water	1633	827655

Analysis Batch: 828297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 320-827655/2-A - RA	Lab Control Sample	Total/NA	Water	1633	827655

Analysis Batch: 828357

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-118205-2 - RA	EA-MW-13B-N-01082025	Total/NA	Water	1633	827655
320-118205-4 - RA	SWN-MW-321-N-01082025	Total/NA	Water	1633	827655

Lab Chronicle

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: FB-01082025

Lab Sample ID: 320-118205-1

Date Collected: 01/08/25 00:00

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			174.3 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 12:49	K1S	EET SAC

Client Sample ID: EA-MW-13B-N-01082025

Lab Sample ID: 320-118205-2

Date Collected: 01/08/25 10:35

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633	DL		12.5 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633	DL	10			828092	01/17/25 13:06	K1S	EET SAC
Total/NA	Prep	1633			12.5 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828188	01/18/25 07:58	K1S	EET SAC
Total/NA	Prep	1633	RA		12.5 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633	RA	1			828357	01/20/25 20:40	S1M	EET SAC

Client Sample ID: EA-MW-8A-N-01082025

Lab Sample ID: 320-118205-3

Date Collected: 01/08/25 12:00

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			147.8 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 13:23	K1S	EET SAC

Client Sample ID: SWN-MW-321-N-01082025

Lab Sample ID: 320-118205-4

Date Collected: 01/08/25 14:55

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633	DL		147.8 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633	DL	10			828092	01/17/25 13:39	K1S	EET SAC
Total/NA	Prep	1633			147.8 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828188	01/18/25 08:14	K1S	EET SAC
Total/NA	Prep	1633	RA		147.8 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633	RA	1			828357	01/20/25 20:57	S1M	EET SAC

Client Sample ID: EB-1-01082025

Lab Sample ID: 320-118205-5

Date Collected: 01/08/25 15:25

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			148.3 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 13:56	K1S	EET SAC

Eurofins Sacramento

Lab Chronicle

Client: GSI Environmental Inc
 Project/Site: Spokane International Airport

Job ID: 320-118205-1

Client Sample ID: EA-MW-5A-N-01082025

Lab Sample ID: 320-118205-6

Date Collected: 01/08/25 13:15

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			150.1 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 14:46	K1S	EET SAC

Client Sample ID: EA-MW-5A-FD-01082025

Lab Sample ID: 320-118205-7

Date Collected: 01/08/25 13:30

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			147.2 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 15:02	K1S	EET SAC

Client Sample ID: EB-2-01082025

Lab Sample ID: 320-118205-8

Date Collected: 01/08/25 16:00

Matrix: Water

Date Received: 01/13/25 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1633			154.9 mL	5.0 mL	827655	01/15/25 12:50	ERR	EET SAC
Total/NA	Analysis	1633		1			828092	01/17/25 15:19	K1S	EET SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Washington	State	C581	05-05-25

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

Method Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Method	Method Description	Protocol	Laboratory
1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

Client: GSI Environmental Inc
Project/Site: Spokane International Airport

Job ID: 320-118205-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-118205-1	FB-01082025	Water	01/08/25 00:00	01/13/25 11:30
320-118205-2	EA-MW-13B-N-01082025	Water	01/08/25 10:35	01/13/25 11:30
320-118205-3	EA-MW-8A-N-01082025	Water	01/08/25 12:00	01/13/25 11:30
320-118205-4	SWN-MW-321-N-01082025	Water	01/08/25 14:55	01/13/25 11:30
320-118205-5	EB-1-01082025	Water	01/08/25 15:25	01/13/25 11:30
320-118205-6	EA-MW-5A-N-01082025	Water	01/08/25 13:15	01/13/25 11:30
320-118205-7	EA-MW-5A-FD-01082025	Water	01/08/25 13:30	01/13/25 11:30
320-118205-8	EB-2-01082025	Water	01/08/25 16:00	01/13/25 11:30

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- 14

H&A FILE NO. 0209800-001 LABORATORY Eurofins Environmental Testing DELIVERY DATE _____
 PROJECT NAME Geiger Field PFAS Support ADDRESS 11922 E 1st Ave, Spokane Valley, WA 99206 TURNAROUND TIME _____
 H&A CONTACT Breeyn Greer CONTACT Randee Armington PROJECT MANAGER Breeyn Greer

Phone (509) 960-7447
 Fax (509) 960-7447
 Page 1 of 1

Sample No.	Date	Time	Type	Analysis Requested								Number of Containers
				PFAS EPA 1633	Cations EPA 200.7	Anions EPA 300.0	Bromide EPA 300.0	Alkalinity SM 2320 B				

FB-01082025	1/8/25	-	H ₂ O	X								1	Laboratory to use applicable DEP CAM methods, unless otherwise directed. - Cations to be analyzed: Ca, Mg, K, Na - Anions to be analyzed: Cl, NO ₃ , SO ₄ ²⁻ - Alkalinity to be measured by titration
EA-MU-138-N-01082025	1/8/25	10:35	H ₂ O	X								3	
EA-MU-844-N-01082025	1/8/25	12:00	H ₂ O	X								3	
SMN-MU-321-N-01082025	1/8/25	14:55	H ₂ O	X								3	
EB-1-01082025	1/8/25	15:25	H ₂ O	X								3	
EA-MU-5A-N-01082025	1/8/25	13:15	H ₂ O	X								3	
EA-MU-5A-FD-01082025	1/8/25	13:30	H ₂ O	X								3	2472 Scar 18206
EB-2-01082025	1/8/25	16:00	H ₂ O	X								3	

Sampled and Relinquished by: [Signature] Received by: [Signature] LIQUID
 Print: [Name] Print: [Name]
 Firm: [Firm] Firm: [Firm]
 Date: [Date] Date: [Date]

Relinquished by: [Signature] Received by: [Signature] SOLID
 Print: [Name] Print: [Name]
 Firm: [Firm] Firm: [Firm]
 Date: [Date] Date: [Date]

Relinquished by: [Signature] Received by: [Signature]
 Print: [Name] Print: [Name]
 Firm: [Firm] Firm: [Firm]
 Date: [Date] Date: [Date]

Relinquished by: [Signature] Received by: [Signature]
 Print: [Name] Print: [Name]
 Firm: [Firm] Firm: [Firm]
 Date: [Date] Date: [Date]

Presumptive Certainty Data Package (Laboratory to use applicable DEP CAM methods)

Presumptive Certainty Data Package is needed. Initial all sections:
 The required minimum field QC samples, as designated in BWSC CAM-VII have been or will be collected, as appropriate, to meet the requirements of Presumptive Certainty Matrix Spike (MS) samples for MCP Metals and/or Cyanide are included and identified herein.
 This Chain of Custody Record (specify) _____ includes _____ does not include samples defined as Drinking Water Samples.

If this Chain of Custody Record identifies samples defined as Drinking Water Samples, Trip Blanks and Field Duplicates are included and identified and analysis of TICs are

Required Reporting Limits and Data Quality Objectives

- RC-S1 S1 GW1
- RC-S2 S2 GW2
- RC-GW1 S3 GW3
- RC-GW2



320-118206 Chain of Custody

30°C



Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Loc: 320
118205

Tracking # 42 42 5692 9456

Job _____

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

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

Therm ID: <u>W-1</u> Corr Factor (+/-) <u>0.4</u> °C	Notes: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	
Ice _____ Wet _____ Gel _____ Other _____		
Cooler Custody Seal <u>2287454</u>		
Cooler ID _____		
Temp Observed: <u>30</u> °C Corrected: <u>30</u> °C		
From Temp Blank <input type="checkbox"/> Sandwich <input checked="" type="checkbox"/> Sidewall <input type="checkbox"/>		
Opening/Processing The Shipment		Yes No NA
Cooler compromised/tampered with?		<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
Cooler Temperature is acceptable?		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Frozen samples show signs of thaw?		<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
Initials <u>SB</u> Date <u>1/13/25</u>		
Unpacking/Labeling The Samples	Yes No NA	
Containers are not broken or leaking?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Samples compromised/tampered with?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
COC is complete w/o discrepancies	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample custody seal?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Sample containers have legible labels?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample date/times are provided?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Appropriate containers are used?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample bottles are completely filled?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Sample preservatives verified?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Is the Field Sampler's name on COC?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Samples w/o discrepancies?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Zero headspace?*	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Alkalinity has no headspace?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Multiphasic samples are not present?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")		
Initials <u>PSH</u> Date <u>1/13/25</u>		
Trizma Lot #(s) _____		
Ammonium Acetate Lot #(s) _____		
Login Completion	Yes No NA	
Receipt Temperature on COC?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
NCM Filed?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
Samples received within hold time?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Log Release checked in TALS?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Initials <u>PSH</u> Date <u>1/13/25</u>		

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10 December 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 20, Spokane International Airport PFAS
November 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport (SIA) PFAS site (Site) as required by Order No. DE 22584 (EO) by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 20 covers the reporting period of 1 November through 30 November 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - SIA submitted a revised draft of the Quarterly Groundwater Monitoring Sampling and Analysis Plan and Quality Assurance Project Plan (SAP/QAPP) on 03 November which addressed comments received from Ecology on 02 October 2025.
 - On 03 November 2025 SIA received a draft amendment to the Order that described the inclusion of the City of Spokane and Spokane County as additional potentially liable persons.
 - On 06 November 2025, Pyron Environmental notified GSI that the validation of soil PFAS data requires additional time than initially projected; the estimated date for receipt of the validated soil data is now 12 December 2025.
 - On 18 November 2025, Ecology provided SIA comments on the revised draft of the Quarterly Groundwater Monitoring SAP/QAPP.
 - On 19 November 2025 SIA submitted a formal request to Ecology to include the Washington Military Department Air National Guard (ANG) as a potentially liable person to the Order. The request included documentation that provides credible evidence the ANG directly contributed to known PFAS contamination at the Site.

- On 26 November 2026 SIA submitted a formal request to Ecology to discuss incurred Ecology costs as it relates to project activities.
2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.
 3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.
 - None anticipated.
 4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
 5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - No new data was received during the reporting period.
 6. A list of deliverables and activities for the upcoming reporting period.
 - Revised draft of the Quarterly Groundwater Monitoring SAP/QAPP is due to Ecology on 18 December 2025.
 - Review the validation report expected from Pyron Environmental for the soil PFAS data.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.



Kenia Whitehead, PhD
Senior Associate/Certified Senior
Ecologist
kwhitehead@gsi-net.com



Matthew Q. Lentz, BCES, CPSWQ,
CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

cc: Spokane International Airport

8 August 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 16, Spokane International Airport PFAS
July 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport PFAS site (Site) as required by Order No. DE 22584 by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 16 covers the reporting period of 1 July through 31 July 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - Activities in the month of July focused on managing data validation relating to samples collected as part of the Initial PFAS Investigation (IPI) Work Plan.
 - SIA and GSI met with Ecology on 29 July 2025 to discuss proposed modifications to the schedule for upcoming tasks in the SOW. Following the meeting with Ecology, SIA provided a Schedule Modification Request to Ecology dated 31 July 2025. SIA requested a 60 day extension for completing the Remedial Investigation and Feasibility Work Plan and to begin quarterly groundwater monitoring over a year prior to the original SOW schedule. Quarterly groundwater monitoring will begin after Ecology approves a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP). SIA anticipates submitting a draft SAP/QAPP to Ecology this Fall.
 - SIA continued to monitor the No Name Ditch to better understand seasonality of stormwater conveyance from Fairchild Air Force Base. Attached photos of No Name Ditch collected by SIA on 15 January 2025.
2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.

10 July 2025



3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.
 - None anticipated.
4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - No raw data received during the reporting period.
6. A list of deliverables and activities for the upcoming reporting period.
 - The next month will focus on validation of the PFAS data for soil and groundwater.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.

A handwritten signature in black ink, appearing to read 'Kenia Whitehead'.

Kenia Whitehead, PhD
Senior Associate/Certified Senior
Ecologist
kwhitehead@gsi-net.com

A handwritten signature in black ink, appearing to read 'Matthew Q. Lentz'.

Matthew Q. Lentz, BCES, CPSWQ,
CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

cc: Spokane International Airport

Figure 1.
No Name Ditch east of
Fairchild Air Force
Base property
boundary looking east.



Figure 2.
No Name Ditch along
Thorpe Road looking
west.



Figure 3.
No Name Ditch at Craig Road
looking west.



10 October 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 18, Spokane International Airport PFAS
August 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport (SIA) PFAS site (Site) as required by Order No. DE 22584 by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 18 covers the reporting period of 1 September through 30 September 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - Activities in the month of September focused on managing data validation relating to samples collected as part of the Initial PFAS Investigation (IPI) Work Plan.
 - SIA submitted the Draft Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) for Task 6 - Quarterly Groundwater Monitoring to Ecology for review on 15 September 2025 as scheduled in Minor Amendment 2 to the Order. Approval of this SAP/QAPP will allow SIA to begin quarterly groundwater monitoring ahead of the schedule originally put forth in the Order.
 - SIA accepted Ecology's request for a meeting involving potentially liable persons including SIA, City of Spokane, and Spokane County. The meeting is scheduled for 13 October 2025.
2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.
3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.

10 September 2025



- None anticipated.
4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
 5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - No new data was received during the reporting period.
 6. A list of deliverables and activities for the upcoming reporting period.
 - All data has been submitted for validation. Pyron Environmental notified GSI the completion date for data validation for groundwater data is mid-October, with soil data to be completed in November.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.

A handwritten signature in black ink, appearing to read 'Kenia Whitehead'.

Kenia Whitehead, PhD
Senior Associate/Certified Senior
Ecologist
kwhitehead@gsi-net.com

A handwritten signature in black ink, appearing to read 'Matthew Q. Lentz'.

Matthew Q. Lentz, BCES, CPSWQ,
CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

cc: Spokane International Airport

10 November 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 19, Spokane International Airport PFAS
October 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport (SIA) PFAS site (Site) as required by Order No. DE 22584 by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 19 covers the reporting period of 1 October through 31 October 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - SIA and GSI met with Ecology on 01 October 2025, to discuss the draft Quarterly Groundwater Sampling and Analysis Plan and Quality Assurance Project Plan (SAP/QAPP) submitted to Ecology on 15 September 2025. The meeting included a discussion about testing for additional potential constituents of concern being limited to areas with documented past releases to the environment.
 - On 02 October 2025, Ecology provided SIA comments on the draft Quarterly Groundwater SAP/QAPP.
 - Subsequent activities focused on revisions to the draft SAP/QAPP in response to the comments received from Ecology.
 - SIA attended the meeting at Ecology involving potentially liable persons including SIA, City of Spokane, and Spokane County on 13 October 13.
 - GSI received the data validation report for PFAS results in groundwater for samples collected as part of the Initial PFAS Investigation (IPI) Work Plan on 20 October 2025. The groundwater data validation report is included with this progress report. Please note that on 06 November 2025, Pyron Environmental, Inc

notified GSI that the validation of soil PFAS data is requiring additional time; the estimated date for receipt of the validated soil data is now 12 December 2025.

2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.
3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.
 - None anticipated.
4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - No new data was received during the reporting period.
6. A list of deliverables and activities for the upcoming reporting period.
 - Revised draft of the Quarterly Groundwater Monitoring SAP/QAPP due to Ecology on 03 November 2025.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.



Kenia Whitehead, PhD
Senior Associate/Certified Senior
Ecologist
kwhitehead@gsi-net.com



Matthew Q. Lentz, BCES, CPSWQ,
CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

cc: Spokane International Airport

Data Validation Report

Initial PFAS Investigation Spokane International Airport Spokane, WA

Groundwater Sampling 2025

Prepared for:

GSI Environmental Inc.
1115 West Bay Dr. NW | Suite 202
Olympia, WA 98502

GSI Job No.: 6892

Prepared by:

Pyron Environmental, Inc.
3530 32nd Way NW
Olympia, WA 98502

October 20, 2025

Approved By: _____



Mingta Lin, Principal Chemist

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Acronyms

%R	percent recovery
%RSD	percent relative standard deviation
%RSE	percent relative Standard error
amu	atomic mass unit
CCB	continuing calibration blank
CCV	continuing calibration verification
CCVL	low-level (at or below reporting limit) continuing calibration verification
CLP	U.S. EPA Contract Laboratory Program
COC	chain-of-custody
DoD	U.S. Department of Defense
DQO	data quality objective
EIS	extracted internal standard
EPA	U.S. Environmental Protection Agency
ICAL	initial calibration
ICB	initial calibration blank
ICV	initial calibration verification
ISC	instrument sensitivity check
LC/MS-MS	liquid chromatography with tandem mass spectrometry
LCS	laboratory control sample
LCS D	laboratory control sample duplicate
LLOPR	low-level ongoing precision and recovery
MS	matrix spike
MSD	matrix spike duplicate
NEtFOSA	N-ethyl perfluorooctanesulfonamide
NEtFOSE	N-ethyl perfluorooctanesulfonamidoethanol
ng/L	nanogram per liter
NMeFOSA	N-methyl perfluorooctanesulfonamide
NMeFOSE	N-methyl perfluorooctane sulfonamidoethanol
NIS	non-extracted internal standard
OPR	ongoing precision and recovery
PFAS	per- and polyfluoroalkyl substances
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid

QA/QC	quality assurance/quality control
RF	response factor
RPD	relative percent difference
RT	retention time
SDG	sample delivery group
S/N	signal-noise ratio
TCDA	taurochenodeoxycholic acid
TDCA	taurodeoxycholic acid
TUDCA	tauroursodeoxycholic acid

I. INTRODUCTION

This report presents and discusses findings of the chemical data quality review performed on analytical data associated with the 80 water samples collected in January 2025 for the referenced project. Sample analyses were performed by Eurofins Environment Testing America in West Sacramento, California (Eurofins). Sample results were reported in seven sample delivery groups (SDGs), assigned Eurofins Job Numbers: 320-118123-1, 320-118162-1, 320-118205-1, 320-118256-1, 320-118263-1, 320-118344-1, and 320-118376-1.

The data validation procedures followed the documents below as guidelines:

- United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- United States Department of Defense (DoD) *Data Validation Guidelines Module 6: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-24*. Environmental Data Quality Workgroup. November 1, 2022.

A Stage 4 (as defined in DoD 2022) validation was performed on 10 percent of the data and a Stage 2B on the remaining data. Instrument calibration, calibration verification, and analytical sequence requirements were checked against the analytical method (EPA Method 1633). Quality control components were evaluated against the data quality objectives (DQOs) specified in the Quality Assurance Project Plan ([QAPP], GSI 2024) and the laboratory in-house performance-based control criteria (laboratory control limits).

Data validation findings are discussed in **Section II – Data Quality Review Findings**, pertinent to the QC parameters for each type of analysis. Field duplicate evaluation is presented in **Section III**. Qualified data along with data qualifiers, qualification reasons, and qualifier definitions are presented in **Section IV - Data Quality Review Summary**. Samples and the associated analyses validated herein are summarized as follows:

Field Sample ID	Laboratory Sample ID	Sampling Date	Matrix	Analysis
				PFAS
LA-MW-8-N-01062025	320-118123-1	01/06/25	GW	X
LA-MW-10-N-01062025	320-118123-2	01/06/25	GW	X
LA-MW-10-FD-01062025	320-118123-3	01/06/25	FD	X
LA-MW-9-N-01062025	320-118123-4	01/06/25	GW	X
LA-MW-12-N-01062025	320-118123-5	01/06/25	GW	X
LA-MW-11-N-01062025	320-118123-6	01/06/25	GW	X
W-MW-17-N-01062025	320-118123-7	01/06/25	GW	X

Field Sample ID	Laboratory Sample ID	Sampling Date	Matrix	Analysis
				PFAS
FB-01062025	320-118123-8	01/06/25	FB	X
EB-01062025	320-118123-9	01/06/25	EB	X
FB-01072025	320-118162-1	01/07/25	FB	X
W-MW-15-N-01072025	320-118162-2	01/07/25	GW	X
EA-MW-14A-N-01072025	320-118162-3	01/07/25	GW	X
EA-MW-14B-N-01072025	320-118162-4	01/07/25	GW	X
EA-MW-13A-N-01072025	320-118162-5	01/07/25	GW	X
EA-MW-13A-FD-01072025	320-118162-6	01/07/25	FD	X
EB-01072025	320-118162-7	01/07/25	EB	X
FB-01082025	320-118205-1	01/08/25	FB	X
EA-MW-13B-N-01082025	320-118205-2	01/08/25	GW	X
EA-MW-8A-N-01082025	320-118205-3	01/08/25	GW	X
SWN-MW-321-N-01082025	320-118205-4	01/08/25	GW	X
EB-1-01082025	320-118205-5	01/08/25	EB	X
EA-MW-5A-N-01082025	320-118205-6	01/08/25	GW	X
EA-MW-5A-FD-01082025	320-118205-7	01/08/25	FD	X
EB-2-01082025	320-118205-8	01/08/25	EB	X
SWN-MW-7-N-01092025	320-118256-1	01/09/25	GW	X
SWN-MW-7-FD-01092025	320-118256-2	01/09/25	FD	X
SWN-MW-4-N-01092025	320-118256-3	01/09/25	GW	X
SWN-MW-6-N-01092025	320-118256-4	01/09/25	GW	X
SWN-MW-14-N-01092025	320-118256-5	01/09/25	GW	X
SWN-MW-13-N-01092025	320-118256-6	01/09/25	GW	X
FGF-MW-18-N-01092025	320-118256-7	01/09/25	GW	X
EB-1-01092025	320-118256-8	01/09/25	EB	X
SWN-MW-A-N-01092025	320-118256-9	01/09/25	GW	X
SWN-MW-3-N-01092025	320-118256-10	01/09/25	GW	X
SWN-MW-1-N-01092025	320-118256-11	01/09/25	GW	X
SWN-MW-2-N-01092025	320-118256-12	01/09/25	GW	X
EB-2-01092025	320-118256-13	01/09/25	EB	X
FB-01092025	320-118256-14	01/09/25	FB	X
SWN-MW-5-N-01102025	320-118256-15	01/10/25	GW	X
PD-MW-1A-N-01102025	320-118256-16	01/10/25	GW	X
GDF-GR-8-N-01102025	320-118256-17	01/10/25	GW	X
GDF-GR-7D-N-01102025	320-118256-18	01/10/25	GW	X

Field Sample ID	Laboratory Sample ID	Sampling Date	Matrix	Analysis
				PFAS
GDF-GR-7S-N-01102025	320-118256-19	01/10/25	GW	X
EB-1-01102025	320-118256-20	01/10/25	EB	X
EB-2-01102025	320-118256-21	01/10/25	EB	X
FB-01102025	320-118256-22	01/10/25	FB	X
SWN-MW-5-FD-01102025	320-118256-23	01/10/25	FD	X
GCF-MW-5D-N-01132025	320-118263-1	01/13/25	GW	X
EA-MW-5B-N-01132025	320-118263-2	01/13/25	GW	X
GCF-MW-13-N-01132025	320-118263-3	01/13/25	GW	X
GCF-MW-5-N-01132025	320-118263-4	01/13/25	GW	X
GCF-MW-5-FD-01132025	320-118263-5	01/13/25	FD	X
GCF-MW-11-N-01132025	320-118263-6	01/13/25	GW	X
GCF-MW-7-N-01132025	320-118263-7	01/13/25	GW	X
GCF-MW-11B-N-01132025	320-118263-8	01/13/25	GW	X
EB-01132025	320-118263-9	01/13/25	EB	X
FB-01132025	320-118263-10	01/13/25	FB	X
EA-MW-8B-N-01142025	320-118344-1	01/14/25	GW	X
GDF-GR-5-N-01142025	320-118344-2	01/14/25	GW	X
GCF-MW-11A-N-01142025	320-118344-3	01/14/25	GW	X
GCF-MW-12A-N-01142025	320-118344-4	01/14/25	GW	X
GCF-MW-12A-FD-01142025	320-118344-5	01/14/25	FD	X
GCF-MW-12B-N-01142025	320-118344-6	01/14/25	GW	X
GDF-MW-10A-N-01142025	320-118344-7	01/14/25	GW	X
GDF-MW-10R-N-01142025	320-118344-8	01/14/25	GW	X
EB-01142025	320-118344-9	01/14/25	EB	X
FB-01142025	320-118344-10	01/14/25	FB	X
GDF-GR-2-N-01152025	320-118344-11	01/15/25	GW	X
GDF-GR-2-FD-01152025	320-118344-12	01/15/25	FD	X
GDF-GR-3-N-01152025	320-118344-13	01/15/25	GW	X
GDF-GR-4-N-01152025	320-118344-14	01/15/25	GW	X
EB-01152025	320-118344-15	01/15/25	EB	X
FB-01152025	320-118344-16	01/15/25	FB	X
FB-01172025	320-118376-1	01/17/25	FB	X
GCF-MW-8-N-01172025	320-118376-2	01/17/25	GW	X
GCF-MW-8-FD-01172025	320-118376-3	01/17/25	FD	X
EB-01172025	320-118376-4	01/17/25	EB	X

Field Sample ID	Laboratory Sample ID	Sampling Date	Matrix	Analysis
				PFAS
EA-MW-7B-N-01172025	320-118376-5	01/17/25	GW	X
EA-MW-7A-N-01172025	320-118376-6	01/17/25	GW	X
GCF-MW-10-N-01172025	320-118376-7	01/17/25	GW	X

Notes:

X: The analysis was requested and performed on the sample.

PFAS: Project specific per- and polyfluoroalkyl substances, including 40 target compounds.

EB – Equipment rinsate blank

FB – Field blank

FD – Field duplicate

The analytical parameters requested for the samples, the respective analytical methods, and the analytical laboratories are summarized below:

Parameter	Analytical Method	Analytical Laboratory
Per- and Polyfluoroalkyl Substances (PFAS)	EPA Method 1633	Eurofins Environment Testing America West Sacramento, California

Note: EPA Method 1633: *Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS*. USEPA, Office of Water. January 2024. EPA 821-R-24-001.

II. DATA VALIDATION FINDINGS

1. Sample Custody, Preservation, and Analysis Completeness

Sample custody was maintained and documented as required from the sample collection to the receipt at the laboratory (Eurofins Sacramento). Samples were properly preserved, cooler temperatures were maintained at $<6^{\circ}\text{C}$ across the course of transit, and sample counts were consistent with the accompanying chain-of-custody (COC) documentation. All analyses requested in the COC forms were completed.

2. Per- and Polyfluoroalkyl Substances ([PFAS]; EPA Method 1633)

2.1 Holding Times

The Work Plan calls for water samples being extracted within 28 days of collection and extracts analyzed within 90 days of extraction. All samples were extracted and analyzed within the project required holding times.

2.2 Mass Calibration and Verification

Mass calibration was subjected to the laboratory standard operation procedures following instrument manufacturer's requirements.

To evaluate the mass verification, the first level standard from the initial calibration curve is used to evaluate the tune stability on an ongoing basis. The instrument mass windows are set initially at ± 0.5 amu of the true value; therefore, continued detection of the analyte transition with $S/N > 10$ serves as verification that the assigned mass remains within ± 0.5 amu of the true value. No anomalies were identified in relation to instrument tuning.

2.3 Initial Calibration (ICAL)

The following criteria were applied to ICAL evaluation:

- (1) A minimum of five standards should be used when using average response factor and/or linear calibration fits; a minimum of six analytical standards were to be used when a quadratic fit is used to generate the ICAL curve.
- (2) For average response factors (RFs), the relative standard deviation (%RSD) or percent relative standard error (%RSE) values for all compounds and internal standards must be $\leq 20\%$.
- (3) Immediately following the ICAL, a calibration blank (ICB) should be analyzed; ICB should consist of blank methanol/water containing all EIS and NIS compounds.
- (4) Following the ICB, an initial calibration verification (ICV) standard at the mid-point level of the ICAL and obtained from a source different than the ICAL standards should be analyzed. The

%R values for target compounds and internal standards must be within or equal to 70-130% of true values.

The ICALs met the criteria.

2.4 Continuing Calibration Verification (CCV)

The following criteria were applied to evaluate CCVs:

- (1) A CCV containing all target compounds and internal standards at the mid-level of ICAL should be analyzed at the beginning of every analytical sequence prior to sample analysis, after every 10 samples, and at the end of the analytical sequence.
- (2) An Instrument Sensitivity Check (ISC), named as low-level CCV (CCVL) by the laboratory, at or below the reporting limit (RL) should be analyzed at the beginning of an analytical sequence.
- (3) The recovery for the CCV and CCVL must be within 70-130% of the true value for all target analytes.
- (4) A bile salts interference check standard consisting of TDCA (if acetonitrile is used as mobile phase), or TDCA, TCDA, and TUDCA (if alternative mobile phase is used) was analyzed daily, prior to analysis of samples. The peak separation between retention time of the bile salts and the retention time window of PFOS must be greater than 1 minute.
- (5) A Qualitative Identification Standard (QIS) containing a mixture of the branched and linear isomers of PFOA, PFNA, PFOSA, NMeFOSA, NEtFOSA, NEtFOSE, and NMeFOSE was analyzed daily, prior to analysis of all samples.

CCV requirements were met, except for the following:

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
CCV 320-828092/6 01/17/25, 10:52	PFEESA	31.0%	±30%	High	FB-01082025 EA-MW-8A-N-01082025 EB-1-01082025	UJ
CCVL 320-829593/10 01/27/25, 10:51	NFDHA	46%	±30%	High	EA-MW-8B-N-01142025	UJ
CCVL 320-828767/4 01/22/25, 07:21	11Cl-PF3OUdS	31.0%	±30%	High	FB-01142025 GDF-GR-2-N-01152025 GDF-GR-2-FD-01152025 GDF-GR-3-N-01152025 GDF-GR-4-N-01152025 EB-01152025 FB-01152025 GDF-GR-5-N-01142025 GCF-MW-11A-N-01142025 GCF-MW-12A-N-01142025 GCF-MW-12A-FD-01142025 GCF-MW-12B-N-01142025 GDF-MW-10A-N-01142025 GDF-MW-10R-N-01142025 EB-01142025	UJ

CCV ID	Analyte	%D	Control Limit	Bias	Affected Sample	Data Qualifier
CCVL 320-828092/5 01/17/25, 10:35	PFEESA PFDoS	40.4% 31.6%	±30%	High	FB-01082025 EA-MW-8A-N-01082025 EB-1-01082025 SWN-MW-7-N-01092025 SWN-MW-1-N-01092025 SWN-MW-2-N-01092025 EB-2-01092025 FB-01092025 SWN-MW-5-N-01102025 PD-MW-1A-N-01102025 GDF-GR-8-N-01102025 GDF-GR-7D-N-01102025 GDF-GR-7S-N-01102025 SWN-MW-7-FD-01092025 EB-1-01102025 EB-2-01102025 FB-01102025 SWN-MW-5-FD-01102025 SWN-MW-14-N-01092025 SWN-MW-13-N-01092025 FGF-MW-18-N-01092025 EB-1-01092025 SWN-MW-A-N-01092025	UJ

2.5 Blanks

ICB and CCB: ICBs and CCBs were analyzed as required by the Method. Target analytes were either not detected in ICBs and CCB at or above the method detection limits (MDLs), or the associated sample concentrations were greater than 5X the detections ICBs/CCBs. No data qualifying action was required.

Method Blanks: Method blanks were prepared and analyzed as required by the Method. Target analytes were either not detected at or above the MDLs, or the associated sample concentrations were greater than 5X the detections in method blanks, except for the following:

Blank ID	Analyte	Detection in Blank (ng/L)	Affected Sample	Original Result (ng/L)	Qualified Result (ng/L)
MB 320-826873/1-A	PFBS	0.765 J	LA-MW-8-N-01062025 LA-MW-10-N-01062025 LA-MW-10-FD-01062025 W-MW-17-N-01062025	3.2 2.0 1.8 3.0	J+

Field Blanks: Nine field blanks were collected. Target analytes were either not detected at or above the MDLs, or the associated sample concentrations were greater than 5X the detections in field blanks, except for the following:

Blank ID	Analyte	Detection in Blank (ng/L)	Affected Sample	Original Result (ng/L)	Qualified Result (ng/L)
FB-01062025	PFHxS	0.4 J	LA-MW-11-N-01062025 W-MW-17-N-01062025	0.61 J 1.2 J	1.6 U 1.7 U
FB-01062025	PFOS	11	LA-MW-8-N-01062025 LA-MW-9-N-01062025 LA-MW-12-N-01062025 LA-MW-11-N-01062025 W-MW-17-N-01062025	14 11 2.2 7.6 2.3	J+

Equipment Rinsate Blanks: Twelve equipment rinsate blanks were collected. Target analytes were not detected at or above the MDLs in these samples, except that EtFOSE and MeFOSE were detected in EB-2-01082025. These compounds were not detected in associated samples; no data qualifying action was required.

2.6 Ongoing Precision and Recovery (OPR) and Low-Level OPR (LLOPR)

OPR and LLOPR (named as LCS and LLCS by the laboratory) analyses were performed as required by the Method. A set of LCS and LCS duplicate (LCSD) were prepared and analyzed in association with project samples. All %R and RPD values either met the laboratory control limits, or the outlier had no adverse effects on data quality (*e.g.*, biased high %R or RPD value for an analyte that was not detected in associated samples).

2.7 Extracted Internal Standard [EIS]

Proper EIS (named as surrogate spike) compounds were to be added to all samples and QC analyses as required by the Method. The EIS retention times for all field and QC samples should be within 0.40 minutes of the retention time of the midpoint standard in the ICAL, or on days when an ICAL is not performed, the initial CV is used. Analytes calibrated using isotope dilution (*i.e.*, those with corresponding isotopically labeled analogs) should elute within +/- 0.1 minutes of their associated EIS. RTs met the Method requirement.

EIS retention time and recovery met the criteria, except that recovery for selected EIS in few samples was outside the laboratory control criteria, but >10% and <200% of the associated CCVs. As per DoD Data Validation Guidelines, Module 6, detects for analytes quantitated using an EIS percent recovery >200% should be qualified estimated with a negative bias (J-) and non-detects should not be qualified. If the EIS recovery is <10%, associated detects and non-detects should be qualified (R) and rejected. No data qualifying action was required in this manner.

In cases where EIS recovery was outside the laboratory criteria in QC analyses (*e.g.*, method blanks and LCS), the effects on associated field sample results were evaluated and data qualified as appropriate. No data action was taken in these cases.

2.8 Non-extracted Internal Standard [NIS]

NIS compounds (named as internal standard by the laboratory) should be added to samples and QC analyses. NIS response peak areas must be $\geq 30\%$ of the average area of the corresponding NIS in the calibration standards. The NIS retention times for all field and QC samples should be within 0.40 minutes of the retention time of the midpoint standard in the ICAL, or on days when an ICAL is not performed, the initial CV is used. All NIS response and RTs met the Method control criteria, except that selected NIS recovery was less than 30% due to required extract dilutions. The %R values for the associated EIS compounds were within control criteria for target compound(s) reported from the dilution analyses. No data qualifying action was required.

2.9 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were not performed on a project sample in this SDG. The method applies isotope dilution technique, which generally precludes sample matrix effects. No further action was taken in this case.

2.10 Field Duplicates

Nine field duplicates were collected and submitted for PFAS analysis. The RPD and concentration difference values and data qualification for detected target analytes were presented in **Section III**. The field duplicate results met the project field precision criteria.

2.11 Compound Quantitation and Detection Limits

Project target PFAS containing linear and branch isomers (*e.g.*, PFOA, PFNA, PFOSA, NMeFOSA, NEtFOSA, NEtFOSE, and NMeFOSE) were properly integrated and quantitated. Manual integration was performed properly and consistently across calibration and sample analyses.

Sample-specific MDLs and RLs were adjusted with sample amount extracted. RLs were supported with adequate initial calibration concentrations. The reported MDLs and RLs were consistent with those listed in the QAPP, Table 12, as applicable.

In cases where an analyte concentration exceeded instrument calibration range, dilution analysis was performed for the analyte for definitive quantitation of the analyte.

Due to substantial matrix interference, less than normal sample aliquots were used for selected samples. The MDLs and RLs were raised accordingly.

Verification calculations were performed on more than 10% of the instrument calibration, calibration verifications, standard concentrations, and reported QC and sample analyses. No anomalies were found. Sample quantitation and reporting were correctly performed.

2.12 Target Compound Identification

Target compound identification is evaluated by examining if:

- (1) The transition ions specified in the SOP were monitored consistently across the course of calibration and sample analyses.
- (2) The relative RT for an analyte to the corresponding labeled internal standard should be within ± 0.1 minute.
- (3) S/N signal for both quantitative and qualitative transition ions must be ≥ 3 .
- (4) Transition ion abundance ratio should be within 50 – 150% of the ICV if analyzed immediately following the ICAL or the most recent CCV standard.

No anomalies were found in relation to target compound identification, except that transition ion abundance ratios for selected detections were outside the control limits as qualified below:

Sample ID	Lab Sample ID	Analyte	Sample Ion Ratio	CCV Ion Ratio	Control Limit	Data Qualifier
LA-MW-12-N-01062025	320-118123-5	PFOS	7.693	4.377	2.19 - 6.57	J
SWN-MW-A-N-01092025	320-118256-9	PFPeA	41.891	110.946	55.47 - 166.42	J
GDF-GR-8-N-01102025	320-118256-17	PFOS	6.482	4.226	2.11 - 6.34	J
GDF-GR-7S-N-01102025	320-118256-19	PFBS	6.325	2.205	1.10 - 3.31	J
GCF-MW-5-N-01132025	320-118263-4	PFNA	4.730	3.061	1.53 - 4.59	J
GCF-MW-7-N-01132025	320-118263-7	PFNA	4.972	3.061	1.53 - 4.59	J
EA-MW-8B-N-01142025	320-118344-1	PFHpS	7.559	4.663	2.33 - 6.99	J
GDF-MW-10R-N-01142025	320-118344-8	PFOS	6.622	4.349	2.17 - 6.52	J
GCF-MW-8-N-01172025	320-118376-2	PFOS	7.187	4.259	2.13 - 6.39	J
GCF-MW-8-FD-01172025	320-118376-3	PFOS	6.551	4.259	2.13 - 6.39	J

2.13 System Performance

The system performance and stability over an analytical sequence was evaluated by examining chromatograms for abrupt baseline shifting, excessive baseline rise at elevated temperature, progressing peak tailing, or loss of resolution. In addition, the internal standard retention times and response areas were checked for trends of shifting. No anomalies were observed.

2.14 Overall Assessment of PFAS Data Usability

PFAS data are acceptable for use as qualified, based on the information submitted by the laboratory. Qualified data are summarized in **Section IV-1**.

III. FIELD DUPLICATE SUMMARY

According to the QAPP, a criterion of 30 percent was applied to evaluate the RPD values of field duplicate results \geq RL. For results $<$ RL, an advisory criterion of 1xRL was applied to evaluate the concentration differences. The RPD (or concentration difference) values and data qualification for detected compounds in field duplicate pairs are presented as follows:

Target Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualifier
			EA-MW-13A-N-01072025	EA-MW-13A-FD-01072025			
PFBA	ng/L	3.4	4.1	3.8	8%		
PFBS	ng/L	1.7	5.3	5.4	2%		
PFDA	ng/L	1.7	1.3	1.2		0.1	
PFDoA	ng/L	1.7	0.97	0.84		0.13	
PFDS	ng/L	1.7	0.52	0.43		0.09	
PFHpA	ng/L	1.7	3.2	3	6%		
PFHpS	ng/L	1.7	4.3	4.1	5%		
PFHxA	ng/L	1.7	17	16	6%		
PFHxS	ng/L	1.7	160	160	0%		
PFNA	ng/L	1.7	0.82	0.68		0.14	
PFNS	ng/L	1.7	0.88	0.78		0.1	
PFOA	ng/L	1.7	19	17	11%		
PFOS	ng/L	1.7	130	130	0%		
PFOSA	ng/L	1.7	1.3	1.3		0	
PFPeA	ng/L	1.7	4.8	4.8	0%		
PFPeS	ng/L	1.7	8.8	8.7	1%		
			EA-MW-5A-N-01082025	EA-MW-5A-FD-01082025			
PFOS	ng/L	1.7	0.46	0.44		0.02	
			GCF-MW-12A-N-01142025	GCF-MW-12A-FD-01142025			
PFBA	ng/L	3.2	3.6	3.5	3%		
PFBS	ng/L	1.6	4.5	4.5	0%		
PFHpA	ng/L	1.6	3.2	3.5	9%		
PFHpS	ng/L	1.6	0.74	0.82		0.08	
PFHxA	ng/L	1.6	8.2	9.3	13%		
PFHxS	ng/L	1.6	40	44	10%		
PFNA	ng/L	1.6	0.74	0.88		0.14	
PFOA	ng/L	1.6	16	14	13%		
PFOS	ng/L	1.6	28	28	0%		
PFPeA	ng/L	1.6	7.4	7.6	3%		
PFPeS	ng/L	1.6	2.6	3	14%		
			GCF-MW-5-N-01132025	GCF-MW-5-FD-01132025			

Target Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualifier
PFBA	ng/L	3.1	2.1	2.1		0	
PFBS	ng/L	1.6	1.7	1.8	6%		
PFDA	ng/L	1.6	0.57	0.46		0.11	
PFHpA	ng/L	1.6	0.44	<0.43		0.44	
PFHxS	ng/L	1.6	4.7	5.1	8%		
PFNA	ng/L	1.6	0.53	0.45		0.08	
PFOA	ng/L	1.6	1.7	1.3		0.4	
PFOS	ng/L	1.6	2.9	2.9	0%		
PFPeS	ng/L	1.6	0.49	0.43		0.06	
			GCF-MW-8-N-01172025	GCF-MW-8-FD-01172025			
PFBA	ng/L	3.4	0.96	0.98		0.02	
PFBS	ng/L	1.7	1.3	1.5		0.2	
PFHxA	ng/L	1.7	0.63	0.69		0.06	
PFHxS	ng/L	1.7	2.5	2.5	0%		
PFOA	ng/L	1.7	1.8	1.5		0.3	
PFOS	ng/L	1.7	2.5	2.6	4%		
PFPeA	ng/L	1.7	0.78	0.98		0.2	
			GDF-GR-2-N-01152025	GDF-GR-2-FD-01152025			
PFBA	ng/L	3.6	18	19	5%		
PFBS	ng/L	1.8	3.5	3.7	6%		
PFHpA	ng/L	1.8	2.7	2.4	12%		
PFHxA	ng/L	1.8	7.8	8.4	7%		
PFHxS	ng/L	1.8	1.4	1.4		0	
PFNA	ng/L	1.8	<0.45	0.46		0.46	
PFOA	ng/L	1.8	4.1	3.4	19%		
PFOS	ng/L	1.8	5.9	5.7	3%		
PFPeA	ng/L	1.8	7.8	8.9	13%		
			LA-MW-10-N-01062025	LA-MW-10-FD-01062025			
6:2 FTS	ng/L	3.4	<0.85	2.5		2.5	
PFBA	ng/L	3.4	42	37	13%		
PFBS	ng/L	1.7	2	1.8	11%		
PFHpA	ng/L	1.7	10	10	0%		
PFHxA	ng/L	1.7	180	180	0%		
PFHxS	ng/L	1.7	2.6	2.7	4%		
PFPeA	ng/L	1.7	160	170	6%		
PFPeS	ng/L	1.7	0.43	0.47		0.01	
			SWN-MW-5-N-01102025	SWN-MW-5-FD-01102025			
6:2 FTS	ng/L	3.5	3.3	3.1		0.2	
PFBA	ng/L	3.5	21	20	5%		
PFBS	ng/L	1.8	2.7	2.4	12%		
PFDA	ng/L	1.8	26	26	0%		

Target Analyte	Unit	RL	Field Duplicate Sample ID & Concentration		RPD (%)	Concentration Difference	Data Qualifier
PFDoA	ng/L	1.8	0.56	<0.49		0.56	
PFHpA	ng/L	1.8	22	21	5%		
PFHpS	ng/L	1.8	0.99	0.97		0.02	
PFHxA	ng/L	1.8	51	53	4%		
PFHxS	ng/L	1.8	100	97	3%		
PFNA	ng/L	1.8	13	12	8%		
PFOA	ng/L	1.8	70	70	0%		
PFOS	ng/L	1.8	35	35	0%		
PFPeA	ng/L	1.8	48	46	4%		
PFPeS	ng/L	1.8	3	2.8	7%		
PFUnDA	ng/L	1.8	1.3	1.2		0.1	
			SWN-MW-7-N-01092025	SWN-MW-7-FD-01092025			
PFBA	ng/L	3.4	9	8.9	1%		
PFBS	ng/L	1.7	3.5	3.4	3%		
PFDA	ng/L	1.7	5.5	6.1	10%		
PFHpA	ng/L	1.7	8.7	11	23%		
PFHpS	ng/L	1.7	0.73	0.75		0.02	
PFHxA	ng/L	1.7	18	21	15%		
PFHxS	ng/L	1.7	32	34	6%		
PFNA	ng/L	1.7	4.5	4.1	9%		
PFOA	ng/L	1.7	33	32	3%		
PFOS	ng/L	1.7	23	22	4%		
PFPeA	ng/L	1.7	20	23	14%		
PFPeS	ng/L	1.7	3.3	3	10%		

Notes:

ND – The analyte was not detected at or above the method detection limit (MDL).

RL – Reporting limit

RPD – Relative percent difference

ng/L – nanogram per liter

IV. DATA VALIDATION SUMMARY

1. Data Qualification

Sample Name	Laboratory ID	Analyte	Qualifier	Reason Code
FB-01142025	320-118344-10	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-GR-2-N-01152025	320-118344-11	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-GR-2-FD-01152025	320-118344-12	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-GR-3-N-01152025	320-118344-13	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-GR-4-N-01152025	320-118344-14	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
EB-01152025	320-118344-15	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
FB-01152025	320-118344-16	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-GR-5-N-01142025	320-118344-2	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GCF-MW-11A-N-01142025	320-118344-3	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GCF-MW-12A-N-01142025	320-118344-4	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GCF-MW-12A-FD-01142025	320-118344-5	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GCF-MW-12B-N-01142025	320-118344-6	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-MW-10A-N-01142025	320-118344-7	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
GDF-MW-10R-N-01142025	320-118344-8	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
EB-01142025	320-118344-9	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid	UJ	CCH
EA-MW-8B-N-01142025	320-118344-1	Nonafluoro-3,6-dioxaheptanoic acid	UJ	CCH
FB-01082025	320-118205-1	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
EA-MW-8A-N-01082025	320-118205-3	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
EB-1-01082025	320-118205-5	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-7-N-01092025	320-118256-1	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-1-N-01092025	320-118256-11	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-2-N-01092025	320-118256-12	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
EB-2-01092025	320-118256-13	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
FB-01092025	320-118256-14	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-5-N-01102025	320-118256-15	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
PD-MW-1A-N-01102025	320-118256-16	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
GDF-GR-8-N-01102025	320-118256-17	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
GDF-GR-7D-N-01102025	320-118256-18	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
GDF-GR-7S-N-01102025	320-118256-19	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-7-FD-01092025	320-118256-2	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
EB-1-01102025	320-118256-20	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
EB-2-01102025	320-118256-21	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
FB-01102025	320-118256-22	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-5-FD-01102025	320-118256-23	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-14-N-01092025	320-118256-5	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-13-N-01092025	320-118256-6	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
FGF-MW-18-N-01092025	320-118256-7	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH

Sample Name	Laboratory ID	Analyte	Qualifier	Reason Code
EB-1-01092025	320-118256-8	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
SWN-MW-A-N-01092025	320-118256-9	Perfluoro(2-ethoxyethane)sulfonic acid	UJ	CCH
FB-01082025	320-118205-1	Perfluorododecanesulfonic acid	UJ	CCH
EA-MW-8A-N-01082025	320-118205-3	Perfluorododecanesulfonic acid	UJ	CCH
EB-1-01082025	320-118205-5	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-7-N-01092025	320-118256-1	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-1-N-01092025	320-118256-11	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-2-N-01092025	320-118256-12	Perfluorododecanesulfonic acid	UJ	CCH
EB-2-01092025	320-118256-13	Perfluorododecanesulfonic acid	UJ	CCH
FB-01092025	320-118256-14	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-5-N-01102025	320-118256-15	Perfluorododecanesulfonic acid	UJ	CCH
PD-MW-1A-N-01102025	320-118256-16	Perfluorododecanesulfonic acid	UJ	CCH
GDF-GR-8-N-01102025	320-118256-17	Perfluorododecanesulfonic acid	UJ	CCH
GDF-GR-7D-N-01102025	320-118256-18	Perfluorododecanesulfonic acid	UJ	CCH
GDF-GR-7S-N-01102025	320-118256-19	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-7-FD-01092025	320-118256-2	Perfluorododecanesulfonic acid	UJ	CCH
EB-1-01102025	320-118256-20	Perfluorododecanesulfonic acid	UJ	CCH
EB-2-01102025	320-118256-21	Perfluorododecanesulfonic acid	UJ	CCH
FB-01102025	320-118256-22	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-5-FD-01102025	320-118256-23	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-14-N-01092025	320-118256-5	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-13-N-01092025	320-118256-6	Perfluorododecanesulfonic acid	UJ	CCH
FGF-MW-18-N-01092025	320-118256-7	Perfluorododecanesulfonic acid	UJ	CCH
EB-1-01092025	320-118256-8	Perfluorododecanesulfonic acid	UJ	CCH
SWN-MW-A-N-01092025	320-118256-9	Perfluorododecanesulfonic acid	UJ	CCH
LA-MW-11-N-01062025	320-118123-6	Perfluorohexanesulfonic acid	1.6 U	FB
W-MW-17-N-01062025	320-118123-7	Perfluorohexanesulfonic acid	1.7 U	FB
LA-MW-8-N-01062025	320-118123-1	Perfluorooctanesulfonic acid	J+	FB
LA-MW-9-N-01062025	320-118123-4	Perfluorooctanesulfonic acid	J+	FB
LA-MW-11-N-01062025	320-118123-6	Perfluorooctanesulfonic acid	J+	FB
W-MW-17-N-01062025	320-118123-7	Perfluorooctanesulfonic acid	J+	FB
LA-MW-12-N-01062025	320-118123-5	Perfluorooctanesulfonic acid	J+	FB, IRH
GDF-GR-7S-N-01102025	320-118256-19	Perfluorobutanesulfonic acid	J	ISH
EA-MW-8B-N-01142025	320-118344-1	Perfluoroheptanesulfonic acid	J	ISH
GCF-MW-5-N-01132025	320-118263-4	Perfluorononanoic acid	J	ISH
GCF-MW-7-N-01132025	320-118263-7	Perfluorononanoic acid	J	ISH
GDF-GR-8-N-01102025	320-118256-17	Perfluorooctanesulfonic acid	J	ISH
GDF-MW-10R-N-01142025	320-118344-8	Perfluorooctanesulfonic acid	J	ISH
GCF-MW-8-N-01172025	320-118376-2	Perfluorooctanesulfonic acid	J	ISH
SWN-MW-A-N-01092025	320-118256-9	Perfluoropentanoic acid	J	ISL
LA-MW-8-N-01062025	320-118123-1	Perfluorobutanesulfonic acid	J+	MB

Sample Name	Laboratory ID	Analyte	Qualifier	Reason Code
LA-MW-10-N-01062025	320-118123-2	Perfluorobutanesulfonic acid	J+	MB
LA-MW-10-FD-01062025	320-118123-3	Perfluorobutanesulfonic acid	J+	MB
W-MW-17-N-01062025	320-118123-7	Perfluorobutanesulfonic acid	J+	MB

Notes:

“U” – The result was qualified as non-detected at or above the associated number; the unit is in ng/L.

CCH – Continuing calibration verification recovery biased high.

MB – The result was affected by the detection of the analyte in method blank.

FB – The result was affected by the detection of the analyte in field blank.

ISH – The transition ion abundance ratio biased high.

ISL – The transition ion abundance ratio biased high.

2. Data Qualifier Definition

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value with an unknown bias.
J+	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value with a high bias.
U	The analyte was not detected at or above the reported detection limit.
UJ	The analyte is not detected above the sample specific detection limit (DL), and the DL was an estimated value.
R	Exclusion of the data was recommended.

V. REFERENCES

- United States Environmental Protection Agency (USEPA). 2024. *Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS*. Office of Water. January 2024. EPA 821-R-24-001
- USEPA. 2020. *Contract Laboratory Program National Functional Guidelines for Organic Superfund Data Review*. Office of Superfund Remediation and Technical Innovation. November 2020. OLEM 9240.0-51. EPA-540-R-20-005.
- Department of Defense, United States (DoD). 2022. *Data Validation Guidelines Module 6: Data Validation Guidelines Module 6: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-24*. Environmental Data Quality Workgroup. November 2022.
- GSI Environmental, Inc. 2024. *Initial PFAS Investigation Work Plan*, Spokane International Airport, Spokane, Washington. Appendix B – Quality Assurance Project Plan. Prepared for Port of Seattle. December 13, 2024.

10 September 2025

Jeremy Schmidt, P.E.
Toxics Cleanup Program, Eastern Regional Office
Washington State Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205

**RE: Progress Report No. 17, Spokane International Airport PFAS
August 2025
Spokane International Airport
9000 W. Airport Dr., Spokane, WA 99224
Facility Site ID: 6332493 and Cleanup Site ID: 16774**

Dear Mr. Schmidt:

This Progress Report has been prepared by GSI Environmental Inc. (GSI) for the Spokane International Airport PFAS site (Site) as required by Order No. DE 22584 by the Washington State Department of Ecology (Ecology), signed on March 29, 2024. The Statement of Work (SOW) as presented in Exhibit B of the Order requires SIA to submit to Ecology a written monthly Progress Report that describes the Order's required actions completed during the reporting period. This Progress Report No. 17 covers the reporting period of 1 August through 31 August 2025.

1. Site-related activities that have taken place during the reporting period, including progress on upcoming deliverables.
 - Activities in the month of August focused on managing data validation relating to samples collected as part of the Initial PFAS Investigation (IPI) Work Plan.
 - Activities in the month of August also focused on preparing a Draft Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) for Task 6 - Quarterly Groundwater Monitoring. SIA anticipates submitting the Draft SAP/QAPP to Ecology by 15 September 2025 as scheduled in Minor Amendment 2 to Enforcement Order No. DE 22584.
 - Both the City of Spokane and Spokane County received letters on 21 August 2025 notifying them of their final determination as PLPs to the Site.
2. Detailed descriptions of any deviations from required tasks.
 - No deviations from required tasks.
3. Detailed descriptions of any deviations from this SOW and schedule or from enforceable deliverables for the current reporting period and any planned deviations for the upcoming reporting period.
 - None anticipated.

4. For any deviations in the schedule, a plan for maintaining compliance with the schedule.
 - No deviations occurred during this reporting period.
5. All raw data (including laboratory analyses) received during the previous month together with a detailed description of the underlying samples collected.
 - No new raw data received during the reporting period. As part of the data validation, GSI requested and received an export from Eurofins for all previously reported IPI PFAS data as a Level 4 data report ([link to Level 4 reports](#)). The purpose of the full Level 4 export was to allow the external validator to select which samples are subject to the Level 4 validation (10% of the data) in addition to the Level 2B in line with the validation procedures outlined in the US Department of Defense Quality Systems Manual (Appendix B, Table B-24). These Level 4 reports, along with the data tables already provided by GSI, were provided to the external data validator to facilitate.
6. A list of deliverables and activities for the upcoming reporting period.
 - All data has been submitted for validation. Pyron Environmental notified GSI the revised completion date for data validation is now mid-October. We will continue to update Ecology on anticipated date for completed data validation.
 - SIA anticipates submitting a Draft SAP/QAPP for Task 6, Quarterly Groundwater Monitoring, within the upcoming reporting period.

Please let us know if you have any questions.

Sincerely,

GSI Environmental Inc.



Kenia Whitehead, PhD
Senior Associate/Certified Senior Ecologist
kwhitehead@gsi-net.com



Matthew Q. Lentz, BCES, CPSWQ, CPESC, REM, QISP ToR, QSD/P ToR
Vice President/Principal Scientist
mqlentz@gsi-net.com

cc: Spokane International Airport



Spokane International Airport

9000 West Airport Drive, Suite 204 | Spokane, Washington 99224 | spokaneairports.net

July 31, 2025

Jeremy Schmidt
Site Manager
Eastern Region, Washington State Department of Ecology
4601 N. Monroe Street
Spokane, WA 99205

Re: Spokane International Airport PFAS Site, Enforcement Order No. DE 22584
Schedule of Deliverables Modification Request

Dear Mr. Schmidt:

We appreciated your time on July 29th to meet and discuss the Airport's ongoing efforts and proposed changes to the Schedule of Deliverables outlined in Exhibit B "Scope of Work and Schedule" of the Enforcement Order No. DE 22584 (EO). Based on our conversation, the Spokane International Airport (SIA) submits the following request for modification to the Schedule of Deliverables under Section 8.10 of the EO:

- **Move up the schedule for sampling:** SIA will begin quarterly groundwater monitoring more than a year prior to the schedule proposed in the EO. We believe this adds value to the science-driven approach and helps further understand the Site. Prior to proceeding with monitoring, SIA will submit and obtain Ecology's approval of the draft Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP). SIA anticipates submitting the draft SAP/QAPP in the Fall of 2025.
- **Extend the schedule for submitting plans:** Increase the timeframe for completing and submitting documents under Task 1.C of the EO from 60 days to 120 days. This submittal includes a Draft Remedial Investigation and Feasibility Study (RI/FS) Work Plan, SAP, Health and Safety Plan, and Inadvertent Discovery Plan. This will also add value by allowing additional data to be incorporated into the respective documents.

As discussed, SIA may propose additional modifications to the Schedule of Deliverables in conjunction with the draft RI/FS work plan at incremental stages throughout the EO.

We look forward to your response. If you have any questions regarding this letter, please contact me at 509-455-6406 or corcoran@spokaneairports.net.

Sincerely,

Lisa Corcoran, C.M.
Spokane International Airport, Chief Development Officer



July 31, 2025

cc: Frank Miller, Spokane International Airport, Interim Chief Executive Officer
Keylin Huddleston, L.G., Spokane International Airport, Environmental Specialist
Kenia Whitehead, GSI Environmental Inc.
Brian Werst, Spokane International Airport, General Counsel
Jeffery Longworth, Earth & Water Law
John Sheehan, Earth & Water Law
Nicholas Acklam, Eastern Region Department of Ecology, Section Manager

Keylin Huddleston

From: Lisa Corcoran
Sent: Wednesday, April 30, 2025 10:53 PM
To: Schmidt, Jeremy (ECY)
Cc: Brian Werst; jeffrey.longsworth@earthandwatergroup.com; John Sheehan; kwhitehead@gsi-net.com; Keylin Huddleston
Subject: RE: GEG Monthly Progress Report
Attachments: GEG_IPI_Update_for_Ecology_2025-04-28.pdf

Hi Jeremy,

Please see the update provided by our consultant regarding sample analysis.

Thank you,



Lisa L. Corcoran, C.M.
Chief Development Officer
Spokane International Airport, Felts Field & Airport Business Park
9000 W. Airport Drive, Suite 204
Spokane, WA 99224

Desk: 509.455.6406
Mobile: 509.808.6577
Email: Lcorcoran@spokaneairports.net



From: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Sent: Monday, April 28, 2025 12:15 PM
To: Lisa Corcoran <lcorcoran@spokaneairports.net>
Cc: Brian Werst <bwerst@spokaneairports.net>; jeffrey.longsworth@earthandwatergroup.com; John Sheehan <john.sheehan@earthandwatergroup.com>; kwhitehead@gsi-net.com; Keylin Huddleston <khuddleston@spokaneairports.net>; Brinkman, Brianna (ECY) <BBRI461@ECY.WA.GOV>; Acklam, Nicholas (ECY) <nack461@ECY.WA.GOV>
Subject: RE: GEG Monthly Progress Report

CAUTION: This email originated from outside of the organization. Be cautious when opening attachments unless you recognize the sender. *When in doubt, contact your IT Department.*

Hi Lisa,

I am writing to reiterate Ecology's request for a schedule update. Please provide an overall status update of IPI sample analysis and the estimated schedule for report submittal. Please provide a description, perhaps in table

form, that depicts which soil sample locations have completed the lab analysis process and which continue to undergo contingency analysis.

Thank you,

Jeremy

Jeremy Schmidt, P.E.
Site Manager
Toxics Cleanup Program
Washington State Department of Ecology
Eastern Region Office, Spokane
Cell: 509-724-1164

From: Lisa Corcoran <lcorcoran@spokaneairports.net>
Sent: Monday, April 14, 2025 7:13 PM
To: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Cc: Brian Werst <bwerst@spokaneairports.net>; jeffrey.longsworth@earthandwatergroup.com; John Sheehan <john.sheehan@earthandwatergroup.com>; kwhitehead@gsi-net.com; Keylin Huddleston <khuddleston@spokaneairports.net>; Brinkman, Brianna (ECY) <BBRI461@ECY.WA.GOV>
Subject: RE: GEG Monthly Progress Report

External Email

Hi Jeremy,

Our consultant is traveling this week and will be in Spokane on Thursday. I will discuss this with GSI and get back to you. We are also working on a schedule modification request, as discussed with you and the team, as we approach the next task in the Order.

Thank you,

Lisa L. Corcoran, C.M.
Chief Development Officer
Spokane International Airport, Felts Field & Airport Business Park

Desk: 509.455.6406
Mobile: 509.808.6577

From: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Sent: Monday, April 14, 2025 8:22 AM
To: Lisa Corcoran <lcorcoran@spokaneairports.net>
Cc: Brian Werst <bwerst@spokaneairports.net>; jeffrey.longsworth@earthandwatergroup.com; John Sheehan <john.sheehan@earthandwatergroup.com>; kwhitehead@gsi-net.com; Keylin Huddleston <khuddleston@spokaneairports.net>; Brinkman, Brianna (ECY) <BBRI461@ECY.WA.GOV>
Subject: RE: GEG Monthly Progress Report

CAUTION: This email originated from outside of the organization. Be cautious when opening attachments unless you recognize the sender. *When in doubt, contact your IT Department.*

Good morning, Lisa,

Thank you for sending the March Monthly Progress Report. It appears that based on the initial sampling results, additional analyses from contingent samples were required and this report includes lab data for PFAS, TOC, moisture content, and pH results. Ecology would like to better understand the overall status of IPI sample analysis and the estimated schedule for report submittal. Can you please provide a description, perhaps in table form, that depicts which soil sample locations have completed the lab analysis process and which continue to undergo contingency analysis? I am sure your consulting team is tracking this closely as they review data and initiate analysis of contingent samples, so whatever readily available tracking table they have to share would be appreciated.

Thank you,

Jeremy

Jeremy Schmidt, P.E.
Site Manager
Toxics Cleanup Program
Washington State Department of Ecology
Eastern Region Office, Spokane
Cell: 509-724-1164

From: Lisa Corcoran <lcorcoran@spokaneairports.net>
Sent: Thursday, April 10, 2025 5:46 PM
To: Schmidt, Jeremy (ECY) <JESC461@ECY.WA.GOV>
Cc: Brian Werst <bwerst@spokaneairports.net>; jeffrey.longsworth@earthandwatergroup.com; John Sheehan <john.sheehan@earthandwatergroup.com>; kwhitehead@gsi-net.com; Keylin Huddleston <khuddleston@spokaneairports.net>
Subject: GEG Monthly Progress Report

External Email

Hello Jeremy,

Attached is the monthly report for the period covering March 2025.

Thank you,



Lisa L. Corcoran, C.M.
Chief Development Officer

Spokane International Airport, Felts Field & Airport Business Park
9000 W. Airport Drive, Suite 204
Spokane, WA 99224

Desk: 509.455.6406

Mobile: 509.808.6577

Email: Lcorcoran@spokaneairports.net



Update for Ecology – Initial PFAS Investigation

The information below provides an update on the sample analysis for the Initial PFAS Investigation (IPI).

Groundwater Summary

A total of 50 groundwater monitoring wells were sampled during the IPI field campaign, corresponding to 180 total samples collected for PFAS, water quality analyses, and equipment/blank checks.

- 80 samples were received by Eurofins Northern California in Sacramento, California for PFAS analysis. These samples comprise:
 - › 50 Normal Samples
 - › 12 Equipment Blanks
 - › 9 Field Blanks
 - › 9 Field Duplicates
 - › Note that one report initially submitted to Ecology in January was resubmitted in February reflect typographical corrections to sample names:
 - SDG 320-118162-1
- 50 groundwater samples were analyzed for cations, anions, and alkalinity by Eurofins Northwest in Spokane, Washington, all results have been transmitted to Ecology with the Progress Report No. 11 for February 2025.
 - › Please note that two laboratory data reports initially submitted to Ecology for January 2025 were resubmitted in February to reflect typographical corrections to sample names:
 - SDG 590-28851-1
 - SDG 590-28921-1
- 50 groundwater samples were analyzed for stable isotopes by Isotech.

Analytical results for all cations, anions, alkalinity, and stable isotopes have been transmitted to Ecology. Analytical results for 72 of the 80 PFAS samples have been transmitted to Ecology. The groundwater results for PFAS for 8 samples collected on 10 January 2025 have not been submitted to Ecology. The initial results provided by Eurofins Sacramento had reporting and method detection limits for one sample above the values specified in the QAPP for one sample in the batch and reanalysis requested. Reporting of these results with the reanalysis of the sample are pending.

Soil

Soil samples were collected from 57 locations across 10 areas during the IPI field campaign:

- 337 samples were received by Eurofins Northern California in Sacramento, California for percent moisture and PFAS analysis. These samples include:
 - › 284 Normal samples
 - › 34 Field duplicates
 - › 19 Equipment, field and handwash water blanks
- 318 samples were received by Eurofins Northwest in Spokane, Washington for pH and TOC analysis. These samples include:
 - › 284 Normal samples
 - › 34 Field duplicates

Analysis of the PFAS samples is proceeding following the process described in the IPI Work Plan. In total, 244 soil samples have been analyzed for PFAS in addition to the quality control blanks. Analysis is complete for 9 of the 10 sampling areas, with 4 boring locations collected from the Joint Fire Training Area pending. As we continue the stepwise progression of analysis down core, it is anticipated that up to four rounds of analysis may be needed (i.e., a maximum of four additional sample depth intervals remain that may require analysis). Given laboratory wait times, and time for reviewing and screening results, we anticipate that all analytical laboratory analyses will be complete by the end of June.

To stay in accordance with the 90 day hold time for PFAS analysis per EPA Method 1633, remaining soil samples were extracted, and analyses will be complete within the 90 day hold time for extracts.

Data Validation

Once all the laboratory analyses for groundwater and soil have been received and compiled, tables to support data validation will be generated and submitted for validation. This process will take 30-60 days depending on the turn around time with the validator. We anticipate having data validation complete by the end of August.