

Brunswick County Public Utilities - NC

PO Box 249
Bolivia, NC 28422-0249

Leland, NC

Client Project# NORTHWEST WATER PLANT
Samples Received: 10/11/2024

Analytical Report 1024-769

PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 11/6/2024

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 27 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:



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Narrative Summary



Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-769
Client ID.	NORTHWEST WATER PLANT Site: Leland, NC

1. Custody

Jayson-Shane Santos received the samples at 5.3 °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
1024-769-001-1A	101124-S01	NW	2024-10-11
1024-769-002-1A	101124-E01	DW	2024-10-11

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 + PFPrA	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 ≥ 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.

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
* 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.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)

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

Summary

	Compound	CAS	101124-S01 ng/L	101124-E01 ng/L	
Acids	PFBA	375-22-4	4.40	4.70	
	PFPeA	2706-90-3	6.31	6.43	
	PFHxA	307-24-4	5.15	5.39	
	PFHpA	375-85-9	2.65	2.90	
	PFOA	335-67-1	5.57	5.78	
	PFNA	375-95-1	0.800	0.779	
	PFDA	335-76-2	0.387 J	0.385 J	
	PFUnDA	2058-94-8	0.0472 L	0.0201 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	3.66	3.58
PFPeS		2706-91-4	0.473 J	0.393 J	
PFHxS		355-46-4	2.68	2.97	
PFHpS		375-92-8	0.0879 L	0.102 L	
PFOS		1763-23-1	11.8	11.5	
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	0.324 J	0.299 J
		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	0.181 J	ND U	
PFECAs	ADONA	919005-14-4	ND U	ND U	
	EVE Acid	69087-46-3	0.000141 L	0.000185 L	
	HFPO-DA	13252-13-6	1.62	1.39	
	Hydro-EVE Acid	773804-62-9	0.0758 L	0.0654 L	
	NFDHA	151772-58-6	ND U	ND U	
	PEPA	267239-61-2	1.88	1.24	
	PFECA-G	801212-59-9	ND U	ND U	
	PFMOAA	674-13-5	25.9	17.9	
	PFMOBA	863090-89-5	ND U	ND U	
	PFMOPrA	377-73-1	ND U	ND U	
	PFO2HxA	39492-88-1	3.41	3.27	
	PFO3OA	39492-89-2	1.06	0.920	
	PFO4DA	39492-90-5	0.194 L	0.202 L	
	PFO5DA	39492-91-6	0.0000590 L	0.0000912 L	
	PMPA	13140-29-9	4.48	4.36	
R-EVE	2416366-22-6	3.89	4.58		
PFESAs	11Cl-PF3OUds	763051-92-9	ND U	ND U	
	9Cl-PF3ONS	756426-58-1	ND U	ND U	
	Hydrolyzed PSDA	2416366-19-1	0.924	1.22	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	ND U	ND U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	0.340 L	0.269 L	
	NVHOS	1132933-86-8	ND U	ND U	
	PFEESA	113507-82-7	ND U	ND U	
	R-PSDA	2416366-18-0	3.71	3.68	
R-PSDCA	2416366-21-5	ND U	ND U		

Enthalpy Analytical

Job No.: 1024-769-2 PFAS by Isotope Dilution (non-potable water)

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

Summary

	Compound	CAS	101124-S01 ng/L	101124-E01 ng/L
Acids	PFPrA	422-64-0	ND U	ND U

Enthalpy Analytical

Job No.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	101124-S01	Prep Batch	eu18349
Sampling Site		Analyst	jacksullivan
Enthalpy ID	1024-769-001-1A	Instrument	Pippin
Matrix	NW	Sample Vol mL	271.6
Sampling Date	2024-10-11 08:30	Extract Vol mL	0.4
Received Date	2024-10-11	Split Factor	N/A
Prep Date	2024-10-16 06:30	Method Code	EU-047-NPW
AnalysisDate	2024-10-21 21:38		
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	P211024028	4.40	0.234	0.589				
	PFPeA	2706-90-3	P211024028	6.31	0.168	0.589				
	PFFhxA	307-24-4	P211024028	5.15	0.197	0.589				
	PFFHpA	375-85-9	P211024028	2.65	0.206	0.589				
	PFOA	335-67-1	P211024028	5.57	0.135	0.589				
	PFNA	375-95-1	P211024028	0.800	0.133	0.589				
	PFDA	335-76-2	P211024028	0.387	0.168	0.589			J	
	PFUnDA	2058-94-8	P211024028	0.0472	0.133	0.589			L	
	PFFDoDA	307-55-1	P211024028	ND	0.239	0.589			U	
	PFFTrDA	72629-94-8	P211024028	ND	0.195	0.589			U	
	PFFTeDA	376-06-7	P211024028	ND	0.225	0.589			U	
	PFFhxDA	67905-19-5	P211024028	ND	0.313	0.589			U	
	Sulfonates	PFBS	375-73-5	P211024028	3.66	0.313	0.589			
		PFFPeS	2706-91-4	P211024028	0.473	0.121	0.555			J
PFFHxS		355-46-4	P211024028	2.68	0.455	0.539				
PFFHpS		375-92-8	P211024028	0.0879	0.285	0.561			L	
PFOs		1763-23-1	P211024028	11.8	0.311	0.546				
PFNS		68259-12-1	P211024028	ND	0.183	0.567			U	
PFDs		335-77-3	P211024028	ND	0.309	0.567			U	
4:2 FTS		757124-72-4	P211024028	ND	0.0764	0.552			U	
6:2 FTS		27619-97-2	P211024028	ND	0.278	0.561			U	
8:2 FTS		39108-34-4	P211024028	ND	0.132	0.564			U	
10:2 FTS	120226-60-0	P211024028	ND	0.451	0.589			U		
Sulfonamidos	FBSA	30334-69-1	P211024028	0.324	0.280	0.589			J	
	N-EiFOSA	4151-50-2	P211024028	ND	0.365	0.589			U	
	N-EiFOSAA	2991-50-6	P211024028	ND	0.239	0.589			U	
	N-EiFOSE	1691-99-2	P211024028	ND	0.902	2.65			U	
	N-MeFOSA	31506-32-8	P211024028	ND	0.243	0.589			U	
	N-MeFOSAA	2355-31-9	P211024028	ND	0.166	0.589			U	
	N-MeFOSE	24448-09-7	P211024028	ND	0.560	2.65			U	
	PFOsA	754-91-6	P211024028	0.181	0.0827	0.589			J	
	ADONA	919005-14-4	P211024028	ND	0.160	0.558			U	
PFECAs	EVE Acid	69087-46-3	P211024028	0.000141	0.188	1.33			L	
	HFPO-DA	13252-13-6	P211024028	1.62	0.0624	0.589				
	Hydro-EVE Acid	773804-62-9	P211024028	0.0758	0.193	0.589			L	
	NFDHA	151772-58-6	P211024028	ND	0.124	0.589			U	
	PEPA	267239-61-2	P211024028	1.88	0.110	0.589				
	PFECA-G	801212-59-9	P211024028	ND	0.0786	0.589			U	
	PfMOAA	674-13-5	P211024028	25.9	0.298	0.589				
	PfMOBA	863090-89-5	P211024028	ND	0.989	1.33			U	
	PfMOPrA	377-73-1	P211024028	ND	0.210	0.589			U	
	PFO2HxA	39492-88-1	P211024028	3.41	0.190	0.589				
	PFO3OA	39492-89-2	P211024028	1.06	0.271	0.589				
	PFO4DA	39492-90-5	P211024028	0.194	0.466	2.95			L	
	PFO5DA	39492-91-6	P211024028	0.0000590	0.471	2.95			L	
	PMPA	13140-29-9	P211024028	4.48	0.139	0.589				
	R-EVE	2416366-22-6	P211024028	3.89	0.978	1.33				
	PFESAs	11CI-PF3OUdS	763051-92-9	P211024028	ND	0.278	0.555			U
		9CI-PF3ONS	756426-58-1	P211024028	ND	0.377	0.549			U
Hydrolyzed PSDA		2416366-19-1	P211024028	0.924	0.392	0.589				
Nafion Byproduct 1 (PS Acid)		29311-67-9	P211024028	ND	0.315	0.589			U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	P211024028	0.340	0.488	0.589			L	
NVHOS		1132933-86-8	P211024028	ND	0.0908	0.589			U	
PFEESA		113507-82-7	P211024028	ND	0.177	0.589			U	
R-PSDA		2416366-18-0	P211024028	3.71	2.60	2.60				
ES	R-PSDCA	2416366-21-5	P211024028	ND	0.249	0.589			U	
	MPFBA		P211024028				20-150%	86.1%		
	M5PFPeA		P211024028				20-150%	217%	Q	
	M3PFBS		P211024028				20-150%	283%	Q	
	M2-4:2 FTS		P211024028				20-150%	153%	Q	
	M5PFFhxA		P211024028				20-150%	89.1%		
	M3HFPO-DA		P211024028				20-150%	78.6%		
	M4PFFHpA		P211024028				20-150%	92.0%		

Enthalpy Analytical

Job No.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	101124-S01		
Sampling Site			
Enthalpy ID	1024-769-001-1A	Prep Batch	eu18349
Matrix	NW	Analyst	jacksullivan
Sampling Date	2024-10-11 08:30	Instrument	Pippin
Received Date	2024-10-11	Sample Vol mL	271.6
Prep Date	2024-10-16 06:30	Extract Vol mL	0.4
AnalysisDate	2024-10-21 21:38	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		P211024028				20-150%	96.8%	
M2-6:2 FTS		P211024028				20-150%	91.8%	
M8PFOA		P211024028				20-150%	90.2%	
M9PFNA		P211024028				20-150%	83.3%	
M8PFOS		P211024028				20-150%	83.5%	
M2-8:2 FTS		P211024028				20-150%	72.8%	
M8FOSA-I		P211024028				20-150%	69.9%	
M6PFDA		P211024028				20-150%	82.2%	
d3-N-MeFOSAA		P211024028				20-150%	71.7%	
d5-N-EtFOSAA		P211024028				20-150%	65.2%	
M7PFUdA		P211024028				20-150%	69.5%	
MPFDoA		P211024028				20-150%	52.0%	
M2PFTeDA		P211024028				20-150%	10.3%	Q
d3-N-MeFOSA		P211024028				10-200%	3.11%	Q
d5-N-EtFOSA		P211024028				10-200%	2.12%	Q
d7-N-MeFOSE		P211024028				10-200%	20.9%	
d9-N-EtFOSE		P211024028				10-200%	13.8%	

Enthalpy Analytical

Job No.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	101124-E01	Prep Batch	eu18349
Sampling Site		Analyst	jacksullivan
Enthalpy ID	1024-769-002-1A	Instrument	Pippin
Matrix	DW	Sample Vol mL	265.03
Sampling Date	2024-10-11 08:30	Extract Vol mL	0.4
Received Date	2024-10-11	Split Factor	N/A
Prep Date	2024-10-16 06:30	Method Code	EU-047-NPW
AnalysisDate	2024-10-21 22:01		
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	P211024029	4.70	0.240	0.604				
	PFPeA	2706-90-3	P211024029	6.43	0.173	0.604				
	PFFhxA	307-24-4	P211024029	5.39	0.202	0.604				
	PFFHpA	375-85-9	P211024029	2.90	0.211	0.604				
	PFOA	335-67-1	P211024029	5.78	0.138	0.604				
	PFNA	375-95-1	P211024029	0.779	0.136	0.604				
	PFDA	335-76-2	P211024029	0.385	0.173	0.604			J	
	PFUnDA	2058-94-8	P211024029	0.0201	0.136	0.604			L	
	PFFDoDA	307-55-1	P211024029	ND	0.245	0.604			U	
	PFFTrDA	72629-94-8	P211024029	ND	0.200	0.604			U	
	PFFTeDA	376-06-7	P211024029	ND	0.230	0.604			U	
	PFFhxDA	67905-19-5	P211024029	ND	0.321	0.604			U	
	Sulfonates	PFBS	375-73-5	P211024029	3.58	0.321	0.604			
		PFPeS	2706-91-4	P211024029	0.393	0.124	0.569			J
PFFhXS		355-46-4	P211024029	2.97	0.466	0.553				
PFFHpS		375-92-8	P211024029	0.102	0.292	0.575			L	
PFOs		1763-23-1	P211024029	11.5	0.319	0.559				
PFNS		68259-12-1	P211024029	ND	0.187	0.581			U	
PFDs		335-77-3	P211024029	ND	0.317	0.581			U	
4:2 FTS		757124-72-4	P211024029	ND	0.0783	0.566			U	
6:2 FTS		27619-97-2	P211024029	ND	0.285	0.575			U	
8:2 FTS		39108-34-4	P211024029	ND	0.135	0.578			U	
10:2 FTS	120226-60-0	P211024029	ND	0.462	0.604			U		
Sulfonamidos	FBSA	30334-69-1	P211024029	0.299	0.287	0.604			J	
	N-EiFOSA	4151-50-2	P211024029	ND	0.374	0.604			U	
	N-EiFOSAA	2991-50-6	P211024029	ND	0.245	0.604			U	
	N-EiFOSE	1691-99-2	P211024029	ND	0.924	2.72			U	
	N-MeFOSA	31506-32-8	P211024029	ND	0.249	0.604			U	
	N-MeFOSAA	2355-31-9	P211024029	ND	0.170	0.604			U	
	N-MeFOSE	24448-09-7	P211024029	ND	0.574	2.72			U	
	PFOsA	754-91-6	P211024029	ND	0.0847	0.604			U	
	ADONA	919005-14-4	P211024029	ND	0.164	0.572			U	
	EVE Acid	69087-46-3	P211024029	0.000185	0.192	1.36			L	
PFECAs	HFPO-DA	13252-13-6	P211024029	1.39	0.0640	0.604				
	Hydro-EVE Acid	773804-62-9	P211024029	0.0654	0.198	0.604			L	
	NFDHA	151772-58-6	P211024029	ND	0.127	0.604			U	
	PEPA	267239-61-2	P211024029	1.24	0.113	0.604				
	PFECA-G	801212-59-9	P211024029	ND	0.0806	0.604			U	
	PfMOAA	674-13-5	P211024029	17.9	0.306	0.604				
	PfMOBA	863090-89-5	P211024029	ND	1.01	1.36			U	
	PfMOPrA	377-73-1	P211024029	ND	0.215	0.604			U	
	PFO2HxA	39492-88-1	P211024029	3.27	0.194	0.604				
	PFO3OA	39492-89-2	P211024029	0.920	0.277	0.604				
	PFO4DA	39492-90-5	P211024029	0.202	0.477	3.02			L	
	PFO5DA	39492-91-6	P211024029	0.0000912	0.483	3.02			L	
	PMPA	13140-29-9	P211024029	4.36	0.142	0.604				
	R-EVE	2416366-22-6	P211024029	4.58	1.00	1.36				
	PFESAs	11Cl-PF3OUdS	763051-92-9	P211024029	ND	0.285	0.569			U
		9Cl-PF3ONS	756426-58-1	P211024029	ND	0.387	0.562			U
		Hydrolyzed PSDA	2416366-19-1	P211024029	1.22	0.402	0.604			
Nafion Byproduct 1 (PS Acid)		29311-67-9	P211024029	ND	0.323	0.604			U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	P211024029	0.269	0.500	0.604			L	
NVHOS		1132933-86-8	P211024029	ND	0.0930	0.604			U	
PFEESA		113507-82-7	P211024029	ND	0.181	0.604			U	
R-PSDA		2416366-18-0	P211024029	3.68	2.66	2.66				
R-PSDCA		2416366-21-5	P211024029	ND	0.255	0.604			U	
ES	MPFBA		P211024029				20-150%	85.1%		
	M5PFPeA		P211024029				20-150%	168%	Q	
	M3PFBS		P211024029				20-150%	207%	Q	
	M2-4:2 FTS		P211024029				20-150%	129%		
	M5PFFhxA		P211024029				20-150%	85.4%		
	M3HFPO-DA		P211024029				20-150%	80.9%		
	M4PFFHpA		P211024029				20-150%	88.4%		

Enthalpy Analytical

Job No.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	101124-E01		
Sampling Site			
Enthalpy ID	1024-769-002-1A	Prep Batch	eu18349
Matrix	DW	Analyst	jacksullivan
Sampling Date	2024-10-11 08:30	Instrument	Pippin
Received Date	2024-10-11	Sample Vol mL	265.03
Prep Date	2024-10-16 06:30	Extract Vol mL	0.4
AnalysisDate	2024-10-21 22:01	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
M3PFHxS		P211024029				20-150%	95.5%	
M2-6:2 FTS		P211024029				20-150%	90.4%	
M8PFOA		P211024029				20-150%	87.9%	
M9PFNA		P211024029				20-150%	79.8%	
M8PFOS		P211024029				20-150%	83.2%	
M2-8:2 FTS		P211024029				20-150%	71.4%	
M8FOSA-I		P211024029				20-150%	59.9%	
M6PFDA		P211024029				20-150%	79.1%	
d3-N-MeFOSAA		P211024029				20-150%	75.8%	
d5-N-EtFOSAA		P211024029				20-150%	72.0%	
M7PFUdA		P211024029				20-150%	70.8%	
MPFDoA		P211024029				20-150%	57.4%	
M2PFTeDA		P211024029				20-150%	33.9%	
d3-N-MeFOSA		P211024029				10-200%	0.979%	Q
d5-N-EtFOSA		P211024029				10-200%	1.19%	Q
d7-N-MeFOSE		P211024029				10-200%	26.8%	
d9-N-EtFOSE		P211024029				10-200%	24.6%	

Enthalpy Analytical

Job No.: 1024-769-2 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	101124-S01		
Sampling Site			
Enthalpy ID	1024-769-001-1	Prep Batch	eu18350
Matrix	NW	Analyst	ext-magennaef
Sampling Date	2024-10-11 08:30	Instrument	Bumblebee
Received Date	2024-10-11	Sample Vol mL	0.1
Prep Date	2024-10-15 11:44	Extract Vol mL	0.2
AnalysisDate	2024-10-17 18:45	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	B171024-10171845	ND	700	1530			U
ES	13C3-PFPrA		B171024-10171845				20-150%	148%	

Enthalpy Analytical

Job No.: 1024-769-2 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	101124-E01		
Sampling Site			
Enthalpy ID	1024-769-002-1	Prep Batch	eu18350
Matrix	DW	Analyst	ext-magennaef
Sampling Date	2024-10-11 08:30	Instrument	Bumblebee
Received Date	2024-10-11	Sample Vol mL	0.1
Prep Date	2024-10-15 11:44	Extract Vol mL	0.2
AnalysisDate	2024-10-17 18:57	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	B171024-10171857	ND	700	1530			U
ES	13C3-PFPrA		B171024-10171857				20-150%	150%	

QC Data

Enthalpy Analytical

Job No.: 1024-769-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	MB_18349_PFAS	Prep Batch	eu18349
Sampling Site		Analyst	jacksullivan
Enthalpy ID	MB_18349_PFAS	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	250
Sampling Date		Extract Vol mL	0.4
Received Date		Split Factor	N/A
Prep Date	2024-10-16 06:30	Method Code	EU-047-NPW
AnalysisDate	2024-10-21 18:14		
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	P211024019	ND	0.254	0.640			U	
	PFPeA	2706-90-3	P211024019	ND	0.183	0.640			U	
	PFHxA	307-24-4	P211024019	ND	0.214	0.640			U	
	PFFHpA	375-85-9	P211024019	ND	0.224	0.640			U	
	PFOA	335-67-1	P211024019	ND	0.146	0.640			U	
	PFNA	375-95-1	P211024019	ND	0.145	0.640			U	
	PFDA	335-76-2	P211024019	ND	0.183	0.640			U	
	PFUnDA	2058-94-8	P211024019	ND	0.145	0.640			U	
	PFDODA	307-55-1	P211024019	ND	0.260	0.640			U	
	PFTrDA	72629-94-8	P211024019	ND	0.212	0.640			U	
	PFTeDA	376-06-7	P211024019	ND	0.244	0.640			U	
	PFFhxDA	67905-19-5	P211024019	ND	0.340	0.640			U	
	Sulfonates	PFBS	375-73-5	P211024019	ND	0.340	0.640			U
		PFPeS	2706-91-4	P211024019	ND	0.131	0.603			U
PFFhXS		355-46-4	P211024019	ND	0.494	0.586			U	
PFFHpS		375-92-8	P211024019	ND	0.310	0.610			U	
PFOS		1763-23-1	P211024019	ND	0.338	0.593			U	
PFNS		68259-12-1	P211024019	ND	0.199	0.616			U	
PFDS		335-77-3	P211024019	ND	0.336	0.616			U	
4:2 FTS		757124-72-4	P211024019	ND	0.0830	0.600			U	
6:2 FTS		27619-97-2	P211024019	ND	0.302	0.610			U	
8:2 FTS		39108-34-4	P211024019	ND	0.143	0.613			U	
10:2 FTS	120226-60-0	P211024019	ND	0.490	0.640			U		
Sulfonamidos	FBSA	30334-69-1	P211024019	ND	0.304	0.640			U	
	N-EiFOSA	4151-50-2	P211024019	ND	0.396	0.640			U	
	N-EiFOSAA	2991-50-6	P211024019	ND	0.260	0.640			U	
	N-EiFOSE	1691-99-2	P211024019	ND	0.980	2.88			U	
	N-MeFOSA	31506-32-8	P211024019	ND	0.264	0.640			U	
	N-MeFOSAA	2355-31-9	P211024019	ND	0.180	0.640			U	
	N-MeFOSE	24448-09-7	P211024019	ND	0.608	2.88			U	
	PFOSA	754-91-6	P211024019	ND	0.0898	0.640			U	
	PFECAs	ADONA	919005-14-4	P211024019	ND	0.173	0.606			U
EVE Acid		69087-46-3	P211024019	ND	0.204	1.44			U	
HFPO-DA		13252-13-6	P211024019	ND	0.0678	0.640			U	
Hydro-EVE Acid		773804-62-9	P211024019	ND	0.210	0.640			U	
NFDHA		151772-58-6	P211024019	0.0165	0.135	0.640			L	
PEPA		267239-61-2	P211024019	ND	0.120	0.640			U	
PFECA-G		801212-59-9	P211024019	ND	0.0854	0.640			U	
PFMOAA		674-13-5	P211024019	ND	0.324	0.640			U	
PFMOBA		863090-89-5	P211024019	ND	1.07	1.44			U	
PFMOPrA		377-73-1	P211024019	ND	0.228	0.640			U	
PFO2HxA		39492-88-1	P211024019	ND	0.206	0.640			U	
PFO3OA		39492-89-2	P211024019	ND	0.294	0.640			U	
PFO4DA		39492-90-5	P211024019	ND	0.506	3.20			U	
PFO5DA		39492-91-6	P211024019	ND	0.512	3.20			U	
PMPA		13140-29-9	P211024019	ND	0.151	0.640			U	
R-EVE		2416366-22-6	P211024019	ND	1.06	1.44			U	
PFESAs		11Cl-PF3OUdS	763051-92-9	P211024019	ND	0.302	0.603			U
		9Cl-PF3ONS	756426-58-1	P211024019	ND	0.410	0.596			U
		Hydrolyzed PSDA	2416366-19-1	P211024019	ND	0.426	0.640			U
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P211024019	ND	0.342	0.640			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P211024019	ND	0.530	0.640			U	
	NVHOS	1132933-86-8	P211024019	ND	0.0986	0.640			U	
	PFEESA	113507-82-7	P211024019	ND	0.192	0.640			U	
	R-PSDA	2416366-18-0	P211024019	ND	2.82	2.82			U	
	R-PSDCA	2416366-21-5	P211024019	ND	0.270	0.640			U	
ES	MPFBA		P211024019				20-150%	83.6%		
	M5PFPeA		P211024019				20-150%	82.8%		
	M3PFBS		P211024019				20-150%	72.9%		
	M2-4:2 FTS		P211024019				20-150%	91.1%		
	M5PFFhxA		P211024019				20-150%	81.5%		
	M3HFPO-DA		P211024019				20-150%	80.4%		
	M4PFFHpA		P211024019				20-150%	83.8%		

Enthalpy Analytical

Job No.: 1024-769-1 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
M3PFHxS		P211024019				20-150%	88.0%	
M2-6:2 FTS		P211024019				20-150%	82.8%	
M8PFOA		P211024019				20-150%	82.8%	
M9PFNA		P211024019				20-150%	78.2%	
M8PFOS		P211024019				20-150%	80.7%	
M2-8:2 FTS		P211024019				20-150%	73.8%	
M8FOSA-I		P211024019				20-150%	63.0%	
M6PFDA		P211024019				20-150%	79.9%	
d3-N-MeFOSAA		P211024019				20-150%	76.7%	
d5-N-EtFOSAA		P211024019				20-150%	72.3%	
M7PFUdA		P211024019				20-150%	74.4%	
MPFDoA		P211024019				20-150%	70.0%	
M2PFTeDA		P211024019				20-150%	39.7%	
d3-N-MeFOSA		P211024019				10-200%	2.04%	Q
d5-N-EtFOSA		P211024019				10-200%	2.25%	Q
d7-N-MeFOSE		P211024019				10-200%	37.9%	
d9-N-EtFOSE		P211024019				10-200%	35.9%	

Enthalpy Analytical

Job No.: 1024-769-2 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18350_PFAS		
Sampling Site			
Enthalpy ID	MB_18350_PFAS	Prep Batch	eu18350
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.1
Prep Date	2024-10-15 11:44	Extract Vol mL	0.2
AnalysisDate	2024-10-17 18:22	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	B171024-10171822	ND	700	1530			U
ES	13C3-PFPrA		B171024-10171822				20-150%	144%	

Enthalpy Analytical

Job No.: 1024-769-1 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	PFBA	375-22-4	P211024020	22.0	0.254	0.640	69.1-122%	110%		
	PFPeA	2706-90-3	P211024020	21.7	0.183	0.640	68.5-121%	108%		
	PFHxA	307-24-4	P211024020	21.3	0.214	0.640	68.3-121%	106%		
	PFHpA	375-85-9	P211024020	20.9	0.224	0.640	62.4-128%	105%		
	PFOA	335-67-1	P211024020	22.2	0.146	0.640	66.3-124%	111%		
	PFNA	375-95-1	P211024020	21.6	0.145	0.640	70.5-120%	108%		
	PFDA	335-76-2	P211024020	21.4	0.183	0.640	68.9-117%	107%		
	PFUnDA	2058-94-8	P211024020	21.5	0.145	0.640	58.1-132%	107%		
	PFDoDA	307-55-1	P211024020	21.4	0.260	0.640	52.1-140%	107%		
	PFTeDA	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%		
	Sulfonates	PFBS	375-73-5	P211024020	19.5	0.340	0.640	67.5-111.6%	110%	
		PFPeS	2706-91-4	P211024020	19.4	0.131	0.603	51.8-142%	103%	
PFHxS		355-46-4	P211024020	18.9	0.494	0.586	59.6-128%	103%		
PFHpS		375-92-8	P211024020	20.9	0.310	0.610	46.9-157%	110%		
PFOS		1763-23-1	P211024020	20.1	0.338	0.593	59.2-132%	108%		
PFNS		68259-12-1	P211024020	20.0	0.199	0.616	53.9-133%	104%		
PFDS		335-77-3	P211024020	18.9	0.336	0.616	38.1-142%	97.8%		
4:2 FTS		757124-72-4	P211024020	20.9	0.0830	0.600	61.9-131%	111%		
6:2 FTS		27619-97-2	P211024020	21.3	0.302	0.610	62.3-129%	112%		
8:2 FTS		39108-34-4	P211024020	21.2	0.143	0.613	37.5-159%	110%		
Sulfonamidos	N-EtFOSAA	2991-50-6	P211024020	21.7	0.260	0.640	61.5-133%	108%		
	N-MeFOSAA	2355-31-9	P211024020	20.9	0.180	0.640	57.3-138%	104%		
	PFOSA	754-91-6	P211024020	21.3	0.0898	0.640	49.1-143%	106%		
PFECAs	HFPO-DA	13252-13-6	P211024020	21.4	0.0678	0.640	57.2-130%	107%		
ES	MPFBA		P211024020				20-150%	84.3%		
	M5PFPeA		P211024020				20-150%	87.0%		
	M3PFBS		P211024020				20-150%	82.5%		
	M2-4:2 FTS		P211024020				20-150%	93.2%		
	M5PFHxA		P211024020				20-150%	84.2%		
	M3HFPO-DA		P211024020				20-150%	81.6%		
	M4PFHpA		P211024020				20-150%	84.5%		
	M3PFHxS		P211024020				20-150%	87.1%		
	M2-6:2 FTS		P211024020				20-150%	86.1%		
	M8PFOA		P211024020				20-150%	81.1%		
	M9PFNA		P211024020				20-150%	75.3%		
	M8PFOS		P211024020				20-150%	79.7%		
	M2-8:2 FTS		P211024020				20-150%	72.5%		
	M8FOSA-I		P211024020				20-150%	66.5%		
	M6PFDA		P211024020				20-150%	76.9%		
	d3-N-MeFOSAA		P211024020				20-150%	73.9%		
	d5-N-EtFOSAA		P211024020				20-150%	71.3%		
	M7PFUdA		P211024020				20-150%	70.8%		
	MPFDoA		P211024020				20-150%	69.5%		
	M2PFTeDA		P211024020				20-150%	52.4%		

Enthalpy Analytical

Job No.: 1024-769-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC NORTHWEST WATER PLANT Leland, NC

Details

Sample Name	OPR_18350_PFAS		
Sampling Site			
Enthalpy ID	OPR_18350_PFAS	Prep Batch	eu18350
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.08
Prep Date	2024-10-15 11:44	Extract Vol mL	0.2
AnalysisDate	2024-10-17 18:33	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	B171024-10171833	15600	875	1910	40-150%	62.4%	
ES	13C3-PFPrA		B171024-10171833				20-150%	140%	

Sample Custody



1024-769

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 ID	Date	Time	Sample Volume	Type	Matrix	Sample Containers				Analyses:							Notes:		
						# 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	
101124-S01	10/11/2024	8:30 AM	250 ml	G	NW	2												X	Please Add PFPrA and
101124-E01	10/11/2024	8:30 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	10/11/2024	<i>[Signature]</i>	10/11/24	13:23	<input checked="" type="checkbox"/> Iced <input type="checkbox"/> Ambient °C <u>5.3</u>
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____
					<input type="checkbox"/> Iced <input type="checkbox"/> Ambient °C _____

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JOB ID: 024-769 Date/Time: 10/11/24 13:23 Initials: S.S.
 OR
 Client: Brunswick County Public Utilities

Temp °C: 5.3 Thermometer ID: 716 Cooler 1 of 1

Received via	<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
	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"/>					

Comment:

Temp °C: Thermometer ID: Cooler of

Received via	<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
	FedEx	<input type="checkbox"/>				
UPS	<input type="checkbox"/>					
DHL	<input type="checkbox"/>					
USPS	<input type="checkbox"/>					
Courier	<input type="checkbox"/>					
Other	<input type="checkbox"/>					

Comment:

Temp °C: Thermometer ID: Cooler of

Received via	<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
	FedEx	<input type="checkbox"/>				
UPS	<input type="checkbox"/>					
DHL	<input type="checkbox"/>					
USPS	<input type="checkbox"/>					
Courier	<input type="checkbox"/>					
Other	<input type="checkbox"/>					

Comment: