

SUBJECT

RACER Pontiac North Campus
Storm Sewer Sampling Results

TO

Jennifer Stanhope
United States Environmental
Protection Agency (USEPA)

DATE

June 20, 2025

DEPARTMENT

Environment

PROJECT NUMBER

30267726

COPIES TO

Project File
Brendan Mullen, RACER
Dave Favero, RACER

NAME

Tiffany Linder
Tiffany.Linder@arcadis.com

Introduction

This memo summarizes the results of per- and polyfluoroalkyl substances (PFAS) storm sewer sampling completed downgradient of Revitalizing Auto Communities Environmental Response (RACER) Trust Pontiac North Campus properties (Site). A *Proposed Storm Sewer Sampling Work Plan* was submitted to the United States Environmental Protection Agency (USEPA) on December 19th, 2024, and approved via email transmittal on December 23rd, 2024. The objective of the sampling was to assess the presence of Site-related PFAS in storm water at a location downgradient of the Site prior to discharging to Harris Lake. The location of the storm water sample location is shown in **Figure 1**. The storm water sample collected was compared to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Groundwater-Surface Water Interface (GSI) Criteria.

Sampling Procedure

On January 13th, 2025, an off-site storm sewer manhole was sampled at a location downgradient of the contributing storm sewers that may have Site-related PFAS-impacted groundwater infiltrating into them. The sewers also have other inputs including E. Montcalm Street right-of-way (ROW), adjacent properties, and the N. Saginaw Street ROW, including the Pontiac School Board property. A grab sample was collected using a peristaltic pump at the Saginaw Street manhole location (MHOS-01) shown on **Figure 1**. The sample was collected during baseflow conditions with no precipitation preceding the sampling event for at least 48-hours. The pump tubing was weighted at one end and lowered into the water column taking care not to stir up sediment. All sampling equipment and materials were PFAS-free and collected in accordance with the PFAS sampling Technical Guidance Instructions.

For laboratory quality control, a duplicate sample was collected at the time of sampling and an equipment blank was collected to verify that no PFAS was present in the sampling equipment. The samples were submitted to Pace Analytical Services in Minneapolis, Minnesota and analyzed by modified USEPA Method 537M. The modified method includes analysis of 28 PFAS, including perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS) and the five other PFAS for which EGLE has an established GSI Criteria, as well as the six compounds with USEPA Maximum Contaminant Levels.

Analytical Results

Results from the storm sewer sampling were compared to GSI criteria and are provided in **Table 1** and **Figure 1**. Two PFAS compounds were detected in the storm water sample, including perfluorobutane sulfonic acid (PFBS) at a concentration of 6.3 nanograms per liter (ng/L), and PFOS at a concentration of 5.6 ng/L. Both concentrations are below the EGLE GSI criteria of 670,000 ng/L for PFBS and 12 ng/L for PFOS, respectively. A Level II QC was completed on the analytical report (10720951) associated with this sampling event. The duplicate was found to be within an acceptable relative percent difference (RPD) of the parent and there were no detections in the associated QC blanks. Samples MHOS-01_W_01132025 and DUP-01 would be qualified as estimated for GenX (HFPO-DA), PFBA and PFPeA due to the extraction internal standard (EIS) recoveries being below the control limit. The laboratory analytical report is provided in **Attachment 1** and data validation report is provided in **Attachment 2**.

Recommendations

To obtain a more robust dataset and confirm the detections from the January 13th sampling, it is recommended that the storm water from the same manhole be sampled again in July 2025. The proposed sampling will consist of the same methods and procedures described in the December 2024 Work Plan. Other storm sewer lines are present downgradient of the Site including the main stormwater line located to the southeast, east of the former “Duck Pond” wastewater treatment plant. Monitoring well results in this area (e.g., TW-ROW-01, MWDP-02R) are below GSI criteria and additional sampling southeast of the Site is not currently recommended.

Enc.

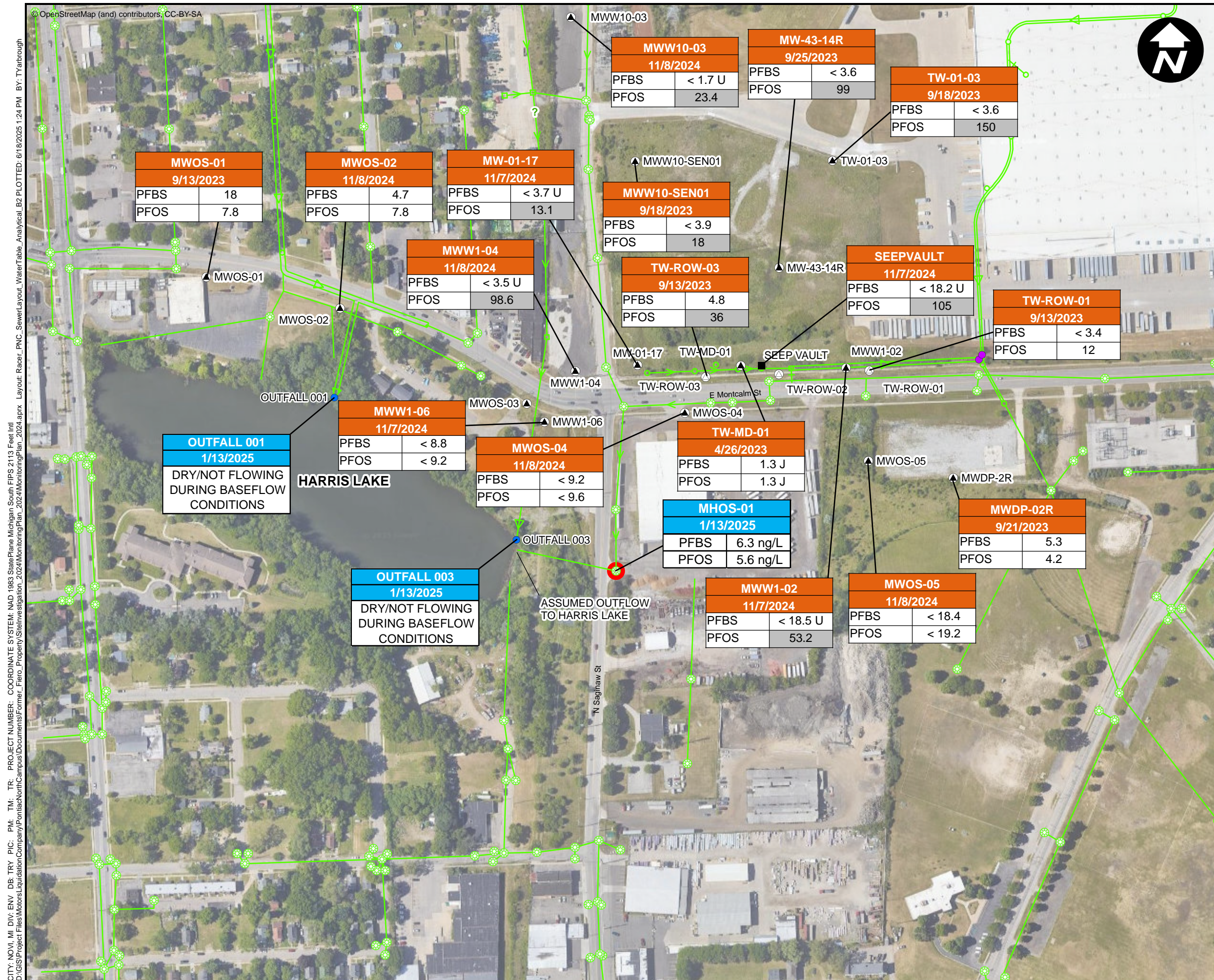
Figure 1 – Storm Sewer Sampling Location and Results

Table 1 – Storm Water Analytical Results

Attachment 1 – Laboratory Analytical Results

Attachment 2 – Data Validation Report

FIGURES



LEGEND

- STORMWATER SAMPLING LOCATION
- BULKHEAD LOCATION
- ▲ EXISTING MONITORING WELL
- ▲ EXISTING TEMPORARY MONITORING WELL
- SEEP VAULT
- OUTFALL LOCATION
- STORM
- APPROXIMATE LOCATION OF STORM SEWER LINES

NOTE: BLUE DATA BOXES INDICATE STORM SEWER SAMPLING

STORM SEWER SOURCE: CITY OF PONTIAC, MICHIGAN, DIVISION OF PUBLIC WORKS AND SERVICE, DIVISION OF SANITARY ENGINEERING. SEWERAGE ATLAS SHEETS NUMBER 36, 44, 52 AND 53 DATED 1930

Analyte	EGLE Groundwater Surface Water Interface Criteria	Units
PFBS	670,000	ng/L
PFOS	12	ng/L

CITY: NOVI, MI DIV: ENV DB: TRY PIC: PM: TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl
 D:\GIS\Project Files\MotorsLiquidation\Company\PontiacNorthCampus\Documents\Former_Piero_Property\SiteInvestigation_2024\MonitoringPlan_2024.aprx
 Layout: Racer_Track_PNC_SewerLayout_WaterTable_Analytical_L2 PLOTTED: 6/18/2025 1:24 PM BY: TY:arborough

RACER TRUST
PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

**STORM SEWER SAMPLING
LOCATION AND RESULTS**

ARCADIS | **FIGURE 1**

TABLES

Table 1
Summary of PFAS Storm Water Analytical Results
RACER Pontiac North Campus
Pontiac, Michigan



Location ID:		Groundwater Surface	MHOS-01
Date Collected:	Units	Water Interface	1/13/2025
PFAS			
11CI-PF3OUdS	ng/L	--	< 4.0 U [< 3.8 U]
4:2 FTS	ng/L	--	< 4.0 U [< 3.8 U]
6:2 FTS	ng/L	--	< 4.0 U [< 3.9 U]
8:2 FTS	ng/L	--	< 4.1 U [< 3.9 U]
9CI-PF3ONS	ng/L	--	< 4.0 U [< 3.8 U]
ADONA	ng/L	--	< 4.0 U [< 3.8 U]
GenX	ng/L	--	< 4.3 UJ [< 4.1 UJ]
NEtFOSAA	ng/L	--	< 4.3 U [< 4.1 U]
NMeFOSAA	ng/L	--	< 4.3 U [< 4.1 U]
PFBS	ng/L	670,000	6.3 [< 3.6 U]
PFBA	ng/L	--	< 4.3 UJ [< 4.1 UJ]
PFDS	ng/L	--	< 4.1 U [< 3.9 U]
PFDA	ng/L	--	< 4.3 U [< 4.1 U]
PFDoA	ng/L	--	< 4.3 U [< 4.1 U]
PFHpS	ng/L	--	< 4.0 U [< 3.9 U]
PFHpA	ng/L	--	< 4.3 U [< 4.1 U]
PFHxS	ng/L	210	< 3.9 U [< 3.7 U]
PFHxA	ng/L	--	< 4.3 U [< 4.1 U]
PFNS	ng/L	--	< 4.1 U [< 3.9 U]
PFNA	ng/L	30	< 4.3 U [< 4.1 U]
FOSA	ng/L	--	< 4.3 U [< 4.1 U]
PFOS	ng/L	12	5.6 [4.9]
PFOA	ng/L	170	< 4.3 U [< 4.1 U]
PFPeS	ng/L	--	< 4.0 U [< 3.8 U]
PFPeA	ng/L	--	< 4.3 UJ [< 4.1 UJ]
PFTeA	ng/L	--	< 4.3 U [< 4.1 U]
PFTriA	ng/L	--	< 4.3 U [< 4.1 U]
PFUnA	ng/L	--	< 4.3 U [< 4.1 U]

Table 1
Summary of PFAS Storm Water Analytical Results
RACER Trust Pontiac North Campus
Pontiac, Michigan



Notes:

- 1) Criteria listed are from the State of Michigan's groundwater clean-up rules, Michigan Department of Environment Great Lakes and Energy (EGLE) updated on October 12, 2023
- 2) Samples were analyzed by LC-MS/MS with isotope dilution by modified USEPA Method 537M. The modified method includes analysis of 28 per- and polyfluoroalkyl substances (PFAS), including Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) and all other PFAS for which EGLE has a Part 201 Drinking Water Criteria and USEPA has proposed a Maximum Contaminant Level.
- 3) Duplicate analyses are presented in []

Abbreviations

<	Not detected above the laboratory reporting limit
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
ng/L	Nanograms per liter
MI	Michigan
PFAS	per- and polyfluoroalkyl substances
U	Indicates the compound was analyzed for, but not detected

Attachment 1

Laboratory Analytical Results



January 31, 2025

Lexi Nickerson
Arcadis
7575 Huntington Park Dr 130
Columbus, OH 43235

RE: Project: Racer PNC 30214041.00031
Pace Project No.: 10720951

Dear Lexi Nickerson:

Enclosed are the analytical results for sample(s) received by the laboratory on January 14, 2025. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout
carolynne.trout@pacelabs.com
1(612)607-6351
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Pace Analytical Services, LLC - Minneapolis MN

1700 Elm Street SE, Minneapolis, MN 55414

Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: 17-009

Alaska DW Certification #: MN00064

Arizona Certification #: AZ0014

Arkansas DW Certification #: MN00064

Arkansas WW Certification #: 88-0680

California Certification #: 2929

Colorado Certification #: MN00064

Connecticut Certification #: PH-0256

DoD Certification via A2LA #: 2926.01

EPA Region 8 Tribal Water Systems+Wyoming DW

Certification #: via MN 027-053-137

Florida Certification #: E87605

Georgia Certification #: 959

GMP+ Certification #: GMP050884

Hawaii Certification #: MN00064

Idaho Certification #: MN00064

Illinois Certification #: 200011

Indiana Certification #: C-MN-01

Iowa Certification #: 368

ISO/IEC 17025 Certification via A2LA #: 2926.01

Kansas Certification #: E-10167

Kentucky DW Certification #: 90062

Kentucky WW Certification #: 90062

Louisiana DEQ Certification #: AI-03086

Louisiana DW Certification #: MN00064

Maine Certification #: MN00064

Maryland Certification #: 322

Michigan Certification #: 9909

Minnesota Certification #: 027-053-137

Minnesota Dept of Ag Approval: via MN 027-053-137

Minnesota Petrofund Registration #: 1240

Mississippi Certification #: MN00064

Missouri Certification #: 10100

Montana Certification #: CERT0092

Nebraska Certification #: NE-OS-18-06

Nevada Certification #: MN00064

New Hampshire Certification #: 2081

New Jersey Certification #: MN002

New York Certification #: 11647

North Carolina DW Certification #: 27700

North Carolina WW Certification #: 530

North Dakota Certification (A2LA) #: R-036

North Dakota Certification (MN) #: R-036

Ohio DW Certification #: 41244

Ohio VAP Certification (1700) #: CL101

Oklahoma Certification #: 9507

Oregon Primary Certification #: MN300001

Oregon Secondary Certification #: MN200001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification #: MN00064

South Carolina Certification #: 74003001

Tennessee Certification #: TN02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Vermont Certification #: VT-027053137

Virginia Certification #: 460163

Washington Certification #: C486

West Virginia DEP Certification #: 382

West Virginia DW Certification #: 9952 C

Wisconsin Certification #: 999407970

Wyoming UST Certification via A2LA #: 2926.01

USDA Permit #: P330-19-00208

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SAMPLE SUMMARY

Project: Racer PNC 30214041.00031
Pace Project No.: 10720951

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10720951001	MH0S-01_W_01132025	Water	01/13/25 08:45	01/14/25 08:55
10720951002	DUP-01_01132025	Water	01/13/25 00:00	01/14/25 08:55
10720951003	EB-01_01132025	Water	01/13/25 08:50	01/14/25 08:55

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SAMPLE ANALYTE COUNT

Project: Racer PNC 30214041.00031
Pace Project No.: 10720951

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10720951001	MH0S-01_W_01132025	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10720951002	DUP-01_01132025	ENV-SOP-MIN4-0178	MJL	53	PASI-M
10720951003	EB-01_01132025	ENV-SOP-MIN4-0178	MJL	53	PASI-M

PASI-M = Pace Analytical Services - Minneapolis

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SUMMARY OF DETECTION

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10720951001	MH0S-01_W_01132025					
ENV-SOP-MIN4-0178	PFBS	6.3	ng/L	3.8	01/17/25 18:11	
ENV-SOP-MIN4-0178	PFOS	5.6	ng/L	3.9	01/17/25 18:11	
10720951002	DUP-01_01132025					
ENV-SOP-MIN4-0178	PFOS	4.9	ng/L	3.7	01/17/25 18:19	

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PROJECT NARRATIVE

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: January 31, 2025

General Information:

3 samples were analyzed for ENV-SOP-MIN4-0178 by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with ENV-SOP-MIN4-0178 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

QC Batch: 987967

S0: Surrogate recovery outside laboratory control limits.

- DUP-01_01132025 (Lab ID: 10720951002)
 - 13C26:2FTS (S)
 - 13C28:2FTS (S)
 - 13C3HFPO-DA (S)
 - 13C4-PFBA (S)
 - 13C5-PFPeA (S)
- MH0S-01_W_01132025 (Lab ID: 10720951001)
 - 13C26:2FTS (S)
 - 13C3HFPO-DA (S)
 - 13C4-PFBA (S)
 - 13C5-PFPeA (S)

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Method: ENV-SOP-MIN4-0178

Description: PFAS ID NPW

Client: Arcadis-OH

Date: January 31, 2025

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Sample: MH0S-01_W_01132025 Lab ID: 10720951001 Collected: 01/13/25 08:45 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178 Initial Volume/Weight: 117.591 mL Final Volume/Weight: 1 mL Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	4.0	0.86	1	01/16/25 13:31	01/17/25 18:11	763051-92-9	
4:2 FTS	ND	ng/L	4.0	0.77	1	01/16/25 13:31	01/17/25 18:11	757124-72-4	
6:2 FTS	ND	ng/L	4.0	1.2	1	01/16/25 13:31	01/17/25 18:11	27619-97-2	
8:2 FTS	ND	ng/L	4.1	1.7	1	01/16/25 13:31	01/17/25 18:11	39108-34-4	
9CI-PF3ONS	ND	ng/L	4.0	0.75	1	01/16/25 13:31	01/17/25 18:11	756426-58-1	
ADONA	ND	ng/L	4.0	0.68	1	01/16/25 13:31	01/17/25 18:11	919005-14-4	
HFPO-DA	ND	ng/L	4.3	0.54	1	01/16/25 13:31	01/17/25 18:11	13252-13-6	
NEtFOSAA	ND	ng/L	4.3	1.2	1	01/16/25 13:31	01/17/25 18:11	2991-50-6	
NMeFOSAA	ND	ng/L	4.3	1.7	1	01/16/25 13:31	01/17/25 18:11	2355-31-9	
PFBS	6.3	ng/L	3.8	0.43	1	01/16/25 13:31	01/17/25 18:11	375-73-5	
PFDA	ND	ng/L	4.3	0.53	1	01/16/25 13:31	01/17/25 18:11	335-76-2	
PFHxA	ND	ng/L	4.3	0.80	1	01/16/25 13:31	01/17/25 18:11	307-24-4	
PFBA	ND	ng/L	4.3	0.60	1	01/16/25 13:31	01/17/25 18:11	375-22-4	
PFDS	ND	ng/L	4.1	1.2	1	01/16/25 13:31	01/17/25 18:11	335-77-3	
PFHpS	ND	ng/L	4.0	1.3	1	01/16/25 13:31	01/17/25 18:11	375-92-8	
PFNS	ND	ng/L	4.1	1.0	1	01/16/25 13:31	01/17/25 18:11	68259-12-1	
PFOSA	ND	ng/L	4.3	0.85	1	01/16/25 13:31	01/17/25 18:11	754-91-6	
PFPeA	ND	ng/L	4.3	0.39	1	01/16/25 13:31	01/17/25 18:11	2706-90-3	
PFPeS	ND	ng/L	4.0	0.54	1	01/16/25 13:31	01/17/25 18:11	2706-91-4	
PFDoA	ND	ng/L	4.3	0.92	1	01/16/25 13:31	01/17/25 18:11	307-55-1	
PFHpA	ND	ng/L	4.3	0.50	1	01/16/25 13:31	01/17/25 18:11	375-85-9	
PFHxS	ND	ng/L	3.9	0.50	1	01/16/25 13:31	01/17/25 18:11	355-46-4	
PFNA	ND	ng/L	4.3	0.44	1	01/16/25 13:31	01/17/25 18:11	375-95-1	
PFOS	5.6	ng/L	3.9	1.1	1	01/16/25 13:31	01/17/25 18:11	1763-23-1	
PFOA	ND	ng/L	4.3	0.57	1	01/16/25 13:31	01/17/25 18:11	335-67-1	
PFTeDA	ND	ng/L	4.3	0.77	1	01/16/25 13:31	01/17/25 18:11	376-06-7	
PFTrDA	ND	ng/L	4.3	0.60	1	01/16/25 13:31	01/17/25 18:11	72629-94-8	
PFUnA	ND	ng/L	4.3	1.4	1	01/16/25 13:31	01/17/25 18:11	2058-94-8	
Surrogates									
13C26:2FTS (S)	170	%	50-150		1	01/16/25 13:31	01/17/25 18:11		S0
13C28:2FTS (S)	149	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C24:2FTS (S)	104	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C2-PFDoA (S)	82	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C2PFHxDA (S)	88	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C2-PFTA (S)	83	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C3HFPO-DA (S)	42	%	50-150		1	01/16/25 13:31	01/17/25 18:11		S0
13C3-PFBS (S)	59	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C3-PFHxS (S)	66	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C4-PFBA (S)	34	%	50-150		1	01/16/25 13:31	01/17/25 18:11		S0
13C4-PFHpA (S)	64	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C5-PFHxA (S)	55	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C5-PFPeA (S)	41	%	50-150		1	01/16/25 13:31	01/17/25 18:11		S0
13C6-PFDA (S)	76	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C7-PFUdA (S)	81	%	50-150		1	01/16/25 13:31	01/17/25 18:11		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Sample: MH0S-01_W_01132025 Lab ID: 10720951001 Collected: 01/13/25 08:45 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 117.591 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
Surrogates									
13C8-PFOA (S)	67	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C8-PFOS (S)	65	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C8-PFOSA (S)	58	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
13C9-PFNA (S)	63	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
d3-MeFOSAA (S)	62	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
d3-NMeFOSA (S)	50	%	10-150		1	01/16/25 13:31	01/17/25 18:11		
d5-EtFOSAA (S)	68	%	50-150		1	01/16/25 13:31	01/17/25 18:11		
d5-NEtFOSA (S)	54	%	10-150		1	01/16/25 13:31	01/17/25 18:11		
d7-NMeFOSE (S)	46	%	10-150		1	01/16/25 13:31	01/17/25 18:11		
d9-NEtFOSE (S)	49	%	10-150		1	01/16/25 13:31	01/17/25 18:11		

Sample: DUP-01_01132025 Lab ID: 10720951002 Collected: 01/13/25 00:00 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 123.374 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	3.8	0.82	1	01/16/25 13:31	01/17/25 18:19	763051-92-9	
4:2 FTS	ND	ng/L	3.8	0.74	1	01/16/25 13:31	01/17/25 18:19	757124-72-4	
6:2 FTS	ND	ng/L	3.9	1.2	1	01/16/25 13:31	01/17/25 18:19	27619-97-2	
8:2 FTS	ND	ng/L	3.9	1.6	1	01/16/25 13:31	01/17/25 18:19	39108-34-4	
9CI-PF3ONS	ND	ng/L	3.8	0.72	1	01/16/25 13:31	01/17/25 18:19	756426-58-1	
ADONA	ND	ng/L	3.8	0.65	1	01/16/25 13:31	01/17/25 18:19	919005-14-4	
HFPO-DA	ND	ng/L	4.1	0.51	1	01/16/25 13:31	01/17/25 18:19	13252-13-6	
NEtFOSAA	ND	ng/L	4.1	1.2	1	01/16/25 13:31	01/17/25 18:19	2991-50-6	
NMeFOSAA	ND	ng/L	4.1	1.6	1	01/16/25 13:31	01/17/25 18:19	2355-31-9	
PFBS	ND	ng/L	3.6	0.41	1	01/16/25 13:31	01/17/25 18:19	375-73-5	
PFDA	ND	ng/L	4.1	0.51	1	01/16/25 13:31	01/17/25 18:19	335-76-2	
PFHxA	ND	ng/L	4.1	0.77	1	01/16/25 13:31	01/17/25 18:19	307-24-4	
PFBA	ND	ng/L	4.1	0.57	1	01/16/25 13:31	01/17/25 18:19	375-22-4	
PFDS	ND	ng/L	3.9	1.2	1	01/16/25 13:31	01/17/25 18:19	335-77-3	
PFHpS	ND	ng/L	3.9	1.3	1	01/16/25 13:31	01/17/25 18:19	375-92-8	
PFNS	ND	ng/L	3.9	0.96	1	01/16/25 13:31	01/17/25 18:19	68259-12-1	
PFOSA	ND	ng/L	4.1	0.81	1	01/16/25 13:31	01/17/25 18:19	754-91-6	
PFPeA	ND	ng/L	4.1	0.37	1	01/16/25 13:31	01/17/25 18:19	2706-90-3	
PFPeS	ND	ng/L	3.8	0.52	1	01/16/25 13:31	01/17/25 18:19	2706-91-4	
PFDoA	ND	ng/L	4.1	0.88	1	01/16/25 13:31	01/17/25 18:19	307-55-1	
PFHpA	ND	ng/L	4.1	0.48	1	01/16/25 13:31	01/17/25 18:19	375-85-9	
PFHxS	ND	ng/L	3.7	0.47	1	01/16/25 13:31	01/17/25 18:19	355-46-4	
PFNA	ND	ng/L	4.1	0.42	1	01/16/25 13:31	01/17/25 18:19	375-95-1	

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ANALYTICAL RESULTS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Sample: DUP-01_01132025 Lab ID: 10720951002 Collected: 01/13/25 00:00 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 123.374 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
PFOS	4.9	ng/L	3.7	1.0	1	01/16/25 13:31	01/17/25 18:19	1763-23-1	
PFOA	ND	ng/L	4.1	0.54	1	01/16/25 13:31	01/17/25 18:19	335-67-1	
PFTeDA	ND	ng/L	4.1	0.73	1	01/16/25 13:31	01/17/25 18:19	376-06-7	
PFTrDA	ND	ng/L	4.1	0.57	1	01/16/25 13:31	01/17/25 18:19	72629-94-8	
PFOUnA	ND	ng/L	4.1	1.3	1	01/16/25 13:31	01/17/25 18:19	2058-94-8	
Surrogates									
13C26:2FTS (S)	186	%	50-150		1	01/16/25 13:31	01/17/25 18:19		S0
13C28:2FTS (S)	174	%	50-150		1	01/16/25 13:31	01/17/25 18:19		S0
13C24:2FTS (S)	117	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C2-PFDoA (S)	84	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C2PFHxDA (S)	89	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C2-PFTA (S)	85	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C3HFPO-DA (S)	46	%	50-150		1	01/16/25 13:31	01/17/25 18:19		S0
13C3-PFBS (S)	64	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C3-PFHxS (S)	71	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C4-PFBA (S)	35	%	50-150		1	01/16/25 13:31	01/17/25 18:19		S0
13C4-PFHpA (S)	67	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C5-PFHxA (S)	57	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C5-PFPeA (S)	43	%	50-150		1	01/16/25 13:31	01/17/25 18:19		S0
13C6-PFDA (S)	81	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C7-PFUdA (S)	85	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C8-PFOA (S)	71	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C8-PFOS (S)	71	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C8-PFOSA (S)	59	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
13C9-PFNA (S)	64	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
d3-MeFOSAA (S)	61	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
d3-NMeFOSA (S)	55	%	10-150		1	01/16/25 13:31	01/17/25 18:19		
d5-EtFOSAA (S)	72	%	50-150		1	01/16/25 13:31	01/17/25 18:19		
d5-NEtFOSA (S)	58	%	10-150		1	01/16/25 13:31	01/17/25 18:19		
d7-NMeFOSE (S)	49	%	10-150		1	01/16/25 13:31	01/17/25 18:19		
d9-NEtFOSE (S)	50	%	10-150		1	01/16/25 13:31	01/17/25 18:19		

Sample: EB-01_01132025 Lab ID: 10720951003 Collected: 01/13/25 08:50 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
PFAS ID NPW									
Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178									
Initial Volume/Weight: 257.599 mL Final Volume/Weight: 1 mL									
Pace Analytical Services - Minneapolis									
11CI-PF3OUdS	ND	ng/L	1.8	0.39	1	01/16/25 13:31	01/17/25 18:26	763051-92-9	
4:2 FTS	ND	ng/L	1.8	0.35	1	01/16/25 13:31	01/17/25 18:26	757124-72-4	
6:2 FTS	ND	ng/L	1.8	0.55	1	01/16/25 13:31	01/17/25 18:26	27619-97-2	

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ANALYTICAL RESULTS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Sample: EB-01_01132025 Lab ID: 10720951003 Collected: 01/13/25 08:50 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 257.599 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

8:2 FTS	ND	ng/L	1.9	0.77	1	01/16/25 13:31	01/17/25 18:26	39108-34-4	
9CI-PF3ONS	ND	ng/L	1.8	0.34	1	01/16/25 13:31	01/17/25 18:26	756426-58-1	
ADONA	ND	ng/L	1.8	0.31	1	01/16/25 13:31	01/17/25 18:26	919005-14-4	
HFPO-DA	ND	ng/L	1.9	0.24	1	01/16/25 13:31	01/17/25 18:26	13252-13-6	
NEtFOSAA	ND	ng/L	1.9	0.55	1	01/16/25 13:31	01/17/25 18:26	2991-50-6	
NMeFOSAA	ND	ng/L	1.9	0.76	1	01/16/25 13:31	01/17/25 18:26	2355-31-9	
PFBS	ND	ng/L	1.7	0.20	1	01/16/25 13:31	01/17/25 18:26	375-73-5	
PFDA	ND	ng/L	1.9	0.24	1	01/16/25 13:31	01/17/25 18:26	335-76-2	
PFHxA	ND	ng/L	1.9	0.37	1	01/16/25 13:31	01/17/25 18:26	307-24-4	
PFBA	ND	ng/L	1.9	0.27	1	01/16/25 13:31	01/17/25 18:26	375-22-4	
PFDS	ND	ng/L	1.9	0.55	1	01/16/25 13:31	01/17/25 18:26	335-77-3	
PFHpS	ND	ng/L	1.8	0.61	1	01/16/25 13:31	01/17/25 18:26	375-92-8	
PFNS	ND	ng/L	1.9	0.46	1	01/16/25 13:31	01/17/25 18:26	68259-12-1	
PFOSA	ND	ng/L	1.9	0.39	1	01/16/25 13:31	01/17/25 18:26	754-91-6	
PFPeA	ND	ng/L	1.9	0.18	1	01/16/25 13:31	01/17/25 18:26	2706-90-3	
PFPeS	ND	ng/L	1.8	0.25	1	01/16/25 13:31	01/17/25 18:26	2706-91-4	
PFDoA	ND	ng/L	1.9	0.42	1	01/16/25 13:31	01/17/25 18:26	307-55-1	
PFHpA	ND	ng/L	1.9	0.23	1	01/16/25 13:31	01/17/25 18:26	375-85-9	
PFHxS	ND	ng/L	1.8	0.23	1	01/16/25 13:31	01/17/25 18:26	355-46-4	
PFNA	ND	ng/L	1.9	0.20	1	01/16/25 13:31	01/17/25 18:26	375-95-1	
PFOS	ND	ng/L	1.8	0.49	1	01/16/25 13:31	01/17/25 18:26	1763-23-1	
PFOA	ND	ng/L	1.9	0.26	1	01/16/25 13:31	01/17/25 18:26	335-67-1	
PFTeDA	ND	ng/L	1.9	0.35	1	01/16/25 13:31	01/17/25 18:26	376-06-7	
PFTTrDA	ND	ng/L	1.9	0.27	1	01/16/25 13:31	01/17/25 18:26	72629-94-8	
PFUnA	ND	ng/L	1.9	0.62	1	01/16/25 13:31	01/17/25 18:26	2058-94-8	

Surrogates

13C26:2FTS (S)	115	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C28:2FTS (S)	125	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C24:2FTS (S)	53	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C2-PFDoA (S)	89	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C2-PFHxDA (S)	93	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C2-PFTA (S)	86	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C3HFPO-DA (S)	64	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C3-PFBS (S)	68	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C3-PFHxS (S)	75	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C4-PFBA (S)	50	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C4-PFHpA (S)	70	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C5-PFHxA (S)	63	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C5-PFPeA (S)	55	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C6-PFDA (S)	81	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C7-PFUdA (S)	88	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C8-PFOA (S)	76	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C8-PFOS (S)	77	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
13C8-PFOSA (S)	65	%	50-150		1	01/16/25 13:31	01/17/25 18:26		

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ANALYTICAL RESULTS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

Sample: EB-01_01132025 Lab ID: 10720951003 Collected: 01/13/25 08:50 Received: 01/14/25 08:55 Matrix: Water

Parameters	Results	Units	Report		DF	Prepared	Analyzed	CAS No.	Qual
			Limit	MDL					

PFAS ID NPW

Analytical Method: ENV-SOP-MIN4-0178 Preparation Method: ENV-SOP-MIN4-0178

Initial Volume/Weight: 257.599 mL Final Volume/Weight: 1 mL

Pace Analytical Services - Minneapolis

Surrogates

13C9-PFNA (S)	80	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
d3-MeFOSAA (S)	71	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
d3-NMeFOSA (S)	51	%	10-150		1	01/16/25 13:31	01/17/25 18:26		
d5-EtFOSAA (S)	76	%	50-150		1	01/16/25 13:31	01/17/25 18:26		
d5-NEtFOSA (S)	52	%	10-150		1	01/16/25 13:31	01/17/25 18:26		
d7-NMeFOSE (S)	60	%	10-150		1	01/16/25 13:31	01/17/25 18:26		
d9-NEtFOSE (S)	61	%	10-150		1	01/16/25 13:31	01/17/25 18:26		

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QUALITY CONTROL DATA

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

QC Batch: 987967

Analysis Method: ENV-SOP-MIN4-0178

QC Batch Method: ENV-SOP-MIN4-0178

Analysis Description: PFAS Compounds, Water

Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10720951001, 10720951002, 10720951003

METHOD BLANK: 5158953

Matrix: Water

Associated Lab Samples: 10720951001, 10720951002, 10720951003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11CI-PF3OUdS	ng/L	ND	1.9	0.40	01/17/25 15:54	
4:2 FTS	ng/L	ND	1.8	0.36	01/17/25 15:54	
6:2 FTS	ng/L	ND	1.9	0.56	01/17/25 15:54	
8:2 FTS	ng/L	ND	1.9	0.78	01/17/25 15:54	
9CI-PF3ONS	ng/L	ND	1.8	0.35	01/17/25 15:54	
ADONA	ng/L	ND	1.9	0.32	01/17/25 15:54	
HFPO-DA	ng/L	ND	2.0	0.25	01/17/25 15:54	
NEtFOSAA	ng/L	ND	2.0	0.56	01/17/25 15:54	
NMeFOSAA	ng/L	ND	2.0	0.77	01/17/25 15:54	
PFBA	ng/L	ND	2.0	0.28	01/17/25 15:54	
PFBS	ng/L	ND	1.7	0.20	01/17/25 15:54	
PFDA	ng/L	ND	2.0	0.25	01/17/25 15:54	
PFDaA	ng/L	ND	2.0	0.43	01/17/25 15:54	
PFDS	ng/L	ND	1.9	0.56	01/17/25 15:54	
PFHpA	ng/L	ND	2.0	0.23	01/17/25 15:54	
PFHpS	ng/L	ND	1.9	0.62	01/17/25 15:54	
PFHxA	ng/L	ND	2.0	0.37	01/17/25 15:54	
PFHxS	ng/L	ND	1.8	0.23	01/17/25 15:54	
PFNA	ng/L	ND	2.0	0.21	01/17/25 15:54	
PFNS	ng/L	ND	1.9	0.47	01/17/25 15:54	
PFOA	ng/L	ND	2.0	0.26	01/17/25 15:54	
PFOS	ng/L	ND	1.8	0.50	01/17/25 15:54	
PFOSA	ng/L	ND	2.0	0.39	01/17/25 15:54	
PFPeA	ng/L	ND	2.0	0.18	01/17/25 15:54	
PFPeS	ng/L	ND	1.9	0.25	01/17/25 15:54	
PFTeDA	ng/L	ND	2.0	0.36	01/17/25 15:54	
PFTrDA	ng/L	ND	2.0	0.28	01/17/25 15:54	
PfUnA	ng/L	ND	2.0	0.63	01/17/25 15:54	
13C2-PFDaA (S)	%	92	50-150		01/17/25 15:54	
13C2-PFTA (S)	%	90	50-150		01/17/25 15:54	
13C24:2FTS (S)	%	81	50-150		01/17/25 15:54	
13C26:2FTS (S)	%	78	50-150		01/17/25 15:54	
13C28:2FTS (S)	%	83	50-150		01/17/25 15:54	
13C2PFHxDA (S)	%	76	50-150		01/17/25 15:54	
13C3-PFBS (S)	%	73	50-150		01/17/25 15:54	
13C3-PFHxS (S)	%	77	50-150		01/17/25 15:54	
13C3HFPO-DA (S)	%	81	50-150		01/17/25 15:54	
13C4-PFBA (S)	%	74	50-150		01/17/25 15:54	
13C4-PFHpA (S)	%	87	50-150		01/17/25 15:54	
13C5-PFHxA (S)	%	82	50-150		01/17/25 15:54	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

METHOD BLANK: 5158953 Matrix: Water

Associated Lab Samples: 10720951001, 10720951002, 10720951003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
13C5-PFPeA (S)	%	77	50-150		01/17/25 15:54	
13C6-PFDA (S)	%	95	50-150		01/17/25 15:54	
13C7-PFUdA (S)	%	97	50-150		01/17/25 15:54	
13C8-PFOA (S)	%	93	50-150		01/17/25 15:54	
13C8-PFOS (S)	%	77	50-150		01/17/25 15:54	
13C8-PFOSA (S)	%	75	50-150		01/17/25 15:54	
13C9-PFNA (S)	%	93	50-150		01/17/25 15:54	
d3-MeFOSAA (S)	%	91	50-150		01/17/25 15:54	
d3-NMeFOSA (S)	%	45	10-150		01/17/25 15:54	
d5-EtFOSAA (S)	%	80	50-150		01/17/25 15:54	
d5-NEtFOSA (S)	%	48	10-150		01/17/25 15:54	
d7-NMeFOSE (S)	%	73	10-150		01/17/25 15:54	
d9-NEtFOSE (S)	%	78	10-150		01/17/25 15:54	

LABORATORY CONTROL SAMPLE & LCSD: 5158954 5158955

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11Cl-PF3OUdS	ng/L	3.7	3.9	4.4	108	119	70-140	11	30	
4:2 FTS	ng/L	3.6	3.9	3.8	106	105	63-143	0	30	
6:2 FTS	ng/L	3.7	4.6	4.6	125	124	64-140	0	30	
8:2 FTS	ng/L	3.7	3.7	3.7	100	97	67-138	2	30	
9Cl-PF3ONS	ng/L	3.6	4.1	4.2	112	114	70-140	3	30	
ADONA	ng/L	3.7	2.9	2.9	79	80	70-140	1	30	
HFPO-DA	ng/L	3.9	3.7	3.9	95	99	70-140	4	30	
NEtFOSAA	ng/L	3.9	4.0	4.0	103	102	61-135	0	30	
NMeFOSAA	ng/L	3.9	4.1	4.3	105	109	65-136	4	30	
PFBA	ng/L	3.9	3.7	3.9	95	100	73-129	7	30	
PFBS	ng/L	3.4	3.3	3.4	97	97	72-130	1	30	
PFDA	ng/L	3.9	3.7	3.7	94	94	71-129	1	30	
PFDoA	ng/L	3.9	3.7	4.0	95	102	72-134	8	30	
PFDS	ng/L	3.7	3.5	3.6	94	97	53-142	3	30	
PFHpA	ng/L	3.9	3.7	3.7	95	94	72-130	1	30	
PFHpS	ng/L	3.7	4.2	4.8	113	130	69-134	14	30	
PFHxA	ng/L	3.9	4.3	4.3	110	110	72-129	1	30	
PFHxS	ng/L	3.6	3.4	3.4	96	96	68-131	0	30	
PFNA	ng/L	3.9	3.5	3.6	90	92	69-130	3	30	
PFNS	ng/L	3.7	3.6	3.9	98	103	69-127	6	30	
PFOA	ng/L	3.9	3.6	3.6	93	92	71-133	0	30	
PFOS	ng/L	3.6	3.2	3.2	88	88	65-140	1	30	
PFOSA	ng/L	3.9	3.9	4.2	100	106	67-137	6	30	
PFPeA	ng/L	3.9	4.4	4.2	112	108	72-129	3	30	
PFPeS	ng/L	3.6	3.6	3.7	99	100	71-127	1	30	
PFTeDA	ng/L	3.9	3.7	3.8	96	96	71-132	0	30	
PFTTrDA	ng/L	3.9	3.5	3.8	91	97	65-144	7	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

LABORATORY CONTROL SAMPLE & LCSD: 5158954		5158955									
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
PFU _n A	ng/L	3.9	3.6	3.5	93	90	69-133	2	30		
13C2-PFDoA (S)	%				95	112	50-150				
13C2-PFTA (S)	%				89	109	50-150				
13C24:2FTS (S)	%				83	108	50-150				
13C26:2FTS (S)	%				84	98	50-150				
13C28:2FTS (S)	%				95	100	50-150				
13C2PFHxDA (S)	%				74	101	50-150				
13C3-PFBS (S)	%				75	96	50-150				
13C3-PFHxS (S)	%				78	95	50-150				
13C3HFPO-DA (S)	%				90	108	50-150				
13C4-PFBA (S)	%				75	90	50-150				
13C4-PFHpA (S)	%				91	108	50-150				
13C5-PFHxA (S)	%				84	101	50-150				
13C5-PFPeA (S)	%				78	91	50-150				
13C6-PFDA (S)	%				99	117	50-150				
13C7-PFUdA (S)	%				98	117	50-150				
13C8-PFOA (S)	%				97	115	50-150				
13C8-PFOS (S)	%				82	97	50-150				
13C8-PFOSA (S)	%				79	88	50-150				
13C9-PFNA (S)	%				101	114	50-150				
d3-MeFOSAA (S)	%				90	109	50-150				
d3-NMeFOSA (S)	%				59	59	10-150				
d5-EtFOSAA (S)	%				89	103	50-150				
d5-NEtFOSA (S)	%				59	62	10-150				
d7-NMeFOSE (S)	%				80	83	10-150				
d9-NEtFOSE (S)	%				80	82	10-150				

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Racer PNC 30214041.00031

Pace Project No.: 10720951

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

S0 Surrogate recovery outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Racer PNC 30214041.00031
Pace Project No.: 10720951

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10720951001	MHOS-01_W_01132025	ENV-SOP-MIN4-0178	987967	ENV-SOP-MIN4-0178	988728
10720951002	DUP-01_01132025	ENV-SOP-MIN4-0178	987967	ENV-SOP-MIN4-0178	988728
10720951003	EB-01_01132025	ENV-SOP-MIN4-0178	987967	ENV-SOP-MIN4-0178	988728

REPORT OF LABORATORY ANALYSIS

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Pace
 Pace Analytical Minnesota
 1700 Elm Street, Suite 200
 Minneapolis, MN 55414

Company Name: Arcadis-OH
 Street Address: 7575 Huntington Park Dr. 130
 Columbus, OH 43225

Customer Project #: 30214041.00031
 Project Name: RACER PNC

Site Collection Info/Facility ID (as applicable):
 Regulatory Program (DW, RCRA, etc.) as applicable: Michigan / Oakland County

Time Zone Collected: [] AK [] PT [] MT [] CT [] ET
 Date Results Requested: Rush (Pre-approval required): Standard

Field Filtered (if applicable): [] Yes [] No
 Analysis: DW PMSID # or WW Permit # as applicable: A9 = 4400-0005

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

Customer Sample ID	Matrix*	Composite Start		# Cont.	Res. Chlorine Results	Units
		Date	Time			
MHOS-01-W-0132025	Aa	grab	1/13/2015 045	2	-	-
DUP-01-0132025	Aa	grab	1/13/25 085	2	-	-
EB-01-0132025	Aa	grab	1/13/25 050	2	-	-

CHAIN-OF-CUSTODY Analytical Request Document
 Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Contact/Report To: Lexi Nickerson
 Phone #: 614-985-9100
 E-Mail: alexis.nickerson@arcadis.com
 Cc E-Mail:

Invoices To: Accounts Payable
 Invoice E-Mail: invoices_us@arcadis.com
 Purchase Order # (if applicable):
 Quote #:


County/State origin of sample(s): Michigan / Oakland County
 Reportable [] Yes [] No

Method 534
 Method w/ Isotope
 PFAS ID NPW

Additional Instructions from Pace*
 Method 534 Modified w/ Isotope dilution per QSM 5.1, Report EGLE 28 Compounds

Collected By (Printed Name)	Signature	Date/Time	Received by/Company (Signature)	Date/Time
Garrett Link	<i>Garrett Link</i>	1/13/25 10:30	<i>Garrett Link</i>	1/13/25 10:30
			<i>Garrett Link</i>	1/13/25 10:30
			<i>Garrett Link</i>	1/13/25 10:30

LAB USE ONLY - Affix Workorder/Login Label Here



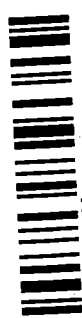
Scan QR Code for instructions

Specify Container Size **
 Identify Container Preservative Type***
 Analysis Requested

Proj. Mgr: **Carolyne Trout**
 AccNum / Client ID:
 Table #:
 Profile / Template: **47476**
 Prelog / Bottle Ord. ID: **EZ 3205311**

Sample Comment	Obs. Temp (°C)	Correction Factor (°C)	Corrected Temp (°C)	On Ice
01	1.0	-0.4	0.6	
02				
03				

WO#: 10720951



10720951

Customer Remarks / Special Conditions / Possible Hazards:
 # Coolers: 1
 Thermometer ID: TUL
 Date/Time: 1/13/25 10:30
 Date/Time: 1/13/25 085
 Date/Time: 1/13/25 050
 Date/Time: 1/13/25 10:30

ENV-FRM-MIN4-0150 v17 Sample Condition Upon Receipt

CLIENT NAME: Arcadis-OH PROJECT #: _____

WO# : 10720951
 PM: CT1 Due Date: 02/04/25
 CLIENT: Arcadis-OH

COURIER: Client Commercial FedEx Pace
 Speedee UPS USPS

TRACKING NUMBER: 7018 1463 8757 See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: YES NO Seals Intact: YES NO Biological Tissue Frozen: YES NO N/A
 Packing Material: Bubble Bags Bubble Wrap None Other Temp Blank: YES NO Type of Ice: Blue Dry Wet
 Thermometer: T1 (0461) T2 (0436) T3 (0459) T4 (0402) T5 (0178) T6 (0235)
 T7 (0042) T8 (0775) T9 (0727) 01339252 (1710)

Did Samples Originate in West Virginia: YES NO Were All Container Temps taken: YES NO N/A
 Correction Factor: -1.0 Cooler Temp Read w/Temp Blank: 1.0 °C Average Corrected Temp (no Temp Blank Only): 1.0 °C
 Cooler Temp Corrected w/Temp Blank: 1.0 °C
 NOTE: Temp should be above freezing to 6°C. See Exceptions Form ENV-FRM-MIN4-0142 1 Container

USDA Regulated Soil: N/A - Water Sample/Other (describe): _____ Initials & Date of Person Examining Contents: MS 1/14/25
 Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: YES NO Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): YES NO
 NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.

LOCATION (check one):	<input type="checkbox"/> DULUTH	<input checked="" type="checkbox"/> MINNEAPOLIS	<input type="checkbox"/> VIRGINIA	YES	NO	N/A	COMMENT(S)								
Chain of Custody Present and Filled Out?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		1.								
Chain of Custody Relinquished?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		2.								
Sampler Name and/or Signature on COC?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		3.								
Samples Arrived within Hold Time?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		4. If Fecal: <input type="checkbox"/> <8 hrs <input type="checkbox"/> >8 hr, <24 hr <input type="checkbox"/> No								
Short Hold Time Analysis (<72 hr)?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		5. <input type="checkbox"/> BOD ₅ /cBOD <input type="checkbox"/> Fecal coliform <input type="checkbox"/> Hex Chrom <input type="checkbox"/> HPC <input type="checkbox"/> Nitrate <input type="checkbox"/> Nitrite <input type="checkbox"/> Ortho-Phos <input type="checkbox"/> Total coliform/E. coli <input type="checkbox"/> Other: _____								
Rush Turn Around Time Requested?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		6.								
Sufficient Sample Volume?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		7.								
Correct Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		8.								
– Pace Containers Used?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>										
Containers Intact?		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		9.								
Field Filtered Volume Received for Dissolved Tests?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		10. Is sediment visible in the dissolved container: <input type="checkbox"/> YES <input type="checkbox"/> NO								
Is sufficient information available to reconcile the samples to the COC? NOTE: If ID/Date/Time don't match fill out section 11. Matrix: <input type="checkbox"/> Oil <input type="checkbox"/> Soil <input checked="" type="checkbox"/> Water <input type="checkbox"/> Other		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>		11. If NO, write ID/Date/Time of container below: <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142								
All containers needing acid/base preservation have been checked? All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide) Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		12. Sample #: <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> Zinc Acetate Positive for Residual Chlorine: <input type="checkbox"/> YES <input type="checkbox"/> NO pH Paper Lot # <table border="1"> <tr> <th>Residual Chlorine</th> <th>0-6 Roll</th> <th>0-6 Strip</th> <th>0-14 Strip</th> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> <input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0142	Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip				
Residual Chlorine	0-6 Roll	0-6 Strip	0-14 Strip												
NOTE: If adding preservation to the container, verify with the PM first. Clients may require adding preservative to the field and equipment blanks when this occurs.															
Headspace in Methyl Mercury Container?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		13.								
Extra labels present on soil VOA or WIDRO containers?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		14.								
Headspace in VOA Vials (greater than 6mm)?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/> See Exceptions form ENV-FRM-MIN4-0140								
Trip Blanks Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		15.								
Trip Blank Custody Seals Present?		<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>		Pace Trip Blank Lot # (if purchased): _____								

CLIENT NOTIFICATION / RESOLUTION FIELD DATA REQUIRED: YES NO
 Person Contacted: _____ Date & Time: _____
 Comments / Resolution: _____

Project Manager Review: Carolynne Trout Date: 1/14/25

NOTE: When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).
 Labeled By: MS Line: 3

Attachment 2

Data Validation Report

Attachment 2

Data Validation Report

10720951

DUP-01 was collected as a field duplicate of MHOS-01_W_01132025. The RPDs were acceptable.

There were no detections in the associated QC blanks.

The EIS recoveries of 13C3HFPO-DA, 13C4-PFBA and 13C5-PFPeA were below the recovery limit for samples MHOS-01_W_01132025 and DUP-01. HFPO-DA, PFBA and PFPeA would be qualified as estimated (UJ) for both samples.

**A cursory review was performed on (1) Level II QC reports for water samples collected from the Storm Sewer System in January, 2025. All laboratory qualifiers were evaluated. The data were validated, and the results are qualified as follows:

For PFAS

Samples MHOS-01_W_01132025 and DUP-01 are qualified as estimated for HFPO-DA, PFBA and PFPeA due to the EIS recoveries being below the control limit.