Submittal Cover

Welliver
250 N Genesee St
Montour Falls, NY
Phone: (607) 535-5400

668-0
Submittal eBuilder No.

Project: 2545 Meinig Field House

Contractor:

Clark Companies
41155 State Highway 10
Delhi, NY 13753

Owner: Cornell University
Architect: **Sasaki Associates, Inc.**

Sent To:
Robert Titus
110 Chauncy Street
Boston Massachusetts
Phone: (619) 923-7339

Type of Submittal: ☐ Product Data ☐ Shop Drawing ☐ Sample ☐ Test Reports ☐ Warranty ☐ Other

Substitution: ☐ YES ☐ NO

Product Identification

Specification Section: 321813
Product Name: Outdoor Synthetic Turf Pre Ship PFAS Testing
Manufacturer: FieldTurf
Part/Paragraph:

Date of Submittal: 4/28/26
Resubmitted:

Subcontractor / Contractor Review
This submittal has been reviewed and checked for compliance with the contract documents.
By: Danyelle Gockel Date: 4/28/26

Welliver McGuire Review
This submittal has been reviewed and checked for compliance with the contract documents.
By: Eddie Eddington Date: 4/28/26

Contractor Comments:

Welliver Stamp:

Submittal reviewed for design conformity and general conformance to Contract Documents only. Review shall not relieve Subcontractor of contractual responsibilities for any error or deviation from contract and subcontract requirements. The subcontractor is responsible for confirming and correlating dimensions for tolerance, clearance, quantities, fabrication processes, and coordination of their work with other trades.
Date:
Reviewed by: Eddie Eddington

Architect's Stamp:

SUBMITTAL REVIEW
REVIEWED FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE WORK. CORRECTIONS AND COMMENTS MADE OR NOT MADE ON THE SUBMITTAL DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE CONTRACT DOCUMENTS. REFER TO THE CONTRACT DOCUMENTS FOR CONTRACTOR'S RESPONSIBILITIES.

☑ APPROVED
☐ APPROVED AS NOTED - PROCEED
☐ REVISE AND RESUBMIT
☐ NO ACTION TAKEN OR REQUIRED
☐ REJECTED - DO NOT USE

SASAKI ASSOCIATES, INC.
110 Chauncy Street, Boston, MA 02111
28020.00 04.30.2026 T. SASSER
SA PROJECT # DATE BY

78 LONDONDERRY TPK UNIT D5
HOOKSETT, NH 03106
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Laboratory Test Report

Cornell University Robison Alumni West Field

Job No.	101766/11940
Client Information	Fieldturf USA Inc. 175 N. Industrial Blvd NE Calhoun, GA 30702
Outsource Laboratory Information	Pace Analytical Services, LLC 320 Forbes Boulevard Mansfield, MA 02048
Test Method(s)	EPA Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS
Sample Collection Date	3/16/2026
Test Date(s)	4/15/2026-4/22/2026
Report Date	Preliminary Report: 4/22/2026
Report Status	Preliminary; Pending TOF results

Prepared by *Adam Kalil*, *Laboratory Manager* **Checked by** *Megan Illsley*, *Laboratory Director*

Notes:
1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

EPA Method 1633

Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS

Purpose and Scope:

EPA Method 1633, developed for use under the Clean Water Act (CWA), is designed for the detection and quantification of per- and polyfluoroalkyl substances (PFAS) across a range of matrices, including aqueous (e.g., wastewater, surface water, groundwater, landfill leachate), solid (e.g., soil, sediment, biosolids), and biological (e.g., fish and shellfish tissue) samples. This method is the first PFAS method validated across multiple laboratories for both aqueous and non-aqueous matrices, and is recommended by the U.S. Environmental Protection Agency for regulatory and monitoring applications.

PFAS are a group of synthetic, fluorinated compounds known for their chemical stability, water and oil resistance, and widespread industrial and commercial use. Due to their persistence and resistance to degradation, PFAS have been termed “forever chemicals.” These compounds are now found globally in water, soil, air, food, and living organisms—including humans.

Human exposure may occur through contaminated drinking water, food packaging, consumer products, and environmental contact. Given their potential toxicity and bioaccumulation, accurate PFAS measurement is critical for environmental assessment, public health protection, and regulatory compliance.

Significance and Use:

Per- and polyfluoroalkyl substances (PFAS) have been identified by the U.S. Environmental Protection Agency (EPA) and other regulatory bodies as persistent environmental contaminants of concern due to their resistance to degradation and potential toxicity. PFAS are widely detected in surface water, groundwater, soil, sediment, biosolids, and biological tissues. EPA Method 1633 was developed to address the need for a validated, standardized method to quantify PFAS in diverse environmental and biological matrices.

This method uses isotope dilution or extracted internal standard quantification, with analysis performed by liquid chromatography-tandem mass spectrometry (LC-MS/MS). It includes matrix-specific extraction and cleanup procedures designed to remove interferences and enhance data reliability. Target PFAS analytes are quantified based on response relative to isotopically labeled internal standards, ensuring accurate correction for matrix effects and recovery losses.

EPA 1633 is recommended for regulatory and investigatory use under the Clean Water Act and is the first multi-laboratory validated PFAS method covering both aqueous and non-aqueous matrices. Importantly, it is also the first EPA-developed method specifically designed for PFAS analysis in solid and tissue samples without requiring modification of water-based test protocols. The method provides high-quality, defensible data suitable for site assessments, remediation monitoring, and PFAS compliance testing.

Analytes of Interest:

EPA Method 1633 targets 40 specific PFAS compounds across environmental matrices including water, soil, and biological tissues. A full list of all 40 compounds analyzed can be found in the test report and/or the official test method documentation. Of these, the following nine compounds are currently identified by the U.S. EPA (as of April 2025) as being of particular concern due to their potential impacts on human health:

Target Analyte Name	Abbreviation	CAS Registry Number
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6

TEST METHOD INFORMATION

Results Overview and Report Information:

This report presents laboratory results for per- and polyfluoroalkyl substances (PFAS) analyzed using EPA Method 1633, a method developed by the U.S. EPA for testing water, soil, sediment, biosolids, and biological materials. The method provides accurate, trace-level measurements of 40 PFAS compounds and is widely used for environmental investigations, site assessments, and compliance monitoring.

Each sample is analyzed to determine the concentration of PFAS compounds. For water samples, results are reported in parts per trillion (ng/L). For solids such as soil, sediment, or tissue, results are reported in parts per billion (µg/kg). When a compound is not detected, it is marked as ND, meaning it was not found above the laboratory's detection limit. All results include a reporting limit, which represents the lowest level the lab can reliably quantify. It is important to note that a detected value above the reporting limit does not imply regulatory exceedance or non-compliance—it simply indicates that the compound was present at a level the method can confidently measure.

To ensure reliability, the report includes a quality control section, which details the performance of internal standards and any observed matrix effects or testing anomalies. Compounds referred to in this report as "surrogates" are, in accordance with EPA Method 1633, technically known as Extracted Internal Standards (EIS). These are isotopically labeled versions of PFAS compounds added to each sample prior to extraction to assess and confirm the performance of the analytical process. They are not naturally present in the sample, and their recoveries do not indicate PFAS contamination nor influence the reported PFAS concentrations. Instead, they serve solely as internal quality controls to verify that the method has been applied correctly and consistently.

Understanding the Report Layout and Key Terms:

The following provides a summary of the relevant sections and terminology presented in this report, intended to assist in the interpretation of PFAS analytical results and associated data presentation.

Section / Term	Description
Summary of Detection	Lists only PFAS compounds detected above the reporting limit. May be omitted if no compounds are detected.
Analytical Results Page	Displays all PFAS compounds analyzed, with results showing either quantitative values or "ND" (non-detect) if below the reporting limit.
Parameters	Refers to each specific PFAS compound being analyzed.
Results	A numeric value indicates a detected concentration above the reporting limit. "ND" signifies that the analyte was not detected above that threshold.
Units	Results are typically reported in parts per billion (µg/kg) for solids or parts per trillion (ng/L) for aqueous samples.
Reporting Limit	The minimum concentration at which an analyte can be confidently quantified. This value reflects method sensitivity but does not represent a regulatory failure threshold.
Quality Control Data	Demonstrates that method-required QC procedures were performed to ensure accuracy and precision.
Surrogates	Surrogates are chemically similar compounds added to each sample and control to assess the performance of the analytical process. Their recoveries confirm the integrity of sample preparation and analysis. Surrogates do not reflect PFAS contamination in the sample itself.
Definitions	A glossary is included in the report to clarify acronyms and technical terminology used throughout the results.

Compliance and Interpreting Results:

EPA Method 1633 is a quantitative method—it does not establish pass/fail criteria or regulatory thresholds. A result of "no detection" for all compounds simply means none were found above the method's reporting limits. Detection of a PFAS compound does not necessarily indicate regulatory non-compliance.

While the EPA has issued health-based standards for a limited number of PFAS in drinking water, these values do not apply to non-potable samples such as soil, sediment, biosolids, or synthetic surfaces. Additionally, individual states, agencies, or project owners may have their own PFAS action levels or guidance criteria, which are not reflected in this report.

Clients should interpret PFAS results within the context of applicable regulations, site-specific goals, and any governing authority requirements.

ANALYTICAL REPORT

Lab Number:	L2621722
Client:	Firefly Sports Testing LLC 78 Londonderry Turnpike Unit D5 Hooksett, NH 03106
ATTN:	Cailyn Connolly
Phone:	(603) 731-6245
Project Name:	CORNELL UNIVERSITY ROBISON ALU
Project Number:	101766
Report Date:	04/22/26

The original project report/data package is held by Pace Analytical Services. This report/data package is paginated and should be reproduced only in its entirety. Pace Analytical Services holds no responsibility for results and/or data that are not consistent with the original.

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Lab Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2621722-01	CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD	SOLID	FIELD TURF	03/16/26 18:13	04/15/26

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/22/26

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Pace Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Pace's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/22/26

Case Narrative (continued)

Report Submission

April 22, 2026: This is a preliminary report.

Sample Receipt

The sample was received at the laboratory above the required temperature range and was not on ice.

Perfluorinated Alkyl Acids by 1633

L2621722-01: The analysis of Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA) exceeded the 3-day holding time recommended by the method for soil/sediment and tissue matrices.

L2621722-01: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2621722-01: The sample was milled using a cryogenic mill (cryomill). The sample was reduced in size and thoroughly homogenized in a chamber exposed to liquid nitrogen. (Cryomilling utilizes SS grinding balls to roughly size reduce samples to 50-400um particles in diameter prior to extraction.)

WG2199141-2: The sample was re-analyzed due to QC failures in the original analysis. The results of the re-analysis are reported.

Fluoride

L2621722-01: The sample was analyzed with the method required holding time exceeded.

L2621722-01: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 04/22/26

QC OUTLIER SUMMARY REPORT

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

ORGANICS

SEMIVOLATILES

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/22/26

SAMPLE RESULTS

Lab ID: L2621722-01
Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD
Sample Location: FIELD TURF

Date Collected: 03/16/26 18:13
Date Received: 04/15/26
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 168,1633A
Analytical Date: 04/20/26 19:31
Analyst: ANH
Percent Solids: Results Reported on an "AS RECEIVED" basis

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	1.60	--	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.800	--	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.60	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.400	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.400	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.400	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.400	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	1.60	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.400	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.400	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.400	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	1.60	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.400	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.400	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.400	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.400	--	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.400	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.400	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.400	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.400	--	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.400	--	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	1.60	--	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	1.60	--	1

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/22/26

SAMPLE RESULTS

Lab ID: L2621722-01 Date Collected: 03/16/26 18:13

Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD Date Received: 04/15/26

Sample Location: FIELD TURF Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.400	--	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	1.60	--	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	1.60	--	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.400	--	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.400	--	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	4.00	--	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	4.00	--	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.800	--	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.800	--	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.800	--	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.800	--	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	2.00	--	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	10.0	--	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	10.0	--	1

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/22/26

SAMPLE RESULTS

Lab ID: L2621722-01 Date Collected: 03/16/26 18:13

Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD Date Received: 04/15/26

Sample Location: FIELD TURF Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	102		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	63		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	59		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	68		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	92		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	66		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	77		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	79		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	80		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	85		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	104		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	77		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	85		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	76		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	107		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	72		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	71		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	64		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	61		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	56		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	85		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	77		15-130

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	--
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	--
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.800	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	--
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	--
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	--
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	--
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	--
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	--
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	--
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	--
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	--

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	--
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.800	--
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.800	--
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	--
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.800	--
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.800	--
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	--
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	--
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.400	--
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.400	--
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.400	--
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.400	--
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	1.00	--
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	5.00	--
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	5.00	--

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	95		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	114		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	76		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	95		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	89		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	85		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	84		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	76		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	96		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	84		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	53		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	97		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	72		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	57		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	80		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	67		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	87		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	52		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	47		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	60		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	58		15-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	113		-		70-140	-		
Perfluoropentanoic Acid (PFPeA)	86		-		60-150	-		
Perfluorobutanesulfonic Acid (PFBS)	94		-		65-145	-		
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	113		-		60-150	-		
Perfluorohexanoic Acid (PFHxA)	105		-		65-140	-		
Perfluoropentanesulfonic Acid (PFPeS)	94		-		55-160	-		
Perfluoroheptanoic Acid (PFHpA)	100		-		65-145	-		
Perfluorohexanesulfonic Acid (PFHxS)	110		-		60-150	-		
Perfluorooctanoic Acid (PFOA)	102		-		70-150	-		
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	97		-		55-200	-		
Perfluoroheptanesulfonic Acid (PFHpS)	99		-		65-155	-		
Perfluorononanoic Acid (PFNA)	112		-		70-155	-		
Perfluorooctanesulfonic Acid (PFOS)	118		-		65-160	-		
Perfluorodecanoic Acid (PFDA)	94		-		70-155	-		
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	99		-		70-150	-		
Perfluorononanesulfonic Acid (PFNS)	103		-		55-140	-		
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	118		-		65-155	-		
Perfluoroundecanoic Acid (PFUnA)	108		-		70-155	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluorodecanesulfonic Acid (PFDS)	80		-		40-155	-		
Perfluorooctanesulfonamide (PFOSA)	102		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		65-165	-		
Perfluorododecanoic Acid (PFDoA)	114		-		70-150	-		
Perfluorotridecanoic Acid (PFTrDA)	96		-		65-150	-		
Perfluorotetradecanoic Acid (PFTeDA)	106		-		65-150	-		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	119		-		70-145	-		
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	106		-		70-160	-		
Perfluorododecanesulfonic Acid (PFDoS)	74		-		25-160	-		
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	119		-		70-150	-		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	104		-		45-160	-		
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	118		-		70-155	-		
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	113		-		70-140	-		
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	104		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	115		-		70-135	-		
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	101		-		30-140	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	102		-		60-150	-		
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	102		-		70-140	-		
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	109		-		60-155	-		
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	90		-		45-130	-		
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	115		-		60-130	-		
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	102		-		60-150	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	95				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	114				35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	90				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	75				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	97				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	99				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	92				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	85				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	82				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	82				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	96				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	78				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	71				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	87				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	87				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	66				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	86				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	77				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88				40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	61				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	55				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	78				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	76				15-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluorobutanoic Acid (PFBA)	106		-		70-140	-		
Perfluoropentanoic Acid (PFPeA)	88		-		60-150	-		
Perfluorobutanesulfonic Acid (PFBS)	100		-		65-145	-		
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	108		-		60-150	-		
Perfluorohexanoic Acid (PFHxA)	105		-		65-140	-		
Perfluoropentanesulfonic Acid (PFPeS)	97		-		55-160	-		
Perfluoroheptanoic Acid (PFHpA)	96		-		65-145	-		
Perfluorohexanesulfonic Acid (PFHxS)	100		-		60-150	-		
Perfluorooctanoic Acid (PFOA)	94		-		70-150	-		
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	109		-		55-200	-		
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		65-155	-		
Perfluorononanoic Acid (PFNA)	112		-		70-155	-		
Perfluorooctanesulfonic Acid (PFOS)	108		-		65-160	-		
Perfluorodecanoic Acid (PFDA)	97		-		70-155	-		
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	100		-		70-150	-		
Perfluorononanesulfonic Acid (PFNS)	103		-		55-140	-		
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	113		-		65-155	-		
Perfluoroundecanoic Acid (PFUnA)	102		-		70-155	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluorodecanesulfonic Acid (PFDS)	85		-		40-155	-		
Perfluorooctanesulfonamide (PFOSA)	95		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		65-165	-		
Perfluorododecanoic Acid (PFDoA)	113		-		70-150	-		
Perfluorotridecanoic Acid (PFTrDA)	102		-		65-150	-		
Perfluorotetradecanoic Acid (PFTeDA)	103		-		65-150	-		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	114		-		70-145	-		
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	95		-		70-160	-		
Perfluorododecanesulfonic Acid (PFDoS)	72		-		25-160	-		
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	115		-		70-150	-		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	101		-		45-160	-		
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	110		-		70-155	-		
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	104		-		70-140	-		
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	109		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	110		-		70-135	-		
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	103		-		30-140	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	108		-		60-150	-		
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	112		-		70-140	-		
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	102		-		60-155	-		
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	96		-		45-130	-		
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	110		-		60-130	-		
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	102		-		60-150	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	96				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	120				35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	83				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	75				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	103				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	112				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	89				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	96				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	75				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	91				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	93				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	92				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	74				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	84				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	90				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	74				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	82				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	70				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91				40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	64				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	58				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	76				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	74				15-130

INORGANICS
&
MISCELLANEOUS

Project Name: CORNELL UNIVERSITY ROBISON ALU
Lab Number: L2621722
Project Number: 101766
Report Date: 04/22/26

SAMPLE RESULTS

Lab ID: L2621722-01
Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD
Sample Location: FIELD TURF
Date Collected: 03/16/26 18:13
Date Received: 04/15/26
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Fluoride	ND		mg/kg	20	--	2	04/17/26 16:53	04/17/26 21:08	121,4500F-BC	MAW

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/22/26

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG2200187-1										
Fluoride	ND		mg/kg	10	--	1	04/17/26 16:53	04/17/26 21:08	121,4500F-BC	MAW

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG2200187-2								
Fluoride	90		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG2200187-4 QC Sample: L2621715-01 Client ID: MS Sample												
Fluoride	ND	100	79	79		-	-		70-130	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU

Project Number: 101766

Lab Number: L2621722

Report Date: 04/22/26

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG2200187-3 QC Sample: L2621715-01 Client ID: DUP Sample						
Fluoride	ND	ND	mg/kg	NC		20

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/22/26

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2621722-01A	Bag	A	NA		19.3	Y	Absent		A2-CRYOMILL_PREP()
L2621722-01X	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		A2-1633(90)
L2621722-01X1	Unpreserved Centrifuge Tube	NA	NA			Y	Absent		A2-1633(90)
L2621722-01Y	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		A3-TOTALFLUORINE(90)
L2621722-01Z	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		F-4500(28)

*Values in parentheses indicate holding time in days

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/22/26

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/22/26

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/22/26

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/22/26

Data Qualifiers

ND	- Not detected at the reporting limit (RL) for the sample.
NJ	- Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
R	- Analytical results are from sample re-analysis.
RE	- Analytical results are from sample re-extraction.
S	- Analytical results are from modified screening analysis.
V	- The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
Z	- The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

168 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. EPA Method 1633A, EPA 820-R-24-007, December 2024. For Massachusetts Contingency Plan, WSC-CAM-XA, September 2025.

LIMITATION OF LIABILITIES

Pace Analytical Services performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Pace Analytical Services.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ENV-FORM-WES2-0065 v02 Certificate/Approval Program Summary

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
SM 2540D: TSS.
Biological Tissue Matrix: EPA 3050B

PAS-MAN1 Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
MADEP-APH.

PAS-ELON East Longmeadow Facility – 39 Spruce Street East Longmeadow, MA 01028
EPA 524.2: 1,3,5-Trichlorobenzene, m/p-Xylene, o-xylene.
EPA 625.1: 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, N-Nitrosodiphenylamine.
EPA 8081B NPW and SCM: Alachlor, Endrin Ketone, Hexachlorobenzene.
EPA 8260D NPW: Tetrahydrofuran, 1,3,5-Trichlorobenzene; **SCM:** TAME, TBEE, Diethyl ether, DIPE, Tetrahydrofuran. 1,3,5-Trichlorobenzene, Freon-113.
EPA 8270E: NPW: Carbazole, 1-Methylnaphthalene, Pentachloronitrobenzene; **SCM:** Carbazole, 1-Methylnaphthalene.
EPA TO-13: Air: Benzo(e)pyrene, 1-Methylnaphthalene, 2-Methylnaphthalene, Perylene.
EPA TO-4A Pesticide Air: delta-BHC, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Hexachlorobenzene, Methoxychlor.
SM4500: NPW: Amenable Cyanide; **SCM:** Total Phosphorus, TKN, NH3, NECi: NO2, NO3, ASTMD516.

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)

The following analytes are included in our Massachusetts DEP Scope of Accreditation:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-G, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT.**

ENV-FORM-WES2-0065 v02 Certificate/Approval Program Summary

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1: Hg. **EPA 245.7:** Hg.
SM2340B

PAS-ELON East Longmeadow Facility – 39 Spruce Street East Longmeadow, MA 01028

Drinking Water

EPA 300.0: NO3, NO2, Fl, Cl, SO4. **NECI Reductase**: NO3, NO2.
SM4500F-C, SM4500Cl-B, ASTM D516, SM4500CN-C,E, EPA 180.1, SM2320B, SM 2540C, SM4500H-B, SM4500SO4-E.
EPA 537.1; EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: SM9223-P/A: TC/EC; SM9223B-Colilert-enumeration: TC/EC; HPC-Simplate.

Non-Potable Water

SM4500H-B, SM2510B, SM2540C, SM2320B, SM4500Cl-B, ASTMD516, SM4500NH3-B, C, EPA 350.1, NECi: NO3, **SM4500NH3-B, C: TKN, SM4500P-E: Ortho Phosphate, SM4500P-B, E: Total Phosphorus, EPA 410.4, SM5210B, SM5310C, SM4500CN-C, E, SM2540D, SM4500Cl-G, SM4500SO4-E, EPA 1664, EPA 420.1, EPA 300.0:** Cl, SO4, NO3.
EPA 624.1: Volatile Halocarbons, Volatile Aromatics.
EPA 608.3: Chlordane, Toxaphene, Aldrin, Alpha-BHC, Beta-BHC, Gamma-BHC, Delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs.
EPA 625.1: SVOC-Acid Extractables and Base/Neutrals
Microbiology: SM9223B-Colilert: E. coli (Ambient and Wastewater), **SM9223B-Colilert-18:** Fecal Coliform (Wastewater).

Certification IDs:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
CT PH-0826, IL 200077, IN C-MA-03, KY kY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195.

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, CA 3117, CO MA00030, CT PH-0825, IL 200081, IN C-MA-04, KY KY98046, LA 85084, ME MA00030, MD 350, MA M-MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, UT MA00030, VT VT-0015, VA 460194, WA C954.

PAS-MAN1 Mansfield Air Lab Facility – 120 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, LA 245052, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

PAS-ELON East Longmeadow Facility – 39 Spruce St. East Longmeadow, MA 01028
CT PH-0821, ME MA00100, MI 9100, NC (DENR) 652, NC (DW) 25703, MA M-MA100, NH (Secondary) 2516, NH (Primary) 2557, NJ MA007, NY 10899, PA 68-05812, RI LAO00373, VA 460217, VT-255716, WV DEP 419, WV-DW 9979C, LA 05130, LA-DW LA042, MD-DW 373, OH 87781.

For a complete listing of analytes and methods, please contact your Project Manager.

4/15/26 L2621722

Pace® Location Requested (City/State): **Mansfield**

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name: Firefly Athletics, LLC (dba Firefly Sports Testing)

Street Address: 78 Londonderry Turnpike Unit D5 Hooksett, NH 03106

Contact/Report To: Cailyn Connolly

Phone #: 603-715-5453

E-Mail: cailyn@fireflysportstesting.com

Cc E-Mail: contact@fireflysportstesting.com

Invoice to: Jeff Gentile

Invoice E-mail: contact@fireflysportstesting.com

Purchase Order # (if applicable):

Quote #: 001506

Customer Project #: 101766

Project Name: Cornell University Robison Alumni West Field

Site Collection Info/Facility ID (as applicable): Field Turf

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [✓] ET

County / State origin of sample(s): Gordon County, Georgia

Data Deliverables: [X] Level II [ ] Level III [ ] Level IV [ ] SQUIS [ ] Other

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

Rush (Pre-approval required): [ ] Same Day [✓] 1 Day [ ] 2 Day [ ] 3 Day Other

Date Results Requested: Standard TAT = 20 BD

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

Specify Container Size**: 4 L

Identify Container Preservative Type***

Analysis Requested

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Residual Chlorine Result	Residual Chlorine Units	Total Fluorine by CIC	EPA 1633 w/ Cryomill	Sample Comment
01 Cornell University Robison Alumni West Field	S	G	3/16/26	6:13PM			1			X	X	

Lab Use Only: Proj. Mgr: Alycia Mogayzel; Acct.Num / Client ID:; Table #:; Profile / Template:; Prelog / Bottle Ord. ID:

Preservation non-conformance identified for sample

Additional Instructions from Pace®:

Collected By: Printed Name: Jeremy Wyatt Signature: Jeremy Wyatt

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C):	Corrected Temp. (°C):	[ ] On Ice

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Jeremy Wyatt Jeremy Wyatt FEDEX	2:02 PM 4/14/2026	FEDEX		
Relinquished by/Company: (Signature)	4/15/26 0837	Received by/Company: (Signature)	4/15/26 0837	Delivered by: [ ] In-Person [ ] Courier [ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v02_10123 ©



Serial_No:04222619:08

Sample Delivery Group Summary

Pace Job Number : L2621722
Received : 15-APR-2026
Reviewer : Jessica Ramos

Account Name : Firefly Sports Testing LLC
Project Number : 101766
Project Name : CORNELL UNIVERSITY ROBISON ALU

Delivery Information

Samples Delivered By : Express Ship
FedEx (100189177211000020480051590779 4785)

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	No Ice	19.3	

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between COC & sample labels?	**NO**
5) Are samples in appropriate containers for requested analysis? Please refer to information noted in Question 3 above.	**NO**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**NA**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

78 LONDONDERRY TPK UNIT D5
HOOKSETT, NH 03106
PHONE: (603) 715-5453
EMAIL: CONTACT@FIREFLYSPORTSTESTING.COM
WEBSITE: WWW.FIREFLYSPORTSTESTING.COM

Laboratory Test Report

Cornell University Robison Alumni West Field

Job No.	101766/11940
Client Information	Fieldturf USA Inc. 175 N. Industrial Blvd NE Calhoun, GA 30702
Outsource Laboratory Information	Pace Analytical Services, LLC 320 Forbes Boulevard Mansfield, MA 02048
Test Method(s)	EPA Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS Total Fluorine by CIC
Sample Collection Date	3/16/2026
Test Date(s)	4/15/2026-4/23/2026
Report Date	4/23/2026
Report Status	Final

Prepared by *Adam Kalil*
Laboratory Manager

Checked by *Megan Illsley*
Laboratory Director

Notes:
1. This report has been prepared by Firefly Sports Testing with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.
2. This report is confidential to the Client and Firefly Sports Testing accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed by the Author and the Checker and unless the report status is "Final."

EPA Method 1633

Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS

Purpose and Scope:

EPA Method 1633, developed for use under the Clean Water Act (CWA), is designed for the detection and quantification of per- and polyfluoroalkyl substances (PFAS) across a range of matrices, including aqueous (e.g., wastewater, surface water, groundwater, landfill leachate), solid (e.g., soil, sediment, biosolids), and biological (e.g., fish and shellfish tissue) samples. This method is the first PFAS method validated across multiple laboratories for both aqueous and non-aqueous matrices, and is recommended by the U.S. Environmental Protection Agency for regulatory and monitoring applications.

PFAS are a group of synthetic, fluorinated compounds known for their chemical stability, water and oil resistance, and widespread industrial and commercial use. Due to their persistence and resistance to degradation, PFAS have been termed “forever chemicals.” These compounds are now found globally in water, soil, air, food, and living organisms—including humans.

Human exposure may occur through contaminated drinking water, food packaging, consumer products, and environmental contact. Given their potential toxicity and bioaccumulation, accurate PFAS measurement is critical for environmental assessment, public health protection, and regulatory compliance.

Significance and Use:

Per- and polyfluoroalkyl substances (PFAS) have been identified by the U.S. Environmental Protection Agency (EPA) and other regulatory bodies as persistent environmental contaminants of concern due to their resistance to degradation and potential toxicity. PFAS are widely detected in surface water, groundwater, soil, sediment, biosolids, and biological tissues. EPA Method 1633 was developed to address the need for a validated, standardized method to quantify PFAS in diverse environmental and biological matrices.

This method uses isotope dilution or extracted internal standard quantification, with analysis performed by liquid chromatography-tandem mass spectrometry (LC-MS/MS). It includes matrix-specific extraction and cleanup procedures designed to remove interferences and enhance data reliability. Target PFAS analytes are quantified based on response relative to isotopically labeled internal standards, ensuring accurate correction for matrix effects and recovery losses.

EPA 1633 is recommended for regulatory and investigatory use under the Clean Water Act and is the first multi-laboratory validated PFAS method covering both aqueous and non-aqueous matrices. Importantly, it is also the first EPA-developed method specifically designed for PFAS analysis in solid and tissue samples without requiring modification of water-based test protocols. The method provides high-quality, defensible data suitable for site assessments, remediation monitoring, and PFAS compliance testing.

Analytes of Interest:

EPA Method 1633 targets 40 specific PFAS compounds across environmental matrices including water, soil, and biological tissues. A full list of all 40 compounds analyzed can be found in the test report and/or the official test method documentation. Of these, the following nine compounds are currently identified by the U.S. EPA (as of April 2025) as being of particular concern due to their potential impacts on human health:

Target Analyte Name	Abbreviation	CAS Registry Number
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6

TEST METHOD INFORMATION

Results Overview and Report Information:

This report presents laboratory results for per- and polyfluoroalkyl substances (PFAS) analyzed using EPA Method 1633, a method developed by the U.S. EPA for testing water, soil, sediment, biosolids, and biological materials. The method provides accurate, trace-level measurements of 40 PFAS compounds and is widely used for environmental investigations, site assessments, and compliance monitoring.

Each sample is analyzed to determine the concentration of PFAS compounds. For water samples, results are reported in parts per trillion (ng/L). For solids such as soil, sediment, or tissue, results are reported in parts per billion (µg/kg). When a compound is not detected, it is marked as ND, meaning it was not found above the laboratory's detection limit. All results include a reporting limit, which represents the lowest level the lab can reliably quantify. It is important to note that a detected value above the reporting limit does not imply regulatory exceedance or non-compliance—it simply indicates that the compound was present at a level the method can confidently measure.

To ensure reliability, the report includes a quality control section, which details the performance of internal standards and any observed matrix effects or testing anomalies. Compounds referred to in this report as "surrogates" are, in accordance with EPA Method 1633, technically known as Extracted Internal Standards (EIS). These are isotopically labeled versions of PFAS compounds added to each sample prior to extraction to assess and confirm the performance of the analytical process. They are not naturally present in the sample, and their recoveries do not indicate PFAS contamination nor influence the reported PFAS concentrations. Instead, they serve solely as internal quality controls to verify that the method has been applied correctly and consistently.

Understanding the Report Layout and Key Terms:

The following provides a summary of the relevant sections and terminology presented in this report, intended to assist in the interpretation of PFAS analytical results and associated data presentation.

Section / Term	Description
Summary of Detection	Lists only PFAS compounds detected above the reporting limit. May be omitted if no compounds are detected.
Analytical Results Page	Displays all PFAS compounds analyzed, with results showing either quantitative values or "ND" (non-detect) if below the reporting limit.
Parameters	Refers to each specific PFAS compound being analyzed.
Results	A numeric value indicates a detected concentration above the reporting limit. "ND" signifies that the analyte was not detected above that threshold.
Units	Results are typically reported in parts per billion (µg/kg) for solids or parts per trillion (ng/L) for aqueous samples.
Reporting Limit	The minimum concentration at which an analyte can be confidently quantified. This value reflects method sensitivity but does not represent a regulatory failure threshold.
Quality Control Data	Demonstrates that method-required QC procedures were performed to ensure accuracy and precision.
Surrogates	Surrogates are chemically similar compounds added to each sample and control to assess the performance of the analytical process. Their recoveries confirm the integrity of sample preparation and analysis. Surrogates do not reflect PFAS contamination in the sample itself.
Definitions	A glossary is included in the report to clarify acronyms and technical terminology used throughout the results.

Compliance and Interpreting Results:

EPA Method 1633 is a quantitative method—it does not establish pass/fail criteria or regulatory thresholds. A result of "no detection" for all compounds simply means none were found above the method's reporting limits. Detection of a PFAS compound does not necessarily indicate regulatory non-compliance.

While the EPA has issued health-based standards for a limited number of PFAS in drinking water, these values do not apply to non-potable samples such as soil, sediment, biosolids, or synthetic surfaces. Additionally, individual states, agencies, or project owners may have their own PFAS action levels or guidance criteria, which are not reflected in this report.

Clients should interpret PFAS results within the context of applicable regulations, site-specific goals, and any governing authority requirements.

ANALYTICAL REPORT

Lab Number:	L2621722
Client:	Firefly Sports Testing LLC 78 Londonderry Turnpike Unit D5 Hooksett, NH 03106
ATTN:	Cailyn Connolly
Phone:	(603) 731-6245
Project Name:	CORNELL UNIVERSITY ROBISON ALU
Project Number:	101766
Report Date:	04/23/26

The original project report/data package is held by Pace Analytical Services. This report/data package is paginated and should be reproduced only in its entirety. Pace Analytical Services holds no responsibility for results and/or data that are not consistent with the original.

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Lab Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2621722-01	CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD	SOLID	FIELD TURF	03/16/26 18:13	04/15/26

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/23/26

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Pace Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Pace's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/23/26

Case Narrative (continued)

Report Submission

April 23, 2026: This final report includes the results of all requested analyses.

April 22, 2026: This is a preliminary report.

The analysis of Fluorine was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The sample was received at the laboratory above the required temperature range and was not on ice.

Perfluorinated Alkyl Acids by 1633

L2621722-01: The analysis of Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA) exceeded the 3-day holding time recommended by the method for soil/sediment and tissue matrices.

L2621722-01: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2621722-01: The sample was milled using a cryogenic mill (cryomill). The sample was reduced in size and thoroughly homogenized in a chamber exposed to liquid nitrogen. (Cryomilling utilizes SS grinding balls to roughly size reduce samples to 50-400um particles in diameter prior to extraction.)

WG2199141-2: The sample was re-analyzed due to QC failures in the original analysis. The results of the re-analysis are reported.

Fluoride

L2621722-01: The sample was analyzed with the method required holding time exceeded.

L2621722-01: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Kelly Stenstrom

Title: Technical Director/Representative Date: 04/23/26

QC OUTLIER SUMMARY REPORT

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

There are no QC Outliers associated with this report.

ORGANICS

SEMIVOLATILES

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/23/26

SAMPLE RESULTS

Lab ID: L2621722-01
Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD
Sample Location: FIELD TURF

Date Collected: 03/16/26 18:13
Date Received: 04/15/26
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 168,1633A
Analytical Date: 04/20/26 19:31
Analyst: ANH
Percent Solids: Results Reported on an "AS RECEIVED" basis

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	1.60	--	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.800	--	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	1.60	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.400	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.400	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.400	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.400	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	1.60	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.400	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.400	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.400	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.400	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	1.60	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.400	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.400	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.400	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.400	--	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.400	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.400	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.400	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.400	--	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.400	--	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	1.60	--	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	1.60	--	1

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/23/26

SAMPLE RESULTS

Lab ID: L2621722-01 Date Collected: 03/16/26 18:13

Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD Date Received: 04/15/26

Sample Location: FIELD TURF Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.400	--	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	1.60	--	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	1.60	--	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.400	--	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.400	--	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	4.00	--	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	4.00	--	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.800	--	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.800	--	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.800	--	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.800	--	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	2.00	--	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	10.0	--	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	10.0	--	1

Project Name: CORNELL UNIVERSITY ROBISON ALU **Lab Number:** L2621722

Project Number: 101766 **Report Date:** 04/23/26

SAMPLE RESULTS

Lab ID: L2621722-01 Date Collected: 03/16/26 18:13

Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD Date Received: 04/15/26

Sample Location: FIELD TURF Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	102		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	63		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	59		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	68		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	92		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	66		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	77		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	79		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	80		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	85		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	104		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	77		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	85		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	76		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	107		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	72		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	71		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	64		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	61		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	56		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	85		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	77		15-130

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	--
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	--
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.800	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	--
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	--
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	--
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	--
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	--
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	--
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	--
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	--
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	--

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	--
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.800	--
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.800	--
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	--
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.800	--
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.800	--
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	--
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	--
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.400	--
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.400	--
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.400	--
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.400	--
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	1.00	--
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	5.00	--
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	5.00	--

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Method Blank Analysis
Batch Quality Control

Analytical Method: 168,1633A
Analytical Date: 04/20/26 18:55
Analyst: ANH

Extraction Method: EPA 1633
Extraction Date: 04/16/26 00:40
Cleanup Method: EPA 1633
Cleanup Date: 04/16/26

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2199141-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	95		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	114		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	76		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	95		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	89		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	85		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	84		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	76		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	96		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	84		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	53		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	97		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	72		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	57		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	80		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	67		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	87		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	52		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	47		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	60		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	58		15-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	113		-		70-140	-		
Perfluoropentanoic Acid (PFPeA)	86		-		60-150	-		
Perfluorobutanesulfonic Acid (PFBS)	94		-		65-145	-		
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	113		-		60-150	-		
Perfluorohexanoic Acid (PFHxA)	105		-		65-140	-		
Perfluoropentanesulfonic Acid (PFPeS)	94		-		55-160	-		
Perfluoroheptanoic Acid (PFHpA)	100		-		65-145	-		
Perfluorohexanesulfonic Acid (PFHxS)	110		-		60-150	-		
Perfluorooctanoic Acid (PFOA)	102		-		70-150	-		
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	97		-		55-200	-		
Perfluoroheptanesulfonic Acid (PFHpS)	99		-		65-155	-		
Perfluorononanoic Acid (PFNA)	112		-		70-155	-		
Perfluorooctanesulfonic Acid (PFOS)	118		-		65-160	-		
Perfluorodecanoic Acid (PFDA)	94		-		70-155	-		
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	99		-		70-150	-		
Perfluorononanesulfonic Acid (PFNS)	103		-		55-140	-		
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	118		-		65-155	-		
Perfluoroundecanoic Acid (PFUnA)	108		-		70-155	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluorodecanesulfonic Acid (PFDS)	80		-		40-155	-		
Perfluorooctanesulfonamide (PFOSA)	102		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		65-165	-		
Perfluorododecanoic Acid (PFDoA)	114		-		70-150	-		
Perfluorotridecanoic Acid (PFTrDA)	96		-		65-150	-		
Perfluorotetradecanoic Acid (PFTeDA)	106		-		65-150	-		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	119		-		70-145	-		
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	106		-		70-160	-		
Perfluorododecanesulfonic Acid (PFDoS)	74		-		25-160	-		
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	119		-		70-150	-		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	104		-		45-160	-		
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	118		-		70-155	-		
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	113		-		70-140	-		
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	104		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	115		-		70-135	-		
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	101		-		30-140	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	102		-		60-150	-		
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	102		-		70-140	-		
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	109		-		60-155	-		
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	90		-		45-130	-		
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	115		-		60-130	-		
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	102		-		60-150	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	95				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	114				35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	90				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	75				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	97				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	99				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	92				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	85				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	82				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	82				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	96				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	78				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	71				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	87				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	87				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	66				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	86				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	77				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88				40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	61				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	55				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	78				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	76				15-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluorobutanoic Acid (PFBA)	106		-		70-140	-		
Perfluoropentanoic Acid (PFPeA)	88		-		60-150	-		
Perfluorobutanesulfonic Acid (PFBS)	100		-		65-145	-		
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	108		-		60-150	-		
Perfluorohexanoic Acid (PFHxA)	105		-		65-140	-		
Perfluoropentanesulfonic Acid (PFPeS)	97		-		55-160	-		
Perfluoroheptanoic Acid (PFHpA)	96		-		65-145	-		
Perfluorohexanesulfonic Acid (PFHxS)	100		-		60-150	-		
Perfluorooctanoic Acid (PFOA)	94		-		70-150	-		
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	109		-		55-200	-		
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		65-155	-		
Perfluorononanoic Acid (PFNA)	112		-		70-155	-		
Perfluorooctanesulfonic Acid (PFOS)	108		-		65-160	-		
Perfluorodecanoic Acid (PFDA)	97		-		70-155	-		
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	100		-		70-150	-		
Perfluorononanesulfonic Acid (PFNS)	103		-		55-140	-		
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	113		-		65-155	-		
Perfluoroundecanoic Acid (PFUnA)	102		-		70-155	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluorodecanesulfonic Acid (PFDS)	85		-		40-155	-		
Perfluorooctanesulfonamide (PFOSA)	95		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	100		-		65-165	-		
Perfluorododecanoic Acid (PFDoA)	113		-		70-150	-		
Perfluorotridecanoic Acid (PFTrDA)	102		-		65-150	-		
Perfluorotetradecanoic Acid (PFTeDA)	103		-		65-150	-		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	114		-		70-145	-		
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	95		-		70-160	-		
Perfluorododecanesulfonic Acid (PFDoS)	72		-		25-160	-		
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	115		-		70-150	-		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	101		-		45-160	-		
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	110		-		70-155	-		
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	104		-		70-140	-		
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	109		-		70-140	-		
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	110		-		70-135	-		
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	103		-		30-140	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	108		-		60-150	-		
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	112		-		70-140	-		
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	102		-		60-155	-		
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	96		-		45-130	-		
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	110		-		60-130	-		
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	102		-		60-150	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2199141-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	96				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	120				35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	83				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	75				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	103				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	112				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	89				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	96				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	75				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	91				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	93				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	92				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	74				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	84				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	90				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	74				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	82				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	70				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91				40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	64				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	58				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	76				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	74				15-130

INORGANICS
&
MISCELLANEOUS

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

SAMPLE RESULTS

Lab ID: L2621722-01
Client ID: CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD
Sample Location: FIELD TURF
Date Collected: 03/16/26 18:13
Date Received: 04/15/26
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Fluoride	ND		mg/kg	20	--	2	04/17/26 16:53	04/17/26 21:08	121,4500F-BC	MAW

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG2200187-1										
Fluoride	ND		mg/kg	10	--	1	04/17/26 16:53	04/17/26 21:08	121,4500F-BC	MAW

Lab Control Sample Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG2200187-2								
Fluoride	90		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG2200187-4 QC Sample: L2621715-01 Client ID: MS Sample												
Fluoride	ND	100	79	79		-	-		70-130	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: CORNELL UNIVERSITY ROBISON ALU

Project Number: 101766

Lab Number: L2621722

Report Date: 04/23/26

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG2200187-3 QC Sample: L2621715-01 Client ID: DUP Sample						
Fluoride	ND	ND	mg/kg	NC		20

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766

Lab Number: L2621722
Report Date: 04/23/26

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2621722-01A	Bag	A	NA		19.3	Y	Absent		A2-CRYOMILL_PREP()
L2621722-01X	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		A2-1633(90)
L2621722-01X1	Unpreserved Centrifuge Tube	NA	NA			Y	Absent		A2-1633(90)
L2621722-01Y	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		SUB-FLUORINE(28)
L2621722-01Z	Plastic 8oz unpreserved	A	NA		19.3	Y	Absent		F-4500(28)

*Values in parentheses indicate holding time in days

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name: CORNELL UNIVERSITY ROBISON ALU
Project Number: 101766
Lab Number: L2621722
Report Date: 04/23/26

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/23/26

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
Project Number:	101766	**Report Date:**	04/23/26

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report

Project Name:	CORNELL UNIVERSITY ROBISON ALU	**Lab Number:**	L2621722
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Data Qualifiers

ND	- Not detected at the reporting limit (RL) for the sample.
NJ	- Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
P	- The RPD between the results for the two columns exceeds the method-specified criteria.
Q	- The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
R	- Analytical results are from sample re-analysis.
RE	- Analytical results are from sample re-extraction.
S	- Analytical results are from modified screening analysis.
V	- The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
Z	- The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: Data Usability Report

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

168 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. EPA Method 1633A, EPA 820-R-24-007, December 2024. For Massachusetts Contingency Plan, WSC-CAM-XA, September 2025.

LIMITATION OF LIABILITIES

Pace Analytical Services performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Pace Analytical Services.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ENV-FORM-WES2-0065 v02 Certificate/Approval Program Summary

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
SM 2540D: TSS.
Biological Tissue Matrix: EPA 3050B

PAS-MAN1 Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
MADEP-APH.

PAS-ELON East Longmeadow Facility – 39 Spruce Street East Longmeadow, MA 01028
EPA 524.2: 1,3,5-Trichlorobenzene, m/p-Xylene, o-xylene.
EPA 625.1: 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, N-Nitrosodiphenylamine.
EPA 8081B NPW and SCM: Alachlor, Endrin Ketone, Hexachlorobenzene.
EPA 8260D NPW: Tetrahydrofuran, 1,3,5-Trichlorobenzene; **SCM:** TAME, TBEE, Diethyl ether, DIPE, Tetrahydrofuran. 1,3,5-Trichlorobenzene, Freon-113.
EPA 8270E: NPW: Carbazole, 1-Methylnaphthalene, Pentachloronitrobenzene; **SCM:** Carbazole, 1-Methylnaphthalene.
EPA TO-13: Air: Benzo(e)pyrene, 1-Methylnaphthalene, 2-Methylnaphthalene, Perylene.
EPA TO-4A Pesticide Air: delta-BHC, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Endrin Ketone, Hexachlorobenzene, Methoxychlor.
SM4500: NPW: Amenable Cyanide; **SCM:** Total Phosphorus, TKN, NH3, NECi: NO2, NO3, ASTMD516.

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)

The following analytes are included in our Massachusetts DEP Scope of Accreditation:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-G, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT.**

ENV-FORM-WES2-0065 v02 Certificate/Approval Program Summary

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1: Hg. **EPA 245.7:** Hg.
SM2340B

PAS-ELON East Longmeadow Facility – 39 Spruce Street East Longmeadow, MA 01028

Drinking Water

EPA 300.0: NO3, NO2, Fl, Cl, SO4. **NECI Reductase**: NO3, NO2.
SM4500F-C, SM4500Cl-B, ASTM D516, SM4500CN-C,E, EPA 180.1, SM2320B, SM 2540C, SM4500H-B, SM4500SO4-E.
EPA 537.1; EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: SM9223-P/A: TC/EC; SM9223B-Colilert-enumeration: TC/EC; HPC-Simplate.

Non-Potable Water

SM4500H-B, SM2510B, SM2540C, SM2320B, SM4500Cl-B, ASTMD516, SM4500NH3-B, C, EPA 350.1, NECi: NO3, **SM4500NH3-B, C: TKN, SM4500P-E: Ortho Phosphate, SM4500P-B, E: Total Phosphorus, EPA 410.4, SM5210B, SM5310C, SM4500CN-C, E, SM2540D, SM4500Cl-G, SM4500SO4-E, EPA 1664, EPA 420.1, EPA 300.0:** Cl, SO4, NO3.
EPA 624.1: Volatile Halocarbons, Volatile Aromatics.
EPA 608.3: Chlordane, Toxaphene, Aldrin, Alpha-BHC, Beta-BHC, Gamma-BHC, Delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan Sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs.
EPA 625.1: SVOC-Acid Extractables and Base/Neutrals
Microbiology: SM9223B-Colilert: E. coli (Ambient and Wastewater), **SM9223B-Colilert-18:** Fecal Coliform (Wastewater).

Certification IDs:

PAS-WES2 Westborough Facility – 8 Walkup Dr. Westborough, MA 01581
CT PH-0826, IL 200077, IN C-MA-03, KY kY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195.

PAS-MANS Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, CA 3117, CO MA00030, CT PH-0825, IL 200081, IN C-MA-04, KY KY98046, LA 85084, ME MA00030, MD 350, MA M-MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, UT MA00030, VT VT-0015, VA 460194, WA C954.

PAS-MAN1 Mansfield Air Lab Facility – 120 Forbes Blvd. Mansfield, MA 02048
ANAB/DoD L2474, LA 245052, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

PAS-ELON East Longmeadow Facility – 39 Spruce St. East Longmeadow, MA 01028
CT PH-0821, ME MA00100, MI 9100, NC (DENR) 652, NC (DW) 25703, MA M-MA100, NH (Secondary) 2516, NH (Primary) 2557, NJ MA007, NY 10899, PA 68-05812, RI LAO00373, VA 460217, VT-255716, WV DEP 419, WV-DW 9979C, LA 05130, LA-DW LA042, MD-DW 373, OH 87781.

For a complete listing of analytes and methods, please contact your Project Manager.

4/15/26 L2621722

Pace® Location Requested (City/State): **Mansfield**

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name: Firefly Athletics, LLC (dba Firefly Sports Testing)

Street Address: 78 Londonderry Turnpike, Unit D5, Hooksett, NH 03106

Customer Project #: 101766

Project Name: Cornell University Robison Alumni West Field

Site Collection Info/Facility ID (as applicable): Field Turf

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [✓] ET

Data Deliverables: [X] Level II [ ] Level III [ ] Level IV [ ] SQUIS [ ] Other

Contact/Report To: Cailyn Connolly

Phone #: 603-715-5453

E-Mail: cailyn@fireflysportstesting.com

Cc E-Mail: contact@fireflysportstesting.com

Invoice to: Jeff Gentile

Invoice E-mail: contact@fireflysportstesting.com

Purchase Order # (if applicable):

Quote #: 001506

County / State origin of sample(s): Gordon County, Georgia

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable [ ] Yes [ ] No

Rush (Pre-approval required): [ ] Same Day [✓] 1 Day [ ] 2 Day [ ] 3 Day Other

Date Results Requested: Standard TAT = 20 BD

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis:

Specify Container Size**: 4 L

Identify Container Preservative Type***

Analysis Requested: Total Fluorine by CIC; EPA 1633 w/ Cryomill

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only: Proj. Mgr: Alycia Mogayzel; Acct.Num / Client ID:; Table #:; Profile / Template:; Prelog / Bottle Ord. ID:

Preservation non-conformance identified for sample

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Residual Chlorine Result	Residual Chlorine Units	Sample Comment
01 Cornell University Robison Alumni West Field	S	G	3/16/26	6:13PM			1			

Additional Instructions from Pace®:

Collected By: Printed Name: Jeremy Wyatt; Signature: Jeremy Wyatt

Customer Remarks / Special Conditions / Possible Hazards:

Coolers: | Thermometer ID: | Correction Factor (°C): | Obs. Temp. (°C): | Corrected Temp. (°C): | [ ] On Ice

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Jeremy Wyatt Jeremy Wyatt FEDEX	2:02 PM 4/14/2026	FEDEX		
Relinquished by/Company: (Signature)	4/15/26 0837	Received by/Company: (Signature)	4/15/26 0837	Delivered by: [ ] In-Person [ ] Courier [ ] FedEx [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v02_10123 ©


(706) 625-6533
TURF USA INC.
INDUSTRIAL BLVD NE
CALHOUN, GA 30701
UNITED STATES US
SHIP DATE: 14APR26
ACTWGT: 0.90 LB MAN
CAD: 0453763/CAFE3808
DIMS: 12x8x7 IN
BILL SENDER
TO SAMPLE RECIEVING
PACE ANALYTICAL
320 FORBES BOULEVARD
MANSFIELD MA 02048
DEPT: QC
PO: 78014-79-00-000
FedEx Express
FedEx
TRK# 0201 5159 0779 4785
WED - 15 APR AA
PRIORITY OVERNIGHT
XA PYMA
02048
MA-US
BOS
5547553 14Apr2026 ECHTC 58KG3/0870/484B

Sample Delivery Group Summary

Pace Job Number : L2621722
Received : 15-APR-2026
Reviewer : Jessica Ramos

Account Name : Firefly Sports Testing LLC
Project Number : 101766
Project Name : CORNELL UNIVERSITY ROBISON ALU

Delivery Information

Samples Delivered By : Express Ship
FedEx (100189177211000020480051590779 4785)

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	No Ice	19.3	

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between COC & sample labels?	**NO**
5) Are samples in appropriate containers for requested analysis? Please refer to information noted in Question 3 above.	**NO**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**NA**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

April 22, 2026

Alycia Mogayzel
Pace Analytical Services - Mansfield, MA
320 Forbes Boulevard
Mansfield, MA 02048

Project Location: L2621722
Client Job Number:
Project Number: L2621722
Laboratory Work Order Number: 26D1385

Enclosed are results of analyses for samples as received by the laboratory on April 15, 2026. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Rebecca Faust
Project Manager

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Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Pace Analytical Services - Mansfield, MA
320 Forbes Boulevard
Mansfield, MA 02048
ATTN: Alycia Mogayzel

REPORT DATE: 4/22/2026

PURCHASE ORDER NUMBER:

PROJECT NUMBER: L2621722

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 26D1385

The results of analyses performed on the following samples submitted to Pace Analytical Services, LLC - East Longmeadow, Ma, are found in this report.

PROJECT LOCATION: L2621722

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD	26D1385-01	Product/Solid		Total Fluorine by CIC	

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to Pace Analytical Services, LLC - East Longmeadow, Ma, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: L2621722 Sample Description: Work Order: 26D1385

Date Received: 4/15/2026

Field Sample #: CORNELL UNIVERSITY ROBISON ALU Sampled: 3/16/2026 18:13

Sample ID: 26D1385-01

Sample Matrix: Product/Solid

Fluorine by Combustion Ion Chromatography (CIC)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Fluorine (TF)	5.5	4.0	mg/Kg	1		Total Fluorine by CIC	4/16/26	4/16/26 20:23	MMH

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method:EPA 1621 (TF) **Analytical Method:Total Fluorine by CIC**

Lab Number [Field ID]	Batch	Initial [mg]	Final [Boat]	Date
26D1385-01 [CORNELL UNIVERSITY ROBISON ALUMNI WE:	B426125	49.6	1.00	04/16/26

Pace Analytical Services, LLC - East Longmeadow, Ma

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QUALITY CONTROL

Fluorine by Combustion Ion Chromatography (CIC) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B426125 - EPA 1621 (TF)										
Blank (B426125-BLK1)				Prepared & Analyzed: 04/16/26						
Total Fluorine (TF)	ND	4.0	mg/Kg							
LCS (B426125-BS1)				Prepared & Analyzed: 04/16/26						
Total Fluorine (TF)	33.8	4.0	mg/Kg	37.28		90.8	70-130			
LCS Dup (B426125-BSD1)				Prepared & Analyzed: 04/16/26						
Total Fluorine (TF)	37.2	4.0	mg/Kg	37.50		99.1	70-130	9.38		

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level

Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.

No results have been blank subtracted unless specified in the case narrative section.

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

Pace Analytical Services, LLC - East Longmeadow, Ma, operates under the following certifications and accreditations:

Code	Description	Number	Expires

26D1385 RF

Subcontract Chain of Custody

Pace New England
39 Spruce St
East Longmeadow, MA 01028

Pace Job Number
L2621722

Page 1

Client Information

Client: Pace Analytical Labs
Address: 320 Forbes Boulevard
Mansfield, MA 02048-1806

Report To:west.subreports@pacelabs.com
Bill To:invoices@pacelabs.coupahost.com

Phone: 508.844.4120
Email: Alycia.Mogayzel@pacelabs.com

Project Information

Project Location: GA
Project Manager: Alycia Mogayzel

Turnaround & Deliverables Information

Due Date: 04/22/26
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Report to RL **UDI EDD**

Project Specific Requirements and/or Report Requirements

Reference following Pace Job Number on final report/deliverables: L2621722 Report to include Method and/or Regulatory required batch QC

Additional Comments:

Lab ID	Pace ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Sample Level Comments	Sample Specific QC	Container Count
1	L2621722-01	CORNELL UNIVERSITY ROBISON ALUMNI WEST FIELD	03-16-26 18:13	SOLID	Total Fluorine by Combustion Ion Chromatography (CIC) - EPA 1621	A3-TOTALFLUORINE		1

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		4/15/26		4/15/26 1620
		4/15/26 1810		4-15-26 1810
		4-15-26	3.8	4/15/26 2000

Form No: AL_subcoc

Serial_No:04232616:21

DC#_Title: ENV-FRM-ELON-0157 v01_Sample Receiving Container Sheet

Effective Date:

	Soils				Ambers Glass								Plastics																Vials									Other
	16 (oz)	8 (oz)	4 (oz)	2 (oz)	1L			250mL				100 (mL)	Other	1L		500mL		250mL								125 (mL)	80 (mL)	Encore		8oz	Other		VOA 40mL							20mL		
	C / A	C / A	C / A	C / A	Unp.	HCl	H_2SO_4	Unp.	Phos.	HCl	H_2SO_4	Unp.	8oz-BR	Unp.	H_2SO_4	Unp.	H_2SO_4	Unp.	Triz	H_2SO_4	HNO_3	Amm. Ace	NaOH	NaOH+ZnAce	Unp.	Unp.	25g	5g	Unp.	Bag	Bac/ Col	Unp.	HCl	MeOH	DI	$NaHSO_4$	H_2SO_4	Asc. Acid	Unp.	HCl	
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2																																							
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