

# Brunswick County Public Utilities - NC

PO Box 249  
Bolivia, NC 28422-0249

## Leland, NC

Client Project# NORTHWEST WATER PLANT  
Samples Received: 9/27/2024

### Analytical Report 0924-896

#### PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 10/31/2024

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 30 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):

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# Narrative Summary

# Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	0924-896-1
Client ID.	NORTHWEST WATER PLANT Site: Leland, NC

## 1. Custody

Cherith McCullagh received the samples at 6.4 °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
0924-896-001-1A	092724-SO1	aqueous	2024-09-27
0924-896-001-1B	092724-SO1	aqueous	2024-09-27
0924-896-002-1A	092724-EO1	aqueous	2024-09-27

## 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	Brunswick List	ENVI-Carb

## 3. Analysis

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

The samples were analyzed using more than one extraction batch and analytical sequence to meet method acceptance criteria.

## 4. Calibration

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

# Enthalpy Analytical Narrative Summary

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## 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.

PFTTrDA exceeded method recovery criteria in OPR\_18296\_PFAS but was not detected >LOQ in the samples. Data is reported without adverse impact.

Select extraction standards (ES) fell outside method recovery criteria in the QC samples. 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-oxadecane-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
<b>* accredited for SOP EU047 / EPA method 1633 # Method 537.1 Accredited ^ Method 533 Accredited ~EPA 1633 extended list</b>		
~ 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.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Summary

	Compound	CAS	092724-SO1 ng/L	092724-EO1 ng/L	
Acids	PFBA	375-22-4	4.37	3.78	
	PFPeA	2706-90-3	5.96	5.13	
	PFHxA	307-24-4	5.67	5.20	
	PFHpA	375-85-9	2.65	2.73	
	PFOA	335-67-1	5.62	5.26	
	PFNA	375-95-1	0.781	0.739	
	PFDA	335-76-2	0.383 J	0.344 J	
	PFUnDA	2058-94-8	0.0492 L	0.0109 L	
	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	3.71	3.06
		PFPeS	2706-91-4	0.552	0.460 J
PFHxS		355-46-4	3.09	3.28	
PFHpS		375-92-8	0.289 J	0.172 L	
PFOS		1763-23-1	12.7	11.3	
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	0.00276 L	ND U	
8:2 FTS		39108-34-4	0.00332 L	0.00273 L	
10:2 FTS		120226-60-0	ND U	ND U	
Sulfonamidos		FBSA	30334-69-1	0.237 L	0.124 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	0.163 J	0.0268 L	
PFECAs	ADONA	919005-14-4	ND U	ND U	
	EVE Acid	69087-46-3	ND U	ND U	
	HFPO-DA	13252-13-6	1.62	1.47	
	Hydro-EVE Acid	773804-62-9	ND U	ND U	
	NFDHA	151772-58-6	ND U	ND U	
	PEPA	267239-61-2	2.14	1.58	
	PFECA-G	801212-59-9	ND U	ND U	
	PFMOAA	674-13-5	12.8	11.4	
	PFMOBA	863090-89-5	ND U	ND U	
	PFMOPrA	377-73-1	ND U	ND U	
	PFO2HxA	39492-88-1	1.75	1.99	
	PFO3OA	39492-89-2	0.574	0.821	
	PFO4DA	39492-90-5	0.0896 L	0.155 L	
	PFO5DA	39492-91-6	ND U	0.0462 L	
	PMPA	13140-29-9	5.84	5.46	
	R-EVE	2416366-22-6	2.58	3.99	
PFESAs	11Cl-PF3OUds	763051-92-9	ND U	ND U	
	9Cl-PF3ONS	756426-58-1	ND U	ND U	
	Hydrolyzed PSDA	2416366-19-1	0.447 J	0.765	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	ND U	ND U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	0.494 J	0.331 L	
	NVHOS	1132933-86-8	ND U	ND U	
	PFEESA	113507-82-7	ND U	ND U	
	R-PSDA	2416366-18-0	3.54	3.95	
R-PSDCA	2416366-21-5	ND U	ND U		

## Enthalpy Analytical

Job No.: 0924-896-2 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

### Summary

	Compound	CAS	092724-SO1 ng/L	092724-EO1 ng/L
Acids	PFPrA	422-64-0	ND U	ND U

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-SO1	Prep Batch	EU18296
Sampling Site		Analyst	jacksullivan
Enthalpy ID	0924-896-001-1A	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	295.8
Sampling Date	2024-09-27 11:40	Extract Vol mL	0.4
Received Date	2024-09-27	Split Factor	N/A
Prep Date	2024-10-07 13:55	Method Code	EU-047-NPW
AnalysisDate	2024-10-10 03:10		
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	P091024031	4.37	0.215	0.541				
	PFPeA	2706-90-3	P091024031	5.96	0.155	0.541				
	PFFhxA	307-24-4	P091024031	5.67	0.181	0.541				
	PFFHpA	375-85-9	P091024031	2.65	0.189	0.541				
	PFOA	335-67-1	P091024031	5.62	0.124	0.541				
	PFNA	375-95-1	P091024031	0.781	0.122	0.541				
	PFDA	335-76-2	P091024031	0.383	0.155	0.541			J	
	PFUnDA	2058-94-8	P091024031	0.0492	0.122	0.541			L	
	PFDoDA	307-55-1	P091024031	ND	0.220	0.541			U	
	Sulfonates	PFBS	375-73-5	P091024031	3.71	0.287	0.541			
		PFPeS	2706-91-4	P091024031	0.552	0.111	0.510			
PFFhXS		355-46-4	P091024031	3.09	0.418	0.495				
PFFHpS		375-92-8	P091024031	0.289	0.262	0.515			J	
PFOS		1763-23-1	P091024031	12.7	0.286	0.501				
PFNS		68259-12-1	P091024031	ND	0.168	0.521			U	
PFDS		335-77-3	P091024031	ND	0.284	0.521			U	
4:2 FTS		757124-72-4	P091024031	ND	0.0701	0.507			U	
6:2 FTS		27619-97-2	P091024031	0.00276	0.255	0.515			L	
8:2 FTS		39108-34-4	P091024031	0.00332	0.121	0.518			L	
10:2 FTS		120226-60-0	P091024031	ND	0.414	0.541			U	
Sulfonamidos	FBSA	30334-69-1	P091024031	0.237	0.257	0.541			L	
	N-EiFOSAA	2991-50-6	P091024031	ND	0.220	0.541			U	
	N-EiFOSE	1691-99-2	P091024031	ND	0.828	2.43			U	
	N-MeFOSAA	2355-31-9	P091024031	ND	0.152	0.541			U	
	N-MeFOSE	24448-09-7	P091024031	ND	0.514	2.43			U	
	PFOA	754-91-6	P091024031	0.163	0.0759	0.541			J	
	PFECAs	ADONA	919005-14-4	P091024031	ND	0.147	0.512			U
EVE Acid		69087-46-3	P091024031	ND	0.172	1.22			U	
HFPO-DA		13252-13-6	P091024031	1.62	0.0573	0.541				
Hydro-EVE Acid		773804-62-9	P091024031	ND	0.177	0.541			U	
NFDHA		151772-58-6	P091024031	ND	0.114	0.541			U	
PEPA		267239-61-2	P091024031	2.14	0.101	0.541				
PFECA-G		801212-59-9	P091024031	ND	0.0722	0.541			U	
PFMQAA		674-13-5	P091024031	12.8	0.274	0.541				
PFMObA		863090-89-5	P091024031	ND	0.908	1.22			U	
PFMOPrA		377-73-1	P091024031	ND	0.193	0.541			U	
PFO2HxA		39492-88-1	P091024031	1.75	0.174	0.541				
PFO3OA		39492-89-2	P091024031	0.574	0.248	0.541				
PFO4DA		39492-90-5	P091024031	0.0896	0.428	2.70			L	
PFO5DA		39492-91-6	P091024031	ND	0.433	2.70			U	
PMPA		13140-29-9	P091024031	5.84	0.127	0.541				
R-EVE	2416366-22-6	P091024031	2.58	0.898	1.22					
PFESAs	11Cl-PF3OUds	763051-92-9	P091024031	ND	0.255	0.510			U	
	9Cl-PF3ONS	756426-58-1	P091024031	ND	0.347	0.504			U	
	Hydrolyzed PSDA	2416366-19-1	P091024031	0.447	0.360	0.541			J	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P091024031	ND	0.289	0.541			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P091024031	0.494	0.448	0.541			J	
	NVHOS	1132933-86-8	P091024031	ND	0.0833	0.541			U	
	PFEESA	113507-82-7	P091024031	ND	0.163	0.541			U	
	R-PSDA	2416366-18-0	P091024031	3.54	2.38	2.38				
	R-PSDCA	2416366-21-5	P091024031	ND	0.228	0.541			U	
	ES	MPFBA		P091024031				20-150%	78.4%	
M5PFPeA			P091024031				20-150%	237%	Q	
M3PFBS			P091024031				20-150%	317%	Q	
M2-4:2 FTS			P091024031				20-150%	172%	Q	
M5PFFhxA			P091024031				20-150%	81.6%		
M3HFPO-DA			P091024031				20-150%	68.0%		
M4PFFHpA			P091024031				20-150%	84.3%		
M3PFFhXS			P091024031				20-150%	84.0%		
M2-6:2 FTS			P091024031				20-150%	72.9%		
M8PFOA			P091024031				20-150%	72.1%		
M9PFNA			P091024031				20-150%	53.4%		
M8PFOS			P091024031				20-150%	46.6%		

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-SO1		
Sampling Site			
Enthalpy ID	0924-896-001-1A	Prep Batch	EU18296
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2024-09-27 11:40	Instrument	Pippin
Received Date	2024-09-27	Sample Vol mL	295.8
Prep Date	2024-10-07 13:55	Extract Vol mL	0.4
AnalysisDate	2024-10-10 03:10	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
M2-8:2 FTS		P091024031				20-150%	32.3%	
M8FOSA-I		P091024031				20-150%	11.9%	Q
M6PFDA		P091024031				20-150%	39.3%	
d3-N-MeFOSAA		P091024031				20-150%	25.6%	
d5-N-EtFOSAA		P091024031				20-150%	22.8%	
M7PFUdA		P091024031				20-150%	21.5%	
MPFDaA		P091024031				20-150%	11.8%	Q
d7-N-MeFOSE		P091024031				10-200%	3.39%	Q
d9-N-EtFOSE		P091024031				10-200%	2.25%	Q

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-SO1		
Sampling Site			
Enthalpy ID	0924-896-001-1B	Prep Batch	eu18349
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2024-09-27 11:40	Instrument	Pippin
Received Date	2024-09-27	Sample Vol mL	60
Prep Date	2024-10-16 06:30	Extract Vol mL	0.4
AnalysisDate	2024-10-24 05:30	Split Factor	N/A
SampleType	Sample	Method Code	EU-047-NPW
Bottle ID	B		

	Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFTrDA	72629-94-8	P211024032	ND	0.883	2.67			U
	PFTeDA	376-06-7	P211024032	ND	1.02	2.67			U
	PFHxDA	67905-19-5	P211024032	ND	1.42	2.67			U
Sulfonamidos	N-EtFOSA	4151-50-2	P231024041	ND	1.65	2.67			U
	N-MeFOSA	31506-32-8	P231024041	ND	1.10	2.67			U
ES	M2PFTeDA		P211024032				20-150%	30.5%	
	d3-N-MeFOSA		P231024041				10-200%	1.85%	Q
	d5-N-EtFOSA		P231024041				10-200%	1.48%	Q

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-EO1		
Sampling Site			
Enthalpy ID	0924-896-002-1A	Prep Batch	EU18296
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2024-09-27 11:40	Instrument	Pippin
Received Date	2024-09-27	Sample Vol mL	295.58
Prep Date	2024-10-07 13:55	Extract Vol mL	0.4
AnalysisDate	2024-10-10 03:33	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	PFBA	375-22-4	P091024032	3.78	0.215	0.541				
	PFPeA	2706-90-3	P091024032	5.13	0.155	0.541				
	PFFhxA	307-24-4	P091024032	5.20	0.181	0.541				
	PFFHpA	375-85-9	P091024032	2.73	0.189	0.541				
	PFOA	335-67-1	P091024032	5.26	0.124	0.541				
	PFNA	375-95-1	P091024032	0.739	0.122	0.541				
	PFDA	335-76-2	P091024032	0.344	0.155	0.541			J	
	PFUnDA	2058-94-8	P091024032	0.0109	0.122	0.541			L	
	PFFDoDA	307-55-1	P091024032	ND	0.220	0.541			U	
	PFFTrDA	72629-94-8	P091024032	ND	0.179	0.541			U	
	PFFTeDA	376-06-7	P091024032	ND	0.206	0.541			U	
	PFFhxDA	67905-19-5	P091024032	ND	0.288	0.541			U	
	Sulfonates	PFBS	375-73-5	P091024032	3.06	0.288	0.541			
		PFFPeS	2706-91-4	P091024032	0.460	0.111	0.510			J
PFFhXS		355-46-4	P091024032	3.28	0.418	0.496				
PFFHpS		375-92-8	P091024032	0.172	0.262	0.516			L	
PFOs		1763-23-1	P091024032	11.3	0.286	0.501				
PFNS		68259-12-1	P091024032	ND	0.168	0.521			U	
PFDs		335-77-3	P091024032	ND	0.284	0.521			U	
4:2 FTS		757124-72-4	P091024032	ND	0.0702	0.507			U	
6:2 FTS		27619-97-2	P091024032	ND	0.255	0.516			U	
8:2 FTS		39108-34-4	P091024032	0.00273	0.121	0.519			L	
10:2 FTS	120226-60-0	P091024032	ND	0.414	0.541			U		
Sulfonamidos	FBSA	30334-69-1	P091024032	0.124	0.257	0.541			L	
	N-EiFOSA	4151-50-2	P091024032	ND	0.335	0.541			U	
	N-EiFOSAA	2991-50-6	P091024032	ND	0.220	0.541			U	
	N-EiFOSE	1691-99-2	P091024032	ND	0.829	2.44			U	
	N-MeFOSA	31506-32-8	P091024032	ND	0.223	0.541			U	
	N-MeFOSAA	2355-31-9	P091024032	ND	0.152	0.541			U	
	N-MeFOSE	24448-09-7	P091024032	ND	0.514	2.44			U	
	PFOsA	754-91-6	P091024032	0.0268	0.0760	0.541			L	
	PFECAs	ADONA	919005-14-4	P091024032	ND	0.147	0.513			U
EVE Acid		69087-46-3	P091024032	ND	0.173	1.22			U	
HFPO-DA		13252-13-6	P091024032	1.47	0.0573	0.541				
Hydro-EVE Acid		773804-62-9	P091024032	ND	0.178	0.541			U	
NFDHA		151772-58-6	P091024032	ND	0.114	0.541			U	
PEPA		267239-61-2	P091024032	1.58	0.101	0.541				
PFECA-G		801212-59-9	P091024032	ND	0.0722	0.541			U	
PfMOAA		674-13-5	P091024032	11.4	0.274	0.541				
PfMOBA		863090-89-5	P091024032	ND	0.908	1.22			U	
PfMOPrA		377-73-1	P091024032	ND	0.193	0.541			U	
PFO2HxA		39492-88-1	P091024032	1.99	0.174	0.541				
PFO3OA		39492-89-2	P091024032	0.821	0.249	0.541				
PFO4DA		39492-90-5	P091024032	0.155	0.428	2.71			L	
PFO5DA		39492-91-6	P091024032	0.0462	0.433	2.71			L	
PMPA		13140-29-9	P091024032	5.46	0.128	0.541				
R-EVE		2416366-22-6	P091024032	3.99	0.898	1.22				
PFESAs		11Cl-PF3OUdS	763051-92-9	P091024032	ND	0.255	0.510			U
	9Cl-PF3ONS	756426-58-1	P091024032	ND	0.347	0.504			U	
	Hydrolyzed PSDA	2416366-19-1	P091024032	0.765	0.360	0.541				
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P091024032	ND	0.289	0.541			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P091024032	0.331	0.448	0.541			L	
	NVHOS	1132933-86-8	P091024032	ND	0.0834	0.541			U	
	PFEESA	113507-82-7	P091024032	ND	0.163	0.541			U	
	R-PSDA	2416366-18-0	P091024032	3.95	2.39	2.39				
ES	R-PSDCA	2416366-21-5	P091024032	ND	0.228	0.541			U	
	MPFBA		P091024032				20-150%	82.6%		
	M5PFPeA		P091024032				20-150%	211%	Q	
	M3PFBS		P091024032				20-150%	287%	Q	
	M2-4:2 FTS		P091024032				20-150%	159%	Q	
	M5PFFhxA		P091024032				20-150%	81.2%		
	M3HFPO-DA		P091024032				20-150%	66.7%		
M4PFFHpA		P091024032				20-150%	80.9%			

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-EO1		
Sampling Site			
Enthalpy ID	0924-896-002-1A	Prep Batch	EU18296
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2024-09-27 11:40	Instrument	Pippin
Received Date	2024-09-27	Sample Vol mL	295.58
Prep Date	2024-10-07 13:55	Extract Vol mL	0.4
AnalysisDate	2024-10-10 03:33	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		P091024032				20-150%	84.7%	
M2-6:2 FTS		P091024032				20-150%	79.8%	
M8PFOA		P091024032				20-150%	83.6%	
M9PFNA		P091024032				20-150%	80.9%	
M8PFOS		P091024032				20-150%	75.4%	
M2-8:2 FTS		P091024032				20-150%	60.0%	
M8FOSA-I		P091024032				20-150%	21.0%	
M6PFDA		P091024032				20-150%	67.5%	
d3-N-MeFOSAA		P091024032				20-150%	53.0%	
d5-N-EtFOSAA		P091024032				20-150%	49.4%	
M7PFUdA		P091024032				20-150%	48.4%	
MPFDoA		P091024032				20-150%	34.2%	
M2PFTeDA		P091024032				20-150%	11.7%	Q
d3-N-MeFOSA		P091024032				10-200%	0.163%	Q
d5-N-EtFOSA		P091024032				10-200%	0.127%	Q
d7-N-MeFOSE		P091024032				10-200%	10.5%	
d9-N-EtFOSE		P091024032				10-200%	7.52%	Q

# Enthalpy Analytical

Job No.: 0924-896-2 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-SO1		
Sampling Site			
Enthalpy ID	0924-896-001-1	Prep Batch	EU18297
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-09-27 11:40	Instrument	Bumblebee
Received Date	2024-09-27	Sample Vol mL	0.1
Prep Date	2024-10-07 08:12	Extract Vol mL	0.2
AnalysisDate	2024-10-14 20:58	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	B141024-10142058	ND	700	1530			U
ES	13C3-PFPrA		B141024-10142058				20-150%	156%	Q

# Enthalpy Analytical

Job No.: 0924-896-2 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	092724-EO1		
Sampling Site			
Enthalpy ID	0924-896-002-1	Prep Batch	EU18297
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-09-27 11:40	Instrument	Bumblebee
Received Date	2024-09-27	Sample Vol mL	0.1
Prep Date	2024-10-07 08:12	Extract Vol mL	0.2
AnalysisDate	2024-10-14 21:09	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	B141024-10142109	ND	700	1530			U
ES	13C3-PFPrA		B141024-10142109				20-150%	151%	Q

# QC Data

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name MB\_18296\_PFAS  
 Sampling Site  
 Enthalpy ID MB\_18296\_PFAS Prep Batch EU18296  
 Matrix aqueous Analyst jacksullivan  
 Sampling Date Instrument Pippin  
 Received Date Sample Vol mL 250  
 Prep Date 2024-10-07 13:55 Extract Vol mL 0.4  
 AnalysisDate 2024-10-10 01:39 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	PFBA	375-22-4	P091024027	ND	0.254	0.640			U	
	PFPeA	2706-90-3	P091024027	ND	0.183	0.640			U	
	PFHxA	307-24-4	P091024027	ND	0.214	0.640			U	
	PFFpA	375-85-9	P091024027	ND	0.224	0.640			U	
	PFOA	335-67-1	P091024027	ND	0.146	0.640			U	
	PFNA	375-95-1	P091024027	ND	0.145	0.640			U	
	PFDA	335-76-2	P091024027	ND	0.183	0.640			U	
	PFUnDA	2058-94-8	P091024027	ND	0.145	0.640			U	
	PFDODA	307-55-1	P091024027	ND	0.260	0.640			U	
	PFTrDA	72629-94-8	P091024027	ND	0.212	0.640			U	
	PFTeDA	376-06-7	P091024027	ND	0.244	0.640			U	
	PFFhxDA	67905-19-5	P091024027	ND	0.340	0.640			U	
	Sulfonates	PFBS	375-73-5	P091024027	ND	0.340	0.640			U
		PFPeS	2706-91-4	P091024027	ND	0.131	0.603			U
PFFhS		355-46-4	P091024027	ND	0.494	0.586			U	
PFFpS		375-92-8	P091024027	ND	0.310	0.610			U	
PFOS		1763-23-1	P091024027	ND	0.338	0.593			U	
PFNS		68259-12-1	P091024027	ND	0.199	0.616			U	
PFDS		335-77-3	P091024027	ND	0.336	0.616			U	
4:2 FTS		757124-72-4	P091024027	ND	0.0830	0.600			U	
6:2 FTS		27619-97-2	P091024027	ND	0.302	0.610			U	
8:2 FTS		39108-34-4	P091024027	ND	0.143	0.613			U	
10:2 FTS	120226-60-0	P091024027	ND	0.490	0.640			U		
Sulfonamidos	FBSA	30334-69-1	P091024027	ND	0.304	0.640			U	
	N-EiFOSA	4151-50-2	P091024027	ND	0.396	0.640			U	
	N-EiFOSAA	2991-50-6	P091024027	ND	0.260	0.640			U	
	N-EiFOSE	1691-99-2	P091024027	ND	0.980	2.88			U	
	N-MeFOSA	31506-32-8	P091024027	ND	0.264	0.640			U	
	N-MeFOSAA	2355-31-9	P091024027	ND	0.180	0.640			U	
	N-MeFOSE	24448-09-7	P091024027	0.359	0.608	2.88			L	
	PFOSA	754-91-6	P091024027	ND	0.0898	0.640			U	
PFECAs	ADONA	919005-14-4	P091024027	ND	0.173	0.606			U	
	EVE Acid	69087-46-3	P091024027	ND	0.204	1.44			U	
	HFPO-DA	13252-13-6	P091024027	ND	0.0678	0.640			U	
	Hydro-EVE Acid	773804-62-9	P091024027	ND	0.210	0.640			U	
	NFDHA	151772-58-6	P091024027	ND	0.135	0.640			U	
	PEPA	267239-61-2	P091024027	ND	0.120	0.640			U	
	PFECA-G	801212-59-9	P091024027	ND	0.0854	0.640			U	
	PFMOAA	674-13-5	P091024027	ND	0.324	0.640			U	
	PFMOBA	863090-89-5	P091024027	ND	1.07	1.44			U	
	PFMOPrA	377-73-1	P091024027	ND	0.228	0.640			U	
	PFO2HxA	39492-88-1	P091024027	ND	0.206	0.640			U	
	PFO3OA	39492-89-2	P091024027	ND	0.294	0.640			U	
	PFO4DA	39492-90-5	P091024027	ND	0.506	3.20			U	
	PFO5DA	39492-91-6	P091024027	ND	0.512	3.20			U	
	PMPA	13140-29-9	P091024027	ND	0.151	0.640			U	
	R-EVE	2416366-22-6	P091024027	ND	1.06	1.44			U	
	PFESAs	11Cl-PF3OUdS	763051-92-9	P091024027	ND	0.302	0.603			U
9Cl-PF3ONS		756426-58-1	P091024027	ND	0.410	0.596			U	
Hydrolyzed PSDA		2416366-19-1	P091024027	ND	0.426	0.640			U	
Nafion Byproduct 1 (PS Acid)		29311-67-9	P091024027	ND	0.342	0.640			U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	P091024027	ND	0.530	0.640			U	
NVHOS		1132933-86-8	P091024027	ND	0.0986	0.640			U	
PFEESA		113507-82-7	P091024027	ND	0.192	0.640			U	
R-PSDA		2416366-18-0	P091024027	ND	2.82	2.82			U	
ES	R-PSDCA	2416366-21-5	P091024027	ND	0.270	0.640			U	
	MPFBA		P091024027				20-150%	84.3%		
	M5PFPeA		P091024027				20-150%	89.6%		
	M3PFBS		P091024027				20-150%	87.4%		
	M2-4:2 FTS		P091024027				20-150%	161%	Q	
	M5PFFhxA		P091024027				20-150%	92.2%		
	M3HFPO-DA		P091024027				20-150%	79.2%		
M4PFFpA		P091024027				20-150%	87.0%			

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	MB_18296_PFAS	Prep Batch	EU18296
Sampling Site		Analyst	jacksullivan
Enthalpy ID	MB_18296_PFAS	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	250
Sampling Date		Extract Vol mL	0.4
Received Date		Split Factor	N/A
Prep Date	2024-10-07 13:55	Method Code	EU-047-NPW
AnalysisDate	2024-10-10 01:39		
SampleType	Blank		
Bottle ID	-		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M3PFHxS		P091024027				20-150%	89.8%	
M2-6:2 FTS		P091024027				20-150%	76.5%	
M8PFOA		P091024027				20-150%	86.7%	
M9PFNA		P091024027				20-150%	81.9%	
M8PFOS		P091024027				20-150%	81.0%	
M2-8:2 FTS		P091024027				20-150%	63.2%	
M8FOSA-I		P091024027				20-150%	34.8%	
M6PFDA		P091024027				20-150%	77.1%	
d3-N-MeFOSAA		P091024027				20-150%	50.3%	
d5-N-EtFOSAA		P091024027				20-150%	45.6%	
M7PFUdA		P091024027				20-150%	57.1%	
MPFDoA		P091024027				20-150%	41.5%	
M2PFTeDA		P091024027				20-150%	10.4%	Q
d3-N-MeFOSA		P091024027				10-200%	0.323%	Q
d5-N-EtFOSA		P091024027				10-200%	0%	UQ
d7-N-MeFOSE		P091024027				10-200%	25.9%	
d9-N-EtFOSE		P091024027				10-200%	20.7%	

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	MB_18349_PFAS		
Sampling Site			
Enthalpy ID	MB_18349_PFAS	Prep Batch	eu18349
Matrix	aqueous	Analyst	jacksullivan
Sampling Date		Instrument	Pippin
Received Date		Sample Vol mL	250
Prep Date	2024-10-16 06:30	Extract Vol mL	0.4
AnalysisDate	2024-10-21 18:14	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	PFTrDA	72629-94-8	P211024019	ND	0.212	0.640			U
	PFTeDA	376-06-7	P211024019	ND	0.244	0.640			U
	PFHxDA	67905-19-5	P211024019	ND	0.340	0.640			U
Sulfonamidos	N-EtFOSA	4151-50-2	P211024019	ND	0.396	0.640			U
	N-MeFOSA	31506-32-8	P211024019	ND	0.264	0.640			U
ES	M2PFTeDA		P211024019				20-150%	39.7%	
	d3-N-MeFOSA		P211024019				10-200%	2.04%	Q
	d5-N-EtFOSA		P211024019				10-200%	2.25%	Q

# Enthalpy Analytical

Job No.: 0924-896-2 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	MB_18297_PFAS		
Sampling Site			
Enthalpy ID	MB_18297_PFAS	Prep Batch	EU18297
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.1
Prep Date	2024-10-07 08:12	Extract Vol mL	0.2
AnalysisDate	2024-10-14 20:34	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	PFPfA	422-64-0	B141024-10142034	ND	700	1530			U
ES	13C3-PFPfA		B141024-10142034				20-150%	154%	Q

# Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Enthalpy ID	OPR_18296_PFAS	Prep Batch	EU18296	Sample Vol (mL)	250
Sample Name	OPR_18296_PFAS	Prep Date	2024-10-07 13:55	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2024-10-10 02:02	Split Factor	N/A
Sampling Date		Analyst	jacksullivan	Method Code	EU-047-NPW
Received Date		Instrument	Pippin	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	P091024028	18.9	0.254	0.640	69.1-122%	94.4%		
	PFPeA	2706-90-3	P091024028	18.6	0.183	0.640	68.5-121%	93.2%		
	PFHxA	307-24-4	P091024028	20.7	0.214	0.640	68.3-121%	103%		
	PFFHpA	375-85-9	P091024028	20.5	0.224	0.640	62.4-128%	102%		
	PFOA	335-67-1	P091024028	19.4	0.146	0.640	66.3-124%	97.2%		
	PFNA	375-95-1	P091024028	19.3	0.145	0.640	70.5-120%	96.6%		
	PFDA	335-76-2	P091024028	19.0	0.183	0.640	68.9-117%	94.9%		
	PFUnDA	2058-94-8	P091024028	19.6	0.145	0.640	58.1-132%	98.1%		
	PFDoDA	307-55-1	P091024028	21.4	0.260	0.640	52.1-140%	107%		
	PFTeDA	72629-94-8	P091024028	38.9	0.212	0.640	65-144%	194%	Q	
	PFTeDA	376-06-7	P091024028	20.4	0.244	0.640	36.1-161%	102%		
	Sulfonates	PFBS	375-73-5	P091024028	17.4	0.340	0.640	67.5-111.6%	97.9%	
		PFPeS	2706-91-4	P091024028	17.7	0.131	0.603	51.8-142%	94.0%	
		PFHxS	355-46-4	P091024028	17.9	0.494	0.586	59.6-128%	98.1%	
PFFHpS		375-92-8	P091024028	20.9	0.310	0.610	46.9-157%	110%		
PFOS		1763-23-1	P091024028	18.0	0.338	0.593	59.2-132%	97.0%		
PFNS		68259-12-1	P091024028	14.2	0.199	0.616	53.9-133%	73.6%		
PFDS		335-77-3	P091024028	9.96	0.336	0.616	38.1-142%	51.6%		
4:2 FTS		757124-72-4	P091024028	18.3	0.0830	0.600	61.9-131%	97.6%		
6:2 FTS		27619-97-2	P091024028	19.0	0.302	0.610	62.3-129%	100%		
8:2 FTS		39108-34-4	P091024028	20.5	0.143	0.613	37.5-159%	107%		
Sulfonamidos	N-EtFOSAA	2991-50-6	P091024028	20.1	0.260	0.640	61.5-133%	101%		
	N-MeFOSAA	2355-31-9	P091024028	21.5	0.180	0.640	57.3-138%	108%		
	PFOSA	754-91-6	P091024028	18.4	0.0898	0.640	49.1-143%	91.8%		
PFECAs	HFPO-DA	13252-13-6	P091024028	18.8	0.0678	0.640	57.2-130%	93.9%		
ES	MPFBA		P091024028				20-150%	85.1%		
	M5PFPeA		P091024028				20-150%	91.3%		
	M3PFBS		P091024028				20-150%	85.2%		
	M2-4:2 FTS		P091024028				20-150%	155%	Q	
	M5PFFHxA		P091024028				20-150%	91.5%		
	M3HFPO-DA		P091024028				20-150%	80.3%		
	M4PFFHpA		P091024028				20-150%	87.8%		
	M3PFFHxS		P091024028				20-150%	91.6%		
	M2-6:2 FTS		P091024028				20-150%	80.1%		
	M8PFOA		P091024028				20-150%	87.5%		
	M9PFNA		P091024028				20-150%	81.0%		
	M8PFOS		P091024028				20-150%	78.2%		
	M2-8:2 FTS		P091024028				20-150%	60.8%		
	M8FOSA-I		P091024028				20-150%	32.3%		
	M6PFDA		P091024028				20-150%	72.4%		
	d3-N-MeFOSAA		P091024028				20-150%	44.2%		
	d5-N-EtFOSAA		P091024028				20-150%	40.1%		
	M7PFUdA		P091024028				20-150%	47.0%		
	MPFDoA		P091024028				20-150%	30.0%		
M2PFTeDA		P091024028				20-150%	8.87%	Q		

## Enthalpy Analytical

Job No.: 0924-896-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Enthalpy ID	OPR_18349_PFAS	Prep Batch	eu18349	Sample Vol (mL)	250
Sample Name	OPR_18349_PFAS	Prep Date	2024-10-16 06:30	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2024-10-21 18:37	Split Factor	N/A
Sampling Date		Analyst	jacksullivan	Method Code	EU-047-NPW
Received Date		Instrument	Pippin	Sample Type	Control
		Bottle ID	-		

	Compound	CAS	InjFileName	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFTrDA	72629-94-8	P211024020	24.5	0.212	0.640	65-144%	122%	
	PFTeDA	376-06-7	P211024020	22.9	0.244	0.640	36.1-161%	115%	
ES	M2PFTeDA		P211024020				20-150%	52.4%	

# Enthalpy Analytical

Job No.: 0924-896-2 PFAS by Isotope Dilution (non-potable water)  
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

## Details

Sample Name	OPR_18297_PFAS		
Sampling Site			
Enthalpy ID	OPR_18297_PFAS	Prep Batch	EU18297
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.08
Prep Date	2024-10-07 08:12	Extract Vol mL	0.2
AnalysisDate	2024-10-14 20:46	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	B141024-10142046	16900	875	1910	40-150%	67.7%	
ES	13C3-PFPrA		B141024-10142046				20-150%	139%	

# Sample Custody



0924-896

# 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: <u>BRUNSWICK COUNTY UTILITIES</u>	Project Number: _____	PO#: _____
Project Manager: <u>GLENN WALKER</u>	Site Name: <u>NORTHWEST WATER PLANT</u>	Telephone#: _____
Report To: <u>SAME</u>	Location: <u>LELAND N.C.</u>	Email: _____

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

Client Special Instructions:						Sample Containers				Analyses:							Notes:
						# of Bottles	# of Jars	# of Bags	# Other	Method 1613	Method 8290	Method 1668A/B/C PCE	PFAS by LC/MS/MS	PAHs by HRGC/HRMS	Sample on Hold	Method 23	
Sample ID	Date	Time	Sample Volume	Type	Matrix												
092724-SO1	9/27/2024	1140AM	250 ml	G	NW	2										X	Please Add PFPa and
092724-EO1	9/27/2024	1140AM	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:
	BILLY BENTON	9/27/2024		9-27-24 1427	<input checked="" type="checkbox"/> Iced <input type="checkbox"/> Ambient °C <u>6.4</u>
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____

JOB ID: 0924-896 Date / Time: 9/27/24 14:27 Initials: C.A.M  
 OR  
 Client: Brunswick County

Temp °C: 6.4 Thermometer ID: T16 Cooler 1 of 1

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"/> Yes <input checked="" type="checkbox"/> No
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input checked="" type="checkbox"/>	Sample seals:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Comment:					

Temp °C: Thermometer ID: Cooler of

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"/> Yes <input type="checkbox"/> No
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input type="checkbox"/>	Sample seals:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Comment:					

Temp °C: Thermometer ID: Cooler of

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"/> Yes <input type="checkbox"/> No
	Melted ice:	<input type="checkbox"/>	in a Cooler:	<input type="checkbox"/>	Sample seals:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Ambient:	<input type="checkbox"/>	Cooler in Box:	<input type="checkbox"/>	Good condition:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Comment:					