

Brunswick County Public Utilities - NC

PO Box 249
Bolivia, NC 28422-0249

LELAND N.C.

Client Project# NORTHWEST WATER PLANT
Samples Received: 10/25/2024

Analytical Report 1024-856

PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 12/3/2024

I certify that to the best of my knowledge all analytical data presented in this report have been checked for completeness, accuracy, errors and legibility in addition to having been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s). This analytical report was prepared in Portable Document Format (.PDF) and contains 34 pages. This report shall not be reproduced except in full without approval of the laboratory. This will provide assurance that parts of the report are not taken out of context.

Amendment(s):

Signature:



Laura Boivin, QA Associate II



Enthalpy Analytical, LLC – Wilmington
Christina Kurnath, Project Manager
chkurnath@montrose-env.com / www.enthalpy.com
O: 910-876-6895
2714 Exchange Drive, Wilmington, NC 28405

Table of Contents

Case Narrative	
General Reporting Notes	
PFAS Acronym List.....	
Results	
Summary of Results	
Detailed Results	
QC Data	
Method Blank.....	
LCS.....	
Sample Custody.....	
Chain of Custody	
Shipping Documents	

Narrative Summary



Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-856-1
Client ID.	NORTHWEST WATER PLANT Site: LELAND N.C.

1. Custody

Meredith Curtis received the samples at 5.6 °C after being relinquished by Brunswick County Public Utilities - NC.

The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Table 1 - Sample Inventory

EU Lab Sample ID	Client Sample ID	Matrix	Received
1024-856-001-1A	102524-S01	aqueous	2024-10-25
1024-856-001-1B	102524-S01	aqueous	2024-10-25
1024-856-002-1A	102524-E01	aqueous	2024-10-25

2. Methods and Analytes

A list of analytes of interest and corresponding methods of analysis is shown in Table 3. Abbreviations are defined in the listed Appendices.

Table 3 - Methods and Analytes

EU Method	Analytes	Cleanup Method
EU-047	Custom List	ENVI-Carb

3. Analysis

The samples were analyzed using Waters Acquity UPLC equipped with Xevo TQ MS (LC/MS/MS "Sauron").

Select sample(s) were analyzed using more than one batch preparation and analytical sequence to provide results within the calibration curve.

4. Calibration

In the initial calibration, the reported analytes exhibited R^2 of ≥ 0.99 . The reported analytes in the calibration standards, Initial Calibration Verification (ICV) and continuing calibration (concal) met the accuracy criterion for native analytes, except as noted below.

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-856-1
Client ID.	NORTHWEST WATER PLANT Site: LELAND N.C.

The Standards that did not were:

- SID BD10 (EVE Acid)
- SID BD11 (EVE Acid, NFDHA)

Analyte(s) that exceeded method control limits in the concals were not detected >LOQ in the samples. The data is reported without adverse impact.

5. QC Notes

Ongoing Precision Recovery (OPR) control limits have not been established for some analytes of interest.

Except where noted below, the QC sample analyses passed all method criteria.

QC samples that did not meet method acceptance criteria were:

- MB_18468_PFAAS (M2-6:2 FTS, M2PFTeDA, d3-N-MeFOSA, d5-N-EtFOSA)
- MB_18504_PFAAS (M2PFTeDA, d3-N-MeFOSA, d5-N-EtFOSA)

Select surrogates (ES) deviated from method recovery criteria in the method blank (MB) and/or OPR. Target analytes are quantified based on their ratio to their labeled standard analogs. When detected at a signal-to-noise above 10:1 the ES peak area is used to quantify its respective target analyte using accepted isotope dilution principles. The data is reported without adverse impact.

PFAS by Isotope Dilution (non-potable water) samples were extracted within 28 days, and extracts analyzed within 28 days.

6. Reporting Notes

The results presented in this report are representative of the samples as provided to the laboratory.

This report provides all results including detections below LOD following client instruction.

Some labeled extraction standards (ES) in the sample analyses recovered outside the control limits for ES recovery, as denoted by the "Q" qualifier. The target analytes are quantified based on their ratio to their labeled standard analogs. As a result, low or high labeled standard recovery do not cause any change to ratios or contribute any additional error in the measurement of the target analytes. When detected at a signal-to-noise above 10:1 the ES peak area is used to quantify its respective target analyte using accepted isotope dilution principles. The data is reported without adverse impact.

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

Enthalpy Analytical, LLC in Wilmington NC is accredited by the Louisiana Department of Environmental Quality to the 2009 TNI Standard under certificate number 05075.

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-856-2
Client ID.	NORTHWEST WATER PLANT Site: LELAND N.C.

1. Custody

Meredith Curtis received the samples at 5.6 °C after being relinquished by Brunswick County Public Utilities - NC.

The samples were received in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, LLC.

Table 1 - Sample Inventory

EU Lab Sample ID	Client Sample ID	Matrix	Received
1024-856-001-1	102524-S01	aqueous	2024-10-25
1024-856-002-1	102524-E01	aqueous	2024-10-25

2. Methods and Analytes

A list of analytes of interest and corresponding methods of analysis is shown in Table 3. Abbreviations are defined in the listed Appendices.

Table 3 - Methods and Analytes

EU Method	Analytes	Cleanup Method
EU-047	PFPrA	n/a

3. Analysis

The samples were analyzed by direct injection using Sciex Triple Quad 7500 (LC/MS/MS "Bumblebee").

4. Calibration

In the initial calibration, the reported analytes exhibited R^2 of ≥ 0.99 . The reported analytes in the calibration standards, Initial Calibration Verification (ICV) and continuing calibration (concal) met the accuracy criterion for native analytes.

5. QC Notes

Except where noted below, the QC sample analyses passed all method criteria.

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-856-2
Client ID.	NORTHWEST WATER PLANT Site: LELAND N.C.

QC samples that did not meet method acceptance criteria were:

- MB_18431_PFAS (13C3-PFPrA)
- OPR_18431_PFAS (13C3-PFPrA)

Select surrogates (ES) deviated from method recovery criteria in the method blank (MB) and/or OPR. Target analytes are quantified based on their ratio to their labeled standard analogs. When detected at a signal-to-noise above 10:1 the ES peak area is used to quantify its respective target analyte using accepted isotope dilution principles. The data is reported without adverse impact.

PFAS by Isotope Dilution (non-potable water) samples were extracted within 28 days, and extracts analyzed within 28 days.

6. Reporting Notes

The results presented in this report are representative of the samples as provided to the laboratory.

Some labeled extraction standards in the sample analyses fell outside the control limits for ES recovery, as denoted by the "Q" qualifier. The target analytes are quantified based on their ratio to their labeled standard analogs. As a result, low or high labeled standard recovery do not cause any change to ratios or contribute any additional error in the measurement of the target analytes. The data have been accepted and reported with no further actions.

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

Enthalpy Analytical, LLC in Wilmington NC is accredited by the Louisiana Department of Environmental Quality to the 2009 TNI Standard under certificate number 05075.

General Reporting Notes – Data Qualifiers

The following are general reporting notes that are applicable to all Enthalpy Analytical, LLC - Wilmington, NC data reports, unless specifically noted otherwise.

General Data Qualifiers

- Ac - Alternate calculation flag indicates the es recovery was calculated using the opening concal when either of the following situations is encountered in the data processing software: the ES recovery is over 400% or the JS is not detected.
- B – The analyte was found in the method blank, at a concentration that was at least 10% of the amount in the sample.
- Cxx – Two or more congeners co-elute. In EDDs, C denotes the lowest IUPAC congener in a co-elution group and additional co-eluters for the group ('xx') are shown with the number of the lowest IUPAC co-eluter.
- E – The reported concentration exceeds the calibration range (upper point of the calibration curve). For HRMS data, this condition does not imply additional measurement uncertainty. For LC-MS/MS data, these values should be considered as having measurement uncertainty higher than values within the calibration range.
- EDL – Estimated Detection Level: The EDL is unique to isotope dilution methods and reflects the conditions of analysis at the time of analysis, including the equipment used. Where the MDL is a static value, the EDL is a dynamic value.
- EMPC – Estimated Maximum Possible Concentration: EMPC is specific to Dioxin/Furan tests to indicate the determined ion-abundance ratio was outside the allowed theoretical range (usually due to being near the detection limit, although it can very rarely be caused by a co-eluting interference). The EMPC concentration is adjusted to reflect the value at the theoretical ion-abundance ratio.
- I/IR – The ion ratio between the primary and secondary ions was observed to be outside the method criteria. The analyte concentration may be inaccurate due to interference.
- J – The analyte has a concentration below the minimum calibration level (LOQ value) but greater than the LOD. These values should be considered as having measurement uncertainty higher than values within the calibration range
- L - For reports containing PFAS analytes only, this flag indicates that an analyte has a concentration below the Minimum Detection Limit (MDL) . The reported concentration is not recommended for regulatory use as the analyte signal may have a signal-to-noise ratio less than the criteria deemed necessary to be considered a detected analyte.
- LOD – Limit of Detection: For reports conforming to the DOD ELAP QSM, this is the QSM-defined LOD. For reports conforming to TNI requirements (but not DOD ELAP QSM requirements), this value is the minimum detection limit (MDL). The LOD is adjusted for sample weight or volume.

General Reporting Notes – Data Qualifiers

- LOQ – Limit of Quantitation: For reports conforming to the DOD ELAP QSM, this is the QSM-defined LOQ. For reports conforming to TNI requirements (but not DOD ELAP QSM requirements), this value is the reporting limit (RL). The LOQ is adjusted for sample weight or volume.
- <LOD() – Analyte was not found at a concentration high enough to be reported as detected. It is reported as less than the LOD, and the LOD is given in the parentheses.
- <LOQ() – Analyte was not found at a concentration high enough to be reported as above the QSM-defined LOQ or TNI defined Reporting Limit. It is reported as less than the LOQ, and the LOQ is given in the parentheses.
- ND – Indicates a non-detect.
- NR – Indicates a value that is not reportable due to issues observed in sample preparation or analysis.
- PR – The associated congener(s) is(are) poorly resolved.
- QI – Indicates the presence of a quantitative interference.
- RL – Reporting Limit. Lowest reportable value. The level is higher than the MDL.
- SI – Denotes “Single Ion Mode” and is utilized for PCBs where the secondary ion trace has a significantly elevated noise level due to background PFK. Responses for such peaks are calculated using an EMPC approach based solely on the primary ion area(s) and may be considered estimates.
- U – The analyte was not detected.
- V / Q – The labeled standard recovery is not within method control limits.
- X – Indicates the result is from re-injection/repeat/second-column analysis.

Lab Identifiers/ Data Attributes

- AR – Indicates use of the archived portion of the sample extract.
- CU – Indicates a sample that required additional clean-up prior to HRMS injection/processing.
- D – Dilution Data. Result was obtained from the analysis of a dilution. The number that follows the “D” indicates the dilution factor.
- DE – Indicates a dilution performed with the addition of ES (Extraction Standard) solution.
- DUP – Designation for a duplicate sample.
- MS – Designation for a matrix spike.
- MSD – Designation for a matrix spike duplicate.



General Reporting Notes – Data Qualifiers

- R – Indicates a re-extraction of the sample.
- RJ – Indicates a reinjection of the sample extract.
- S – Indicates a sample split. The number that follows the “S” indicates the split factor.
- SAT – Indicates an analyte saturated the detector.

PFAS Compound Acronym List			
Acronym	CAS #	Compound Name	
* accredited for SOP EU047 / EPA method 1633 # Method 537.1 Accredited ^ Method 533 Accredited ~EPA 1633 extended list			
Target Analytes			
* , ^	PFBA	375-22-4	Perfluorobutanoic Acid
* , # , ^	PFPeA	2706-90-3	Perfluoropentanoic Acid
* , # , ^	PFHxA	307-24-4	Perfluorohexanoic Acid
* , # , ^	PFHpA	375-85-9	Perfluoroheptanoic Acid
* , # , ^	PFOA	335-67-1	Perfluorooctanoic Acid
* , # , ^	PFNA	375-95-1	Perfluorononanoic Acid
* , # , ^	PFDA	335-76-2	Perfluorodecanoic acid
* , # , ^	PFUnA (PFUnDA)	2058-94-8	Perfluoroundecanoic acid
* , #	PFDoA (PFDoDA)	307-55-1	Perfluorododecanoic acid
* , #	PFTriA (PFTriA)	72629-94-8	Perfluorotridecanoic acid
* , # , ^	PFTeDA (PFTA)	376-06-7	Perfluorotetradecanoic acid
* , ^	PFBS	375-73-5	Perfluorobutane sulfonic acid
* , # , ^	PFPeS	2706-91-4	Perfluoropentane sulfonic acid
* , ^	PFHxS	355-46-4	Perfluorohexane sulfonic acid
* , # , ^	PFHpS	375-92-8	Perfluoroheptane sulfonic acid
* , # , ^	PFOS	1763-23-1	Perfluorooctane sulfonic acid
* , #	PFNS	68259-12-1	Perfluorononane sulfonic acid
* , #	PFDS	335-77-3	Perfluorodecane sulfonic acid
* , ^	4:2 FTS	757124-72-4	4:2 fluorotelomer sulfonic acid
* , ^	6:2 FTS	27619-97-2	6:2 fluorotelomer sulfonic acid
* , ^	8:2 FTS	39108-34-4	8:2 fluorotelomer sulfonic acid
~	10:2 FTS	120226-60-0	Fluorotelomer sulfonate 10:2
~	FHxSA	41997-13-1	Perfluorohexanesulfonamide
* , #	PFOSA (FOSA)	754-91-6	Perfluorooctane sulfonamide
* , #	N-MeFOSAA	2355-31-9	N-methyl perfluorooctane sulfonamido acetic acid
* , #	N-MeFOSA	31506-32-8	N-methylperfluoro-1-octanesulfonamide
* , #	N-MeFOSE	24448-09-7	2-(N-methylperfluoro-1-octanesulfonamido)-ethanol
* , #	N-EtFOSAA	2991-50-6	N-ethyl perfluorooctane sulfonamido acetic acid
* , #	N-EtFOSA	4151-50-2	N-ethylperfluoro-1-octanesulfonamide
* , #	N-EtFOSE	1691-99-2	2-(N-methylperfluoro-1-octanesulfonamido)-ethanol
* , # , ^	HFPO-DA	13252-13-6	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (Gen-X)
* , # , ^	11Cl-PF3OUdS	763051-92-9	11-chloroheptafluoro-3-oxaundecane-1-sulfonic acid
* , # , ^	9Cl-PF3ONS	756426-58-1	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid
* , # , ^	ADONA	919005-14-4	4,8-dioxa-3H-perfluorononanoic acid
* , ^	PFEESA	113507-82-7	Perfluoro(2-ethoxyethane)sulphonic acid
* , ^	PFMOBA (PFMBA)	863090-89-5	Perfluoro-4-methoxybutanoic acid
* , ^	NFDHA	151772-58-6	Nonafluoro-3,6-dioxahexanoic acid
* , ^	PFMOPrA (PFMPA)	377-73-1	Perfluoro-3-methoxypropanoic acid
~	PFPrA	422-64-0	2,2,3,3,3-Pentafluoropropionic acid
~	PFPrS (PFPS)	423-41-6	Perfluoropropanesulfonic acid
~	PFMOAA	674-13-5	Perfluoro-2-methoxyacetic acid
~	PFO2HxA	39492-88-1	Perfluoro (3,5-dioxahexanoic) acid
~	PFO3OA	39492-89-2	Perfluoro (3,5,7-trioxaoctanoic) acid
~	PFO4DA	39492-90-5	Perfluoro (3,5,7,9-tetraoxadecanoic) acid
~	PFO5DA	39492-91-6	Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid
~	Nafion Byproduct 1 (PS Acid)	29311-67-9	Nafion Byproduct 1
~	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	Nafion Byproduct 2
~	PEPA	267239-61-2	Perfluoro-2-ethoxypropanoic acid
~	PMPA	13140-29-9	Perfluoro-2-methoxypropanoic acid



PFAS Compound Acronym List		
Acronym	CAS #	Compound Name
* accredited for SOP EU047 / EPA method 1633	# Method 537.1 Accredited	^ Method 533 Accredited ~EPA 1633 extended list
~ PFECA-G	801212-59-9	4-(Heptafluoroisopropoxy)hexafluorobutanoic acid
~ PFHxDA	67905-19-5	Perfluorohexadecanoic acid
~ R-PSDA (Nafion Byproduct 4)	2416366-18-0	Perfluoro-4-(2-sulfoethoxy)pentanoic acid
Hydrolyzed PSDA (Nafion Byproduct 5)	2416366-19-1	2-fluoro-2-[1,1,2,3,3,3-hexafluoro-2-(1,1,2-tetrafluoro-2-sulfoethoxy)propoxy]-acetic acid
~ R-PSDCA (Nafion Byproduct 6)	2416366-21-5	1,1,2,2-tetrafluoro-2-[1,2,2,3,3-pentafluoro-1-(trifluoromethyl)propoxy] ethanesulfonic acid
~ EVE Acid	69087-46-3	2,2,3,3-tetrafluoro-3-({1,1,1,2,3,3-hexafluoro-3-[(1,2,2-trifluoroethenyl)oxy]propan-2-yl)oxy}propionic acid
~ FBSA	30334-69-1	Perfluorobutylsulfonamide
~ MeFBSA	68298-12-4	1-Butanesulfonamide; (N-(Methyl)nonafluorobutanesulfonamide)
~ Hydro-EVE Acid	773804-62-9	2,2,3,3-Tetrafluoro-3-[[1,1,1,2,3,3-hexafluoro-3-(1,2,2,2-tetrafluoroethoxy)propan-2-yl]oxy}propanoic acid
~ R-EVE Acid	2416366-22-6	4-(2-carboxy-1,1,2,2-tetrafluoroethoxy)-2,2,3,3,4,5,5,5-octafluoro-pentanoic acid
~ NVHOS	1132933-86-8	Perfluoroethoxysulfonic acid
*~ PFDoS	79780-39-5	Perfluorododecane sulfonic acid
~ PFODA	16517-11-6	Perfluorooctadecanoic acid
* 3:3 FTCA	356-02-5	2H,2H,3H,3H-Perfluorohexanoic acid
* 5:3 FTCA	914637-49-3	2H,2H,3H,3H-Perfluorooctanoic acid
* 7:3 FTCA	812-70-4	2H,2H,3H,3H-Perfluorodecanoic acid
~ N-AP-FHxSA	50598-28-2	N-(3-(Dimethylamino)propyl)tridecafluoro-1-hexanesulfonamide
~ N-CMAmP-6:2 FOSA	34455-29-3	N-(Carboxymethyl)-N,N-dimethyl-3-(((3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulfonyl)amino)1-propanaminium
~ BPAF	1478-61-1	Bisphenol AF
~ HQ-115	90076-65-6	Bis(trifluoromethane)sulfonimide lithium salt

Results

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Summary

	Compound	CAS	102524-S01 ng/L	102524-E01 ng/L	
Acids	PFBA	375-22-4	ND U	ND U	
	PFPeA	2706-90-3	16.1	5.63	
	PFHxA	307-24-4	10.6	4.46	
	PFHpA	375-85-9	4.87	1.74	
	PFOA	335-67-1	10.9	4.63	
	PFNA	375-95-1	1.43 J	0.586	
	PFDA	335-76-2	0.764 J	0.188 J	
	PFUnDA	2058-94-8	ND U	ND U	
	PFDoDA	307-55-1	ND U	ND U	
	PFTTrDA	72629-94-8	ND U	ND U	
	PFTeDA	376-06-7	ND U	ND U	
	PFHxDA	67905-19-5	ND U	ND U	
	Sulfonates	PFBS	375-73-5	9.65	3.67
		PFPeS	2706-91-4	1.04 J	0.331 J
PFHxS		355-46-4	9.89	3.33	
PFHpS		375-92-8	ND U	0.0449 L	
PFOS		1763-23-1	26.9	9.43	
PFNS		68259-12-1	ND U	ND U	
PFDS		335-77-3	ND U	ND U	
4:2 FTS		757124-72-4	ND U	ND U	
6:2 FTS		27619-97-2	ND U	ND U	
8:2 FTS		39108-34-4	ND U	ND U	
10:2 FTS		120226-60-0	ND U	ND U	
Sulfonamidos		FBSA	30334-69-1	0.431 L	0.239 L
	N-EtFOSA	4151-50-2	ND U	ND U	
	N-EtFOSAA	2991-50-6	ND U	ND U	
	N-EtFOSE	1691-99-2	ND U	ND U	
	N-MeFOSA	31506-32-8	ND U	ND U	
	N-MeFOSAA	2355-31-9	ND U	ND U	
	N-MeFOSE	24448-09-7	ND U	ND U	
	PFOSA	754-91-6	ND U	ND U	
PFECAs	ADONA	919005-14-4	ND U	ND U	
	EVE Acid	69087-46-3	ND U	ND U	
	HFPO-DA	13252-13-6	12.9	4.84	
	Hydro-EVE Acid	773804-62-9	0.0229 L	0.00207 L	
	NFDHA	151772-58-6	ND U	ND U	
	PEPA	267239-61-2	4.57	3.43	
	PFECA-G	801212-59-9	ND U	ND U	
	PFMOAA	674-13-5	50.4	24.1	
	PFMOBA	863090-89-5	ND U	ND U	
	PFMOPrA	377-73-1	ND U	ND U	
	PFO2HxA	39492-88-1	ND U	ND U	
	PFO3OA	39492-89-2	ND U	ND U	
	PFO4DA	39492-90-5	ND U	ND U	
	PFO5DA	39492-91-6	ND U	ND U	
	PMPA	13140-29-9	18.6	8.29	
	R-EVE	2416366-22-6	27.1	8.91	
	PFESAs	11Cl-PF3OUds	763051-92-9	ND U	ND U
9Cl-PF3ONS		756426-58-1	ND U	ND U	
Hydrolyzed PSDA		2416366-19-1	7.99	1.93	
Nafion Byproduct 1 (PS Acid)		29311-67-9	ND U	ND U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	1.32 L	0.500 J	
NVHOS		1132933-86-8	ND U	ND U	
PFEESA		113507-82-7	ND U	ND U	
R-PSDA		2416366-18-0	13.4	4.63	
R-PSDCA	2416366-21-5	ND U	ND U		

Enthalpy Analytical

Job No.: 1024-856-2 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Summary

	Compound	CAS	102524-S01 ng/L	102524-E01 ng/L
Acids	PFPrA	422-64-0	ND U	ND U

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-S01	Prep Batch	EU18468
Sampling Site		Analyst	jogres
Enthalpy ID	1024-856-001-1A	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	100
Sampling Date	2024-10-25 10:00	Extract Vol mL	0.4
Received Date	2024-10-25	Split Factor	N/A
Prep Date	2024-11-05 13:10	Method Code	EU-047-NPW
AnalysisDate	2024-11-07 02:30		
SampleType	Sample		
Bottle ID	A		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	S061124030	ND	0.635	1.60			U	
	PFPeA	2706-90-3	S061124030	16.1	0.458	1.60				
	PFHxA	307-24-4	S061124030	10.6	0.535	1.60				
	PFFHpA	375-85-9	S061124030	4.87	0.560	1.60				
	PFOA	335-67-1	S061124030	10.9	0.366	1.60				
	PFNA	375-95-1	S061124030	1.43	0.362	1.60			J	
	PFDA	335-76-2	S061124030	0.764	0.458	1.60			J	
	PFUnDA	2058-94-8	S061124030	ND	0.362	1.60			U	
	PFDoDA	307-55-1	S061124030	ND	0.650	1.60			U	
	PFTriDA	72629-94-8	S061124030	ND	0.530	1.60			U	
	PFFHxDA	67905-19-5	S061124030	ND	0.850	1.60			U	
	Sulfonates	PFBS	375-73-5	S061124030	9.65	0.850	1.60			
		PFPeS	2706-91-4	S061124030	1.04	0.328	1.51			J
PFFHxS		355-46-4	S061124030	9.89	1.24	1.47				
PFFHpS		375-92-8	S061124030	ND	0.775	1.52			U	
PFOS		1763-23-1	S061124030	26.9	0.845	1.48				
PFNS		68259-12-1	S061124030	ND	0.496	1.54			U	
PFDS		335-77-3	S061124030	ND	0.840	1.54			U	
4:2 FTS		757124-72-4	S061124030	ND	0.208	1.50			U	
6:2 FTS		27619-97-2	S061124030	ND	0.755	1.52			U	
8:2 FTS		39108-34-4	S061124030	ND	0.358	1.53			U	
10:2 FTS	120226-60-0	S061124030	ND	1.22	1.60			U		
Sulfonamidos	FBSA	30334-69-1	S061124030	0.431	0.760	1.60			L	
	N-EiFOSAA	2991-50-6	S061124030	ND	0.650	1.60			U	
	N-EiFOSE	1691-99-2	S061124030	ND	2.45	7.20			U	
	N-MeFOSAA	2355-31-9	S061124030	ND	0.450	1.60			U	
	N-MeFOSE	24448-09-7	S061124030	ND	1.52	7.20			U	
PFECAs	PFOSA	754-91-6	S061124030	ND	0.224	1.60			U	
	ADONA	919005-14-4	S061124030	ND	0.434	1.52			U	
	EVE Acid	69087-46-3	S061124030	ND	0.510	3.60			U	
	HFPO-DA	13252-13-6	S061124030	12.9	0.170	1.60				
	Hydro-EVE Acid	773804-62-9	S061124030	0.0229	0.525	1.60			L	
	NFDHA	151772-58-6	S061124030	ND	0.336	1.60			U	
	PEPA	267239-61-2	S061124030	4.57	0.300	1.60				
	PFECA-G	801212-59-9	S061124030	ND	0.214	1.60			U	
	PFMOAA	674-13-5	S061124030	50.4	0.810	1.60				
	PFMOBA	863090-89-5	S061124030	ND	2.68	3.60			U	
	PFMOPrA	377-73-1	S061124030	ND	0.570	1.60			U	
	PFO2HxA	39492-88-1	S061124030	ND	0.515	1.60			U	
	PFO3OA	39492-89-2	S061124030	ND	0.735	1.60			U	
	PFO4DA	39492-90-5	S061124030	ND	1.26	8.00			U	
	PFO5DA	39492-91-6	S061124030	ND	1.28	8.00			U	
	PMPA	13140-29-9	S061124030	18.6	0.377	1.60				
	R-EVE	2416366-22-6	S061124030	27.1	2.66	3.60				
	PFESAs	11Cl-PF3OUdS	763051-92-9	S061124030	ND	0.755	1.51			U
		9Cl-PF3ONS	756426-58-1	S061124030	ND	1.02	1.49			U
		Hydrolyzed PSDA	2416366-19-1	S061124030	7.99	1.06	1.60			
Nafion Byproduct 1 (PS Acid)		29311-67-9	S061124030	ND	0.855	1.60			U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	S061124030	1.32	1.32	1.60			L	
NVHOS		1132933-86-8	S061124030	ND	0.246	1.60			U	
PFEESA		113507-82-7	S061124030	ND	0.481	1.60			U	
R-PSDA		2416366-18-0	S061124030	13.4	7.05	7.05				
R-PSDCA		2416366-21-5	S061124030	ND	0.675	1.60			U	
ES		MPFBA		S061124030				20-150%	33.0%	
	M5PFPeA		S061124030				20-150%	47.1%		
	M3PFBS		S061124030				20-150%	26.9%		
	M2-4:2 FTS		S061124030				20-150%	46.3%		
	M5PFHxA		S061124030				20-150%	26.4%		
	M3HFPO-DA		S061124030				20-150%	18.6%	Q	
	M4PFHpA		S061124030				20-150%	28.3%		
	M3PFHxS		S061124030				20-150%	41.0%		
	M2-6:2 FTS		S061124030				20-150%	47.8%		
	M8PFOA		S061124030				20-150%	28.6%		

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-S01		
Sampling Site			
Enthalpy ID	1024-856-001-1A	Prep Batch	EU18468
Matrix	aqueous	Analyst	jogres
Sampling Date	2024-10-25 10:00	Instrument	Sauron
Received Date	2024-10-25	Sample Vol mL	100
Prep Date	2024-11-05 13:10	Extract Vol mL	0.4
AnalysisDate	2024-11-07 02:30	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	A		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M9PFNA		S061124030				20-150%	22.8%	
M8PFOS		S061124030				20-150%	25.4%	
M2-8:2 FTS		S061124030				20-150%	35.7%	
M8FOSA-I		S061124030				20-150%	14.5%	Q
M6PFDA		S061124030				20-150%	23.8%	
d3-N-MeFOSAA		S061124030				20-150%	27.8%	
d5-N-EtFOSAA		S061124030				20-150%	24.0%	
M7PFUdA		S061124030				20-150%	14.9%	Q
MPFDoA		S061124030				20-150%	9.84%	Q
d7-N-MeFOSE		S061124030				10-200%	4.05%	Q
d9-N-EtFOSE		S061124030				10-200%	2.65%	Q

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-S01		
Sampling Site			
Enthalpy ID	1024-856-001-1B	Prep Batch	EU18504
Matrix	aqueous	Analyst	jogres
Sampling Date	2024-10-25 10:00	Instrument	Sauron
Received Date	2024-10-25	Sample Vol mL	100
Prep Date	2024-11-08 11:01	Extract Vol mL	0.4
AnalysisDate	2024-11-09 07:56	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	A		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFTeDA	376-06-7	S081124047	ND	0.610	1.60			U
Sulfonamidos	N-EtFOSA	4151-50-2	S081124047	ND	0.990	1.60			U
	N-MeFOSA	31506-32-8	S081124047	ND	0.660	1.60			U
ES	M2PFTeDA		S081124047				20-150%	31.7%	
	d3-N-MeFOSA		S081124047				10-200%	14.4%	
	d5-N-EtFOSA		S081124047				10-200%	9.88%	Q

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-E01	Prep Batch	EU18468
Sampling Site		Analyst	jogres
Enthalpy ID	1024-856-002-1A	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	284.46
Sampling Date	2024-10-25 10:00	Extract Vol mL	0.4
Received Date	2024-10-25	Split Factor	N/A
Prep Date	2024-11-05 13:10	Method Code	EU-047-NPW
AnalysisDate	2024-11-07 02:53		
SampleType	Sample		
Bottle ID	A		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	S061124031	ND	0.223	0.562			U	
	PFPeA	2706-90-3	S061124031	5.63	0.161	0.562				
	PFFhxA	307-24-4	S061124031	4.46	0.188	0.562				
	PFFHpA	375-85-9	S061124031	1.74	0.197	0.562				
	PFOA	335-67-1	S061124031	4.63	0.129	0.562				
	PFNA	375-95-1	S061124031	0.586	0.127	0.562				
	PFDA	335-76-2	S061124031	0.188	0.161	0.562			J	
	PFUnDA	2058-94-8	S061124031	ND	0.127	0.562			U	
	PFFDoDA	307-55-1	S061124031	ND	0.229	0.562			U	
	PFFTrDA	72629-94-8	S061124031	ND	0.186	0.562			U	
	PFFTeDA	376-06-7	S061124031	ND	0.214	0.562			U	
	PFFhxDA	67905-19-5	S061124031	ND	0.299	0.562			U	
	Sulfonates	PFBS	375-73-5	S061124031	3.67	0.299	0.562			
		PFFPeS	2706-91-4	S061124031	0.331	0.115	0.530			J
PFFHxS		355-46-4	S061124031	3.33	0.434	0.515				
PFFHpS		375-92-8	S061124031	0.0449	0.272	0.536			L	
PFOs		1763-23-1	S061124031	9.43	0.297	0.521				
PFNS		68259-12-1	S061124031	ND	0.175	0.542			U	
PFDs		335-77-3	S061124031	ND	0.295	0.542			U	
4:2 FTS		757124-72-4	S061124031	ND	0.0729	0.527			U	
6:2 FTS		27619-97-2	S061124031	ND	0.265	0.536			U	
8:2 FTS		39108-34-4	S061124031	ND	0.126	0.539			U	
10:2 FTS	120226-60-0	S061124031	ND	0.431	0.562			U		
Sulfonamidos	FBSA	30334-69-1	S061124031	0.239	0.267	0.562			L	
	N-EiFOSA	4151-50-2	S061124031	ND	0.348	0.562			U	
	N-EiFOSAA	2991-50-6	S061124031	ND	0.229	0.562			U	
	N-EiFOSE	1691-99-2	S061124031	ND	0.861	2.53			U	
	N-MeFOSA	31506-32-8	S061124031	ND	0.232	0.562			U	
	N-MeFOSAA	2355-31-9	S061124031	ND	0.158	0.562			U	
	N-MeFOSE	24448-09-7	S061124031	ND	0.534	2.53			U	
	PFOsA	754-91-6	S061124031	ND	0.0789	0.562			U	
	PFECAs	ADONA	919005-14-4	S061124031	ND	0.152	0.533			U
		EVE Acid	69087-46-3	S061124031	ND	0.179	1.27			U
HFPO-DA		13252-13-6	S061124031	4.84	0.0596	0.562				
Hydro-EVE Acid		773804-62-9	S061124031	0.00207	0.185	0.562			L	
NFDHA		151772-58-6	S061124031	ND	0.118	0.562			U	
PEPA		267239-61-2	S061124031	3.43	0.105	0.562				
PFECA-G		801212-59-9	S061124031	ND	0.0751	0.562			U	
PfMOAA		674-13-5	S061124031	24.1	0.285	0.562				
PfMOBA		863090-89-5	S061124031	ND	0.944	1.27			U	
PfMOPrA		377-73-1	S061124031	ND	0.200	0.562			U	
PFO2HxA		39492-88-1	S061124031	ND	0.181	0.562			U	
PFO3OA		39492-89-2	S061124031	ND	0.258	0.562			U	
PFO4DA		39492-90-5	S061124031	ND	0.445	2.81			U	
PFO5DA		39492-91-6	S061124031	ND	0.450	2.81			U	
PMPA		13140-29-9	S061124031	8.29	0.133	0.562				
R-EVE		2416366-22-6	S061124031	8.91	0.933	1.27				
PFESAs	11Cl-PF3OUdS	763051-92-9	S061124031	ND	0.265	0.530			U	
	9Cl-PF3ONS	756426-58-1	S061124031	ND	0.360	0.524			U	
	Hydrolyzed PSDA	2416366-19-1	S061124031	1.93	0.374	0.562				
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S061124031	ND	0.301	0.562			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	S061124031	0.500	0.466	0.562			J	
	NVHOS	1132933-86-8	S061124031	ND	0.0867	0.562			U	
	PFEESA	113507-82-7	S061124031	ND	0.169	0.562			U	
	R-PSDA	2416366-18-0	S061124031	4.63	2.48	2.48				
ES	R-PSDCA	2416366-21-5	S061124031	ND	0.237	0.562			U	
	MPFBA		S061124031				20-150%	90.5%		
	M5PFPeA		S061124031				20-150%	171%	Q	
	M3PFBS		S061124031				20-150%	156%	Q	
	M2-4:2 FTS		S061124031				20-150%	127%		
	M5PFFhxA		S061124031				20-150%	82.9%		
	M3HFPO-DA		S061124031				20-150%	57.1%		
M4PFFHpA		S061124031				20-150%	85.3%			

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-E01		
Sampling Site			
Enthalpy ID	1024-856-002-1A	Prep Batch	EU18468
Matrix	aqueous	Analyst	jogres
Sampling Date	2024-10-25 10:00	Instrument	Sauron
Received Date	2024-10-25	Sample Vol mL	284.46
Prep Date	2024-11-05 13:10	Extract Vol mL	0.4
AnalysisDate	2024-11-07 02:53	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	A		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M3PFHxS		S061124031				20-150%	104%	
M2-6:2 FTS		S061124031				20-150%	156%	Q
M8PFOA		S061124031				20-150%	91.0%	
M9PFNA		S061124031				20-150%	84.3%	
M8PFOS		S061124031				20-150%	84.8%	
M2-8:2 FTS		S061124031				20-150%	116%	
M8FOSA-I		S061124031				20-150%	49.6%	
M6PFDA		S061124031				20-150%	91.2%	
d3-N-MeFOSAA		S061124031				20-150%	108%	
d5-N-EtFOSAA		S061124031				20-150%	115%	
M7PFUdA		S061124031				20-150%	77.4%	
MPFDoA		S061124031				20-150%	55.4%	
M2PFTeDA		S061124031				20-150%	14.7%	Q
d3-N-MeFOSA		S061124031				10-200%	0.137%	Q
d5-N-EtFOSA		S061124031				10-200%	0.271%	Q
d7-N-MeFOSE		S061124031				10-200%	36.3%	
d9-N-EtFOSE		S061124031				10-200%	30.8%	

Enthalpy Analytical

Job No.: 1024-856-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-S01		
Sampling Site			
Enthalpy ID	1024-856-001-1	Prep Batch	EU18431
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-10-25 10:00	Instrument	Bumblebee
Received Date	2024-10-25	Sample Vol mL	0.1
Prep Date	2024-11-04 11:09	Extract Vol mL	0.2
AnalysisDate	2024-11-04 17:49	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	A		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFPrA	422-64-0	B041124-11041749	ND	700	1530			U
ES	13C3-PFPrA		B041124-11041749				20-150%	164%	Q

Enthalpy Analytical

Job No.: 1024-856-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	102524-E01		
Sampling Site			
Enthalpy ID	1024-856-002-1	Prep Batch	EU18431
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-10-25 10:00	Instrument	Bumblebee
Received Date	2024-10-25	Sample Vol mL	0.1
Prep Date	2024-11-04 11:09	Extract Vol mL	0.2
AnalysisDate	2024-11-04 18:01	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	A		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFPrA	422-64-0	B041124-11041801	ND	700	1530			U
ES	13C3-PFPrA		B041124-11041801				20-150%	162%	Q

QC Data



Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	MB_18468_PFAS	Prep Batch	EU18468
Sampling Site		Analyst	jogres
Enthalpy ID	MB_18468_PFAS	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	250
Sampling Date		Extract Vol mL	0.4
Received Date		Split Factor	N/A
Prep Date	2024-11-05 13:10	Method Code	EU-047-NPW
AnalysisDate	2024-11-06 20:06		
SampleType	Blank		
Bottle ID	-		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	S061124013	ND	0.254	0.640			U	
	PFPeA	2706-90-3	S061124013	ND	0.183	0.640			U	
	PFFhxA	307-24-4	S061124013	ND	0.214	0.640			U	
	PFFHpA	375-85-9	S061124013	ND	0.224	0.640			U	
	PFOA	335-67-1	S061124013	ND	0.146	0.640			U	
	PFNA	375-95-1	S061124013	ND	0.145	0.640			U	
	PFDA	335-76-2	S061124013	ND	0.183	0.640			U	
	PFUnDA	2058-94-8	S061124013	ND	0.145	0.640			U	
	PFDODA	307-55-1	S061124013	ND	0.260	0.640			U	
	PFTrDA	72629-94-8	S061124013	ND	0.212	0.640			U	
	PFTeDA	376-06-7	S061124013	ND	0.244	0.640			U	
	PFFhxDA	67905-19-5	S061124013	ND	0.340	0.640			U	
	Sulfonates	PFBS	375-73-5	S061124013	ND	0.340	0.640			U
		PFPeS	2706-91-4	S061124013	ND	0.131	0.603			U
		PFFhXS	355-46-4	S061124013	ND	0.494	0.586			U
PFFHpS		375-92-8	S061124013	ND	0.310	0.610			U	
PFOS		1763-23-1	S061124013	ND	0.338	0.593			U	
PFNS		68259-12-1	S061124013	ND	0.199	0.616			U	
PFDS		335-77-3	S061124013	ND	0.336	0.616			U	
4:2 FTS		757124-72-4	S061124013	ND	0.0830	0.600			U	
6:2 FTS		27619-97-2	S061124013	ND	0.302	0.610			U	
8:2 FTS		39108-34-4	S061124013	ND	0.143	0.613			U	
10:2 FTS	120226-60-0	S061124013	ND	0.490	0.640			U		
Sulfonamidos	FBSA	30334-69-1	S061124013	ND	0.304	0.640			U	
	N-EiFOSA	4151-50-2	S061124013	ND	0.396	0.640			U	
	N-EiFOSAA	2991-50-6	S061124013	ND	0.260	0.640			U	
	N-EiFOSE	1691-99-2	S061124013	ND	0.980	2.88			U	
	N-MeFOSA	31506-32-8	S061124013	ND	0.264	0.640			U	
	N-MeFOSAA	2355-31-9	S061124013	ND	0.180	0.640			U	
	N-MeFOSE	24448-09-7	S061124013	ND	0.608	2.88			U	
	PFOSA	754-91-6	S061124013	ND	0.0898	0.640			U	
	PFECAs	ADONA	919005-14-4	S061124013	ND	0.173	0.606			U
		EVE Acid	69087-46-3	S061124013	ND	0.204	1.44			U
HFPO-DA		13252-13-6	S061124013	ND	0.0678	0.640			U	
Hydro-EVE Acid		773804-62-9	S061124013	ND	0.210	0.640			U	
NFDHA		151772-58-6	S061124013	ND	0.135	0.640			U	
PEPA		267239-61-2	S061124013	ND	0.120	0.640			U	
PFECA-G		801212-59-9	S061124013	ND	0.0854	0.640			U	
PFMOAA		674-13-5	S061124013	ND	0.324	0.640			U	
PFMOBA		863090-89-5	S061124013	ND	1.07	1.44			U	
PFMOPrA		377-73-1	S061124013	ND	0.228	0.640			U	
PFO2HxA		39492-88-1	S061124013	ND	0.206	0.640			U	
PFO3OA		39492-89-2	S061124013	ND	0.294	0.640			U	
PFO4DA		39492-90-5	S061124013	ND	0.506	3.20			U	
PFO5DA		39492-91-6	S061124013	ND	0.512	3.20			U	
PMPA		13140-29-9	S061124013	ND	0.151	0.640			U	
R-EVE	2416366-22-6	S061124013	ND	1.06	1.44			U		
PFESAs	11CI-PF3OUdS	763051-92-9	S061124013	ND	0.302	0.603			U	
	9CI-PF3ONS	756426-58-1	S061124013	ND	0.410	0.596			U	
	Hydrolyzed PSDA	2416366-19-1	S061124013	ND	0.426	0.640			U	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S061124013	ND	0.342	0.640			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	S061124013	ND	0.530	0.640			U	
	NVHOS	1132933-86-8	S061124013	ND	0.0986	0.640			U	
	PFEESA	113507-82-7	S061124013	ND	0.192	0.640			U	
	R-PSDA	2416366-18-0	S061124013	ND	2.82	2.82			U	
	R-PSDCA	2416366-21-5	S061124013	ND	0.270	0.640			U	
	ES	MPFBA		S061124013				20-150%	93.1%	
M5PFPeA			S061124013				20-150%	92.2%		
M3PFBS			S061124013				20-150%	63.5%		
M2-4:2 FTS			S061124013				20-150%	123%		
M5PFFhxA			S061124013				20-150%	80.3%		
M3HFPO-DA			S061124013				20-150%	61.0%		
M4PFFHpA			S061124013				20-150%	81.9%		

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	MB_18468_PFA5	Prep Batch	EU18468
Sampling Site		Analyst	jogres
Enthalpy ID	MB_18468_PFA5	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	250
Sampling Date		Extract Vol mL	0.4
Received Date		Split Factor	N/A
Prep Date	2024-11-05 13:10	Method Code	EU-047-NPW
AnalysisDate	2024-11-06 20:06		
SampleType	Blank		
Bottle ID	-		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M3PFHxS		S061124013				20-150%	110%	
M2-6:2 FTS		S061124013				20-150%	150%	Q
M8PFOA		S061124013				20-150%	90.2%	
M9PFNA		S061124013				20-150%	77.7%	
M8PFOS		S061124013				20-150%	88.7%	
M2-8:2 FTS		S061124013				20-150%	116%	
M8FOSA-I		S061124013				20-150%	29.9%	
M6PFDA		S061124013				20-150%	90.8%	
d3-N-MeFOSAA		S061124013				20-150%	94.3%	
d5-N-EtFOSAA		S061124013				20-150%	93.6%	
M7PFUdA		S061124013				20-150%	70.5%	
MPFDoA		S061124013				20-150%	54.1%	
M2PFTeDA		S061124013				20-150%	15.5%	Q
d3-N-MeFOSA		S061124013				10-200%	0.0458%	Q
d5-N-EtFOSA		S061124013				10-200%	0.140%	Q
d7-N-MeFOSE		S061124013				10-200%	25.6%	
d9-N-EtFOSE		S061124013				10-200%	22.6%	

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	MB_18504_PFAS		
Sampling Site			
Enthalpy ID	MB_18504_PFAS	Prep Batch	EU18504
Matrix	aqueous	Analyst	jogres
Sampling Date		Instrument	Sauron
Received Date		Sample Vol mL	250
Prep Date	2024-11-08 11:01	Extract Vol mL	0.4
AnalysisDate	2024-11-09 06:25	Split Factor	N/A
SampleType	Blank	Method Code	EU-047-NPW
Bottle ID	-		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFTeDA	376-06-7	S081124043	ND	0.244	0.640			U
Sulfonamidos	N-EtFOSA	4151-50-2	S081124043	ND	0.396	0.640			U
	N-MeFOSA	31506-32-8	S081124043	ND	0.264	0.640			U
ES	M2PFTeDA		S081124043				20-150%	14.3%	Q
	d3-N-MeFOSA		S081124043				10-200%	1.76%	Q
	d5-N-EtFOSA		S081124043				10-200%	2.33%	Q

Enthalpy Analytical

Job No.: 1024-856-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	MB_18431_PFAS		
Sampling Site			
Enthalpy ID	MB_18431_PFAS	Prep Batch	EU18431
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.1
Prep Date	2024-11-04 11:09	Extract Vol mL	0.2
AnalysisDate	2024-11-04 17:26	Split Factor	N/A
SampleType	Blank	Method Code	EU-047-NPW
Bottle ID	-		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFPrA	422-64-0	B041124-11041726	ND	700	1530			U
ES	13C3-PFPrA		B041124-11041726				20-150%	193%	Q

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Enthalpy ID	OPR_18468_PFAS	Prep Batch	EU18468	Sample Vol (mL)	250
Sample Name	OPR_18468_PFAS	Prep Date	2024-11-05 13:10	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2024-11-06 20:28	Split Factor	N/A
Sampling Date		Analyst	jogres	Method Code	EU-047-NPW
Received Date		Instrument	Sauron	Sample Type	Control
		Bottle ID	-		

	Compound	CAS	InjFileName	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	S061124014	19.1	0.254	0.640	69.1-122%	95.5%		
	PFPeA	2706-90-3	S061124014	21.7	0.183	0.640	68.5-121%	108%		
	PFHxA	307-24-4	S061124014	19.4	0.214	0.640	68.3-121%	96.9%		
	PFFHpA	375-85-9	S061124014	17.9	0.224	0.640	62.4-128%	89.3%		
	PFOA	335-67-1	S061124014	19.1	0.146	0.640	66.3-124%	95.7%		
	PFNA	375-95-1	S061124014	18.1	0.145	0.640	70.5-120%	90.4%		
	PFDA	335-76-2	S061124014	17.2	0.183	0.640	68.9-117%	85.9%		
	PFOUnDA	2058-94-8	S061124014	18.5	0.145	0.640	58.1-132%	92.7%		
	PFDoDA	307-55-1	S061124014	16.5	0.260	0.640	52.1-140%	82.7%		
	PFTeDA	72629-94-8	S061124014	23.7	0.212	0.640	65-144%	119%		
	PFTeDA	376-06-7	S061124014	19.7	0.244	0.640	36.1-161%	98.6%		
	Sulfonates	PFBs	375-73-5	S061124014	16.3	0.340	0.640	67.5-111.6%	91.9%	
		PFPeS	2706-91-4	S061124014	14.5	0.131	0.603	51.8-142%	77.3%	
		PFFHxS	355-46-4	S061124014	15.9	0.494	0.586	59.6-128%	87.0%	
PFFHpS		375-92-8	S061124014	18.8	0.310	0.610	46.9-157%	98.6%		
PFOS		1763-23-1	S061124014	16.2	0.338	0.593	59.2-132%	87.0%		
PFNS		68259-12-1	S061124014	17.0	0.199	0.616	53.9-133%	88.4%		
PFDS		335-77-3	S061124014	15.8	0.336	0.616	38.1-142%	82.1%		
4:2 FTS		757124-72-4	S061124014	17.3	0.0830	0.600	61.9-131%	92.4%		
6:2 FTS		27619-97-2	S061124014	18.9	0.302	0.610	62.3-129%	99.2%		
8:2 FTS		39108-34-4	S061124014	17.9	0.143	0.613	37.5-159%	93.2%		
Sulfonamidos	N-EtFOSAA	2991-50-6	S061124014	18.1	0.260	0.640	61.5-133%	90.6%		
	N-MeFOSAA	2355-31-9	S061124014	18.2	0.180	0.640	57.3-138%	91.0%		
	PFOSA	754-91-6	S061124014	21.2	0.0898	0.640	49.1-143%	106%		
PFECAs	HFPO-DA	13252-13-6	S061124014	19.1	0.0678	0.640	57.2-130%	95.7%		
ES	MPFBA		S061124014				20-150%	84.0%		
	M5PFPeA		S061124014				20-150%	80.5%		
	M3PFBs		S061124014				20-150%	64.9%		
	M2-4:2 FTS		S061124014				20-150%	112%		
	M5PFFHxA		S061124014				20-150%	71.0%		
	M3HFPO-DA		S061124014				20-150%	55.4%		
	M4PFFHpA		S061124014				20-150%	78.8%		
	M3PFFHxS		S061124014				20-150%	111%		
	M2-6:2 FTS		S061124014				20-150%	149%		
	M8PFOA		S061124014				20-150%	86.5%		
	M9PFNA		S061124014				20-150%	78.3%		
	M8PFOS		S061124014				20-150%	89.5%		
	M2-8:2 FTS		S061124014				20-150%	119%		
	M8FOSA-I		S061124014				20-150%	65.8%		
	M6PFDA		S061124014				20-150%	94.1%		
	d3-N-MeFOSAA		S061124014				20-150%	106%		
	d5-N-EtFOSAA		S061124014				20-150%	98.0%		
	M7PFUdA		S061124014				20-150%	84.6%		
	MPFDoA		S061124014				20-150%	71.5%		
	M2PFTeDA		S061124014				20-150%	45.0%		

Enthalpy Analytical

Job No.: 1024-856-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Enthalpy ID	OPR_18504_PFAS	Prep Batch	EU18504	Sample Vol (mL)	250
Sample Name	OPR_18504_PFAS	Prep Date	2024-11-08 11:01	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2024-11-09 06:48	Split Factor	N/A
Sampling Date		Analyst	jogres	Method Code	EU-047-NPW
Received Date		Instrument	Sauron	Sample Type	Control
		Bottle ID	-		

	Compound	CAS	InjFileName	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFTeDA	376-06-7	S081124044	18.6	0.244	0.640	36.1-161%	92.9%	
ES	M2PFTeDA		S081124044				20-150%	45.3%	

Enthalpy Analytical

Job No.: 1024-856-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT LELAND N.C.

Details

Sample Name	OPR_18431_PFAS		
Sampling Site			
Enthalpy ID	OPR_18431_PFAS	Prep Batch	EU18431
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.08
Prep Date	2024-11-04 11:09	Extract Vol mL	0.2
AnalysisDate	2024-11-04 17:38	Split Factor	N/A
SampleType	Control	Method Code	EU-047-NPW
Bottle ID	-		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFPrA	422-64-0	B041124-11041738	18300	875	1910	40-150%	73.1%	
ES	13C3-PFPrA		B041124-11041738				20-150%	156%	Q

Sample Custody





1024-856

Chain of Custody Record

Enthalpy Ultratrace Job#: _____ COC Page 1 of 1

Special Handling:

- Standard Turn Around Time
 - Rush Turn Around Time -- Date Needed _____
 - All Fast TATs Subject to Approval by Enthalpy Analytical, Inc.
 - All Samples Disposed of After 6 months Unless Otherwise Instructed.
- Enthalpy Analytical-Wilmington, NC has added enhancements to standard methods to improve accuracy, precision and permit an assessment of laboratory performance in the context of your specific data needs. For more information email Cindy.James@enthalpy.com.

Client Name: BRUNSWICK COUNTY UTILITIES
 Project Manager: GLENN WALKER
 Report To: SAME

Project Number: _____
 Site Name: NORTHWEST WATER PLANT
 Location: LELAND N.C.

PO#: _____
 Telephone#: _____
 Email: _____

This Chain of Custody is applicable to Non-Air samples. Standard TAT differ per analysis and are provided by request.

Client Special Instructions:
 Matrix: GW-Groundwater, WW-Wastewater, NW-Non-Potable Water, DW-Drinking Water, S-Soil, SL-Sludge, BT-Biological Tissue, O-Other
 Type: G=Grab C=Composite Q=Quality Control

						Sample Containers				Analyses:							Notes:		
Sample ID	Date	Time	Sample Volume	Type	Matrix	# of Bottles	# of Jars	# of Bags	# Other	Method 1613	Method 8290	Method 1668A/B/C PCB	PFAS by LC/MS/MS	PAHs by HRGC/HRMS	Sample on Hold	Method 23		ALL PFAS	
102524-S01	10/25/2024	10:00 AM	250 ml	G	NW	2												X	Please Add PFPrA and
102524-E01	10/25/2024	10:00 AM	250 ml	G	DW	2												X	PFHpA To The Testing
																			Mark Hager Knows About
																			This If you Have Questions

Relinquished By:	Date:	Received By:	Date:	Time:	Sample Temperature Upon Receipt:
PHIL MCCULLOCH	10/25/2024	Meredith Curtis	10/25/2024	14:05	<input checked="" type="checkbox"/> Iced <input type="checkbox"/> Ambient °C <u>5.6</u>
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____

JOB ID: 1024 - 856 Date / Time: 10/25/24 14:05 Initials: M.A.C.
 OR
 Client: Brunswick County Utilities

Cooler 1 of 1

Temp °C: 5.6 Thermometer ID: T16

Received via FedEx <input type="checkbox"/> UPS <input type="checkbox"/> DHL <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input checked="" type="checkbox"/> Other <input type="checkbox"/>	<i>Check one</i>		<i>Check one</i>			
	On ice:	<input checked="" type="checkbox"/>	in a Box:	<input type="checkbox"/>	Cooler seals:	<input type="checkbox"/> <input checked="" type="checkbox"/>
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input checked="" type="checkbox"/>	Sample seals:	<input type="checkbox"/> <input checked="" type="checkbox"/>
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input checked="" type="checkbox"/> <input type="checkbox"/>
	Comment:					

Cooler of

Temp °C: Thermometer ID:

Received via FedEx <input type="checkbox"/> UPS <input type="checkbox"/> DHL <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Other <input type="checkbox"/>	<i>Check one</i>		<i>Check one</i>			
	On ice:	<input type="checkbox"/>	in a Box:	<input type="checkbox"/>	Cooler seals:	<input type="checkbox"/> <input type="checkbox"/>
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input type="checkbox"/>	Sample seals:	<input type="checkbox"/> <input type="checkbox"/>
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input type="checkbox"/> <input type="checkbox"/>
	Comment:					

Cooler of

Temp °C: Thermometer ID:

Received via FedEx <input type="checkbox"/> UPS <input type="checkbox"/> DHL <input type="checkbox"/> USPS <input type="checkbox"/> Courier <input type="checkbox"/> Other <input type="checkbox"/>	<i>Check one</i>		<i>Check one</i>			
	On ice:	<input type="checkbox"/>	in a Box:	<input type="checkbox"/>	Cooler seals:	<input type="checkbox"/> <input type="checkbox"/>
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input type="checkbox"/>	Sample seals:	<input type="checkbox"/> <input type="checkbox"/>
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input type="checkbox"/> <input type="checkbox"/>
	Comment:					

**This Is The Last Page
Of This Report.**