

Brunswick County Public Utilities - NC

PO Box 249
Bolivia, NC 28422-0249

Leland, N.C

Client Project# Northwest Water Plant
Samples Received: 10/18/2024

Analytical Report 1024-801

PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 11/26/2024

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 31 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.	1024-801-1
Client ID.	Northwest Water Plant Site: Leland, N.C

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
1024-801-001-2	101824-S01	aqueous	2024-10-18
1024-801-002-2	101824-E01	aqueous	2024-10-18

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").

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

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

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-801-1
Client ID.	Northwest Water Plant Site: Leland, N.C

The QC sample analyses passed all method criteria.

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 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.

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
Job No.	1024-801-2
Client ID.	Northwest Water Plant Site: Leland, N.C

1. Custody

Meredith Curtis 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
1024-801-001-1	101824-S01	aqueous	2024-10-18
1024-801-002-1	101824-E01	aqueous	2024-10-18

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.	1024-801-2
Client ID.	Northwest Water Plant Site: Leland, N.C

QC samples that did not meet method acceptance criteria were:

- MB_18398_PFAS (13C3-PFPrA)
- OPR_18398_PFAS (13C3-PFPrA)

Target analytes are quantified based on their ratio to their labeled standard analogs. As a result, low or high labeled standard recovery in the method blank (MB) and OPR does not cause any change to ratios or contribute any additional error in the measurement of the target analyte(s). The data has been accepted and reported with no further action.

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-(1,1,2,2-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.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Summary

	Compound	CAS	101824-S01 ng/L	101824-E01 ng/L	
Acids	PFBA	375-22-4	4.09	3.60	
	PFPeA	2706-90-3	6.46	6.33	
	PFHxA	307-24-4	4.99	5.31	
	PFHpA	375-85-9	2.38	2.41	
	PFOA	335-67-1	5.23	5.41	
	PFNA	375-95-1	0.690	0.754	
	PFDA	335-76-2	0.371 J	0.365 J	
	PFUnDA	2058-94-8	0.00636 L	0.0217 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	3.17	3.44
		PFPeS	2706-91-4	0.395 J	0.485 J
PFHxS		355-46-4	3.35	3.17	
PFHpS		375-92-8	0.101 L	0.0882 L	
PFOS		1763-23-1	11.0	11.2	
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	0.272 J	0.750	
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	0.329 J	0.272 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	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	4.03	3.92	
	Hydro-EVE Acid	773804-62-9	0.136 L	0.160 L	
	NFDHA	151772-58-6	ND U	ND U	
	PEPA	267239-61-2	3.77	3.22	
	PFECA-G	801212-59-9	ND U	ND U	
	PFMOAA	674-13-5	41.4	34.8	
	PFMOBA	863090-89-5	ND U	ND U	
	PFMOPrA	377-73-1	ND U	ND U	
	PFO2HxA	39492-88-1	6.36	6.65	
	PFO3OA	39492-89-2	1.46	1.41	
	PFO4DA	39492-90-5	0.311 L	0.302 L	
	PFO5DA	39492-91-6	0.00164 L	0.000863 L	
	PMPA	13140-29-9	7.87	7.61	
	R-EVE	2416366-22-6	8.34	10.2	
PFESAs	11Cl-PF3OUds	763051-92-9	ND U	ND U	
	9Cl-PF3ONS	756426-58-1	ND U	ND U	
	Hydrolyzed PSDA	2416366-19-1	2.23	2.89	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	ND U	ND U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	0.470 L	0.487 J	
	NVHOS	1132933-86-8	ND U	ND U	
	PFEESA	113507-82-7	ND U	ND U	
	R-PSDA	2416366-18-0	6.79	7.05	
R-PSDCA	2416366-21-5	ND U	ND U		

Enthalpy Analytical

Job No.: 1024-801-2 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Summary

	Compound	CAS	101824-S01 ng/L	101824-E01 ng/L
Acids	PFPrA	422-64-0	ND U	ND U

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-S01	Prep Batch	EU18413
Sampling Site		Analyst	bmay
Enthalpy ID	1024-801-001-2	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	277.58
Sampling Date	2024-10-18 09:00	Extract Vol mL	0.4
Received Date	2024-10-18	Split Factor	N/A
Prep Date	2024-10-25 13:13	Method Code	EU-047-NPW
AnalysisDate	2024-10-29 16:37		
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	P291024010	4.09	0.229	0.576				
	PFPeA	2706-90-3	P291024010	6.46	0.165	0.576				
	PFHxA	307-24-4	P291024010	4.99	0.193	0.576				
	PFHpA	375-85-9	P291024010	2.38	0.202	0.576				
	PFOA	335-67-1	P291024010	5.23	0.132	0.576				
	PFNA	375-95-1	P291024010	0.690	0.130	0.576				
	PFDA	335-76-2	P291024010	0.371	0.165	0.576			J	
	PFUnDA	2058-94-8	P291024010	0.00636	0.130	0.576			L	
	PFDoDA	307-55-1	P291024010	ND	0.234	0.576			U	
	PFTrDA	72629-94-8	P291024010	ND	0.191	0.576			U	
	PFTeDA	376-06-7	P291024010	ND	0.220	0.576			U	
	PFHxDA	67905-19-5	P291024010	ND	0.306	0.576			U	
	Sulfonates	PFBS	375-73-5	P291024010	3.17	0.306	0.576			
		PFPeS	2706-91-4	P291024010	0.395	0.118	0.543			J
PFHxS		355-46-4	P291024010	3.35	0.445	0.528				
PFHpS		375-92-8	P291024010	0.101	0.279	0.549			L	
PFOS		1763-23-1	P291024010	11.0	0.304	0.534				
PFNS		68259-12-1	P291024010	ND	0.179	0.555			U	
PFDS		335-77-3	P291024010	ND	0.303	0.555			U	
4:2 FTS		757124-72-4	P291024010	ND	0.0748	0.540			U	
6:2 FTS		27619-97-2	P291024010	0.272	0.272	0.549			J	
8:2 FTS		39108-34-4	P291024010	ND	0.129	0.552			U	
10:2 FTS	120226-60-0	P291024010	ND	0.441	0.576			U		
Sulfonamidos	FBSA	30334-69-1	P291024010	0.329	0.274	0.576			J	
	N-EiFOSA	4151-50-2	P291024010	ND	0.357	0.576			U	
	N-EiFOSAA	2991-50-6	P291024010	ND	0.234	0.576			U	
	N-EiFOSE	1691-99-2	P291024010	ND	0.883	2.59			U	
	N-MeFOSA	31506-32-8	P291024010	ND	0.238	0.576			U	
	N-MeFOSAA	2355-31-9	P291024010	ND	0.162	0.576			U	
	N-MeFOSE	24448-09-7	P291024010	ND	0.548	2.59			U	
	PFOSA	754-91-6	P291024010	ND	0.0809	0.576			U	
	PFECAs	ADONA	919005-14-4	P291024010	ND	0.156	0.546			U
		EVE Acid	69087-46-3	P291024010	ND	0.184	1.30			U
HFPO-DA		13252-13-6	P291024010	4.03	0.0611	0.576				
Hydro-EVE Acid		773804-62-9	P291024010	0.136	0.189	0.576			L	
NFDHA		151772-58-6	P291024010	ND	0.121	0.576			U	
PEPA		267239-61-2	P291024010	3.77	0.108	0.576				
PFECA-G		801212-59-9	P291024010	ND	0.0769	0.576			U	
PFMOAA		674-13-5	P291024010	41.4	0.292	0.576				
PFMOBA		863090-89-5	P291024010	ND	0.967	1.30			U	
PFMOPrA		377-73-1	P291024010	ND	0.205	0.576			U	
PFO2HxA		39492-88-1	P291024010	6.36	0.186	0.576				
PFO3OA		39492-89-2	P291024010	1.46	0.265	0.576				
PFO4DA		39492-90-5	P291024010	0.311	0.456	2.88			L	
PFO5DA		39492-91-6	P291024010	0.00164	0.461	2.88			L	
PMPA		13140-29-9	P291024010	7.87	0.136	0.576				
R-EVE		2416366-22-6	P291024010	8.34	0.956	1.30				
PFESAs		11CI-PF3OUdS	763051-92-9	P291024010	ND	0.272	0.543			U
		9CI-PF3ONS	756426-58-1	P291024010	ND	0.369	0.537			U
	Hydrolyzed PSDA	2416366-19-1	P291024010	2.23	0.384	0.576				
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P291024010	ND	0.308	0.576			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P291024010	0.470	0.477	0.576			L	
	NVHOS	1132933-86-8	P291024010	ND	0.0888	0.576			U	
	PFEESA	113507-82-7	P291024010	ND	0.173	0.576			U	
	R-PSDA	2416366-18-0	P291024010	6.79	2.54	2.54				
	R-PSDCA	2416366-21-5	P291024010	ND	0.243	0.576			U	
	ES	MPFBA		P291024010				20-150%	101%	
M5PFPeA			P291024010				20-150%	224%	Q	
M3PFBS			P291024010				20-150%	277%	Q	
M2-4:2 FTS			P291024010				20-150%	142%		
M5PFHxA			P291024010				20-150%	92.7%		
M3HFPO-DA			P291024010				20-150%	83.9%		
M4PFHpA			P291024010				20-150%	113%		

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-S01		
Sampling Site			
Enthalpy ID	1024-801-001-2	Prep Batch	EU18413
Matrix	aqueous	Analyst	bmay
Sampling Date	2024-10-18 09:00	Instrument	Pippin
Received Date	2024-10-18	Sample Vol mL	277.58
Prep Date	2024-10-25 13:13	Extract Vol mL	0.4
AnalysisDate	2024-10-29 16:37	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		P291024010				20-150%	106%	
M2-6:2 FTS		P291024010				20-150%	81.9%	
M8PFOA		P291024010				20-150%	100%	
M9PFNA		P291024010				20-150%	94.1%	
M8PFOS		P291024010				20-150%	102%	
M2-8:2 FTS		P291024010				20-150%	81.6%	
M8FOSA-I		P291024010				20-150%	97.4%	
M6PFDA		P291024010				20-150%	98.8%	
d3-N-MeFOSAA		P291024010				20-150%	62.3%	
d5-N-EtFOSAA		P291024010				20-150%	55.5%	
M7PFUdA		P291024010				20-150%	84.5%	
MPFDoA		P291024010				20-150%	64.4%	
M2PFTeDA		P291024010				20-150%	39.9%	
d3-N-MeFOSA		P291024010				10-200%	23.5%	
d5-N-EtFOSA		P291024010				10-200%	18.9%	
d7-N-MeFOSE		P291024010				10-200%	39.5%	
d9-N-EtFOSE		P291024010				10-200%	37.7%	

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-E01	Prep Batch	EU18413
Sampling Site		Analyst	bmay
Enthalpy ID	1024-801-002-2	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	281.52
Sampling Date	2024-10-18 09:00	Extract Vol mL	0.4
Received Date	2024-10-18	Split Factor	N/A
Prep Date	2024-10-25 13:13	Method Code	EU-047-NPW
AnalysisDate	2024-10-29 16:59		
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	P291024011	3.60	0.226	0.568				
	PFPeA	2706-90-3	P291024011	6.33	0.163	0.568				
	PFFhxA	307-24-4	P291024011	5.31	0.190	0.568				
	PFFHpA	375-85-9	P291024011	2.41	0.199	0.568				
	PFOA	335-67-1	P291024011	5.41	0.130	0.568				
	PFNA	375-95-1	P291024011	0.754	0.128	0.568				
	PFDA	335-76-2	P291024011	0.365	0.163	0.568			J	
	PFUnDA	2058-94-8	P291024011	0.0217	0.128	0.568			L	
	PFFDoDA	307-55-1	P291024011	ND	0.231	0.568			U	
	PFFTrDA	72629-94-8	P291024011	ND	0.188	0.568			U	
	PFFTeDA	376-06-7	P291024011	ND	0.217	0.568			U	
	PFFhxDA	67905-19-5	P291024011	ND	0.302	0.568			U	
	Sulfonates	PFBs	375-73-5	P291024011	3.44	0.302	0.568			
		PFPeS	2706-91-4	P291024011	0.485	0.117	0.535			J
PFFhXS		355-46-4	P291024011	3.17	0.439	0.520				
PFFHpS		375-92-8	P291024011	0.0882	0.275	0.541			L	
PFOs		1763-23-1	P291024011	11.2	0.300	0.526				
PFNS		68259-12-1	P291024011	ND	0.176	0.547			U	
PFDs		335-77-3	P291024011	ND	0.298	0.547			U	
4:2 FTS		757124-72-4	P291024011	ND	0.0737	0.532			U	
6:2 FTS		27619-97-2	P291024011	0.750	0.268	0.541				
8:2 FTS		39108-34-4	P291024011	ND	0.127	0.544			U	
10:2 FTS	120226-60-0	P291024011	ND	0.435	0.568			U		
Sulfonamidos	FBSA	30334-69-1	P291024011	0.272	0.270	0.568			J	
	N-EiFOSA	4151-50-2	P291024011	ND	0.352	0.568			U	
	N-EiFOSAA	2991-50-6	P291024011	ND	0.231	0.568			U	
	N-EiFOSE	1691-99-2	P291024011	ND	0.870	2.56			U	
	N-MeFOSA	31506-32-8	P291024011	ND	0.234	0.568			U	
	N-MeFOSAA	2355-31-9	P291024011	ND	0.160	0.568			U	
	N-MeFOSE	24448-09-7	P291024011	ND	0.540	2.56			U	
	PFOsA	754-91-6	P291024011	ND	0.0797	0.568			U	
	PFECAs	ADONA	919005-14-4	P291024011	ND	0.154	0.538			U
		EVE Acid	69087-46-3	P291024011	ND	0.181	1.28			U
HFPO-DA		13252-13-6	P291024011	3.92	0.0602	0.568				
Hydro-EVE Acid		773804-62-9	P291024011	0.160	0.186	0.568			L	
NFDHA		151772-58-6	P291024011	ND	0.120	0.568			U	
PEPA		267239-61-2	P291024011	3.22	0.107	0.568				
PFECA-G		801212-59-9	P291024011	ND	0.0758	0.568			U	
PfMOAA		674-13-5	P291024011	34.8	0.288	0.568				
PfMOBA		863090-89-5	P291024011	ND	0.954	1.28			U	
PfMOPrA		377-73-1	P291024011	ND	0.202	0.568			U	
PFO2HxA		39492-88-1	P291024011	6.65	0.183	0.568				
PFO3OA		39492-89-2	P291024011	1.41	0.261	0.568				
PFO4DA		39492-90-5	P291024011	0.302	0.449	2.84			L	
PFO5DA		39492-91-6	P291024011	0.000863	0.455	2.84			L	
PMPA		13140-29-9	P291024011	7.61	0.134	0.568				
R-EVE		2416366-22-6	P291024011	10.2	0.943	1.28				
PFESAs		11CI-PF3OUdS	763051-92-9	P291024011	ND	0.268	0.535			U
	9CI-PF3ONS	756426-58-1	P291024011	ND	0.364	0.529			U	
	Hydrolyzed PSDA	2416366-19-1	P291024011	2.89	0.378	0.568				
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P291024011	ND	0.304	0.568			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P291024011	0.487	0.471	0.568			J	
	NVHOS	1132933-86-8	P291024011	ND	0.0876	0.568			U	
	PFEESA	113507-82-7	P291024011	ND	0.171	0.568			U	
	R-PSDA	2416366-18-0	P291024011	7.05	2.50	2.50				
	R-PSDCA	2416366-21-5	P291024011	ND	0.240	0.568			U	
	ES	MPFBA		P291024011				20-150%	99.0%	
M5PFPeA			P291024011				20-150%	191%	Q	
M3PFBS			P291024011				20-150%	213%	Q	
M2-4:2 FTS			P291024011				20-150%	117%		
M5PFFhxA			P291024011				20-150%	89.3%		
M3HFPO-DA			P291024011				20-150%	84.6%		
M4PFFHpA			P291024011				20-150%	109%		

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-E01		
Sampling Site			
Enthalpy ID	1024-801-002-2	Prep Batch	EU18413
Matrix	aqueous	Analyst	bmay
Sampling Date	2024-10-18 09:00	Instrument	Pippin
Received Date	2024-10-18	Sample Vol mL	281.52
Prep Date	2024-10-25 13:13	Extract Vol mL	0.4
AnalysisDate	2024-10-29 16:59	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		P291024011				20-150%	103%	
M2-6:2 FTS		P291024011				20-150%	72.9%	
M8PFOA		P291024011				20-150%	99.2%	
M9PFNA		P291024011				20-150%	92.9%	
M8PFOS		P291024011				20-150%	98.7%	
M2-8:2 FTS		P291024011				20-150%	76.0%	
M8FOSA-I		P291024011				20-150%	99.1%	
M6PFDA		P291024011				20-150%	102%	
d3-N-MeFOSAA		P291024011				20-150%	66.0%	
d5-N-EtFOSAA		P291024011				20-150%	66.1%	
M7PFUdA		P291024011				20-150%	88.0%	
MPFDoA		P291024011				20-150%	76.5%	
M2PFTeDA		P291024011				20-150%	60.9%	
d3-N-MeFOSA		P291024011				10-200%	35.8%	
d5-N-EtFOSA		P291024011				10-200%	33.8%	
d7-N-MeFOSE		P291024011				10-200%	57.4%	
d9-N-EtFOSE		P291024011				10-200%	50.2%	

Enthalpy Analytical

Job No.: 1024-801-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-S01		
Sampling Site			
Enthalpy ID	1024-801-001-1	Prep Batch	eu18398
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-10-18 09:00	Instrument	Bumblebee
Received Date	2024-10-18	Sample Vol mL	0.1
Prep Date	2024-10-23 16:08	Extract Vol mL	0.2
AnalysisDate	2024-10-24 18:25	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	B2411024-10241825	ND	700	1530			U
ES	13C3-PFPrA		B2411024-10241825				20-150%	185%	Q

Enthalpy Analytical

Job No.: 1024-801-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	101824-E01		
Sampling Site			
Enthalpy ID	1024-801-002-1	Prep Batch	eu18398
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-10-18 09:00	Instrument	Bumblebee
Received Date	2024-10-18	Sample Vol mL	0.1
Prep Date	2024-10-23 16:08	Extract Vol mL	0.2
AnalysisDate	2024-10-24 18:37	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	PFPfA	422-64-0	B241024-10241837	ND	700	1530			U
ES	13C3-PFPfA		B241024-10241837				20-150%	198%	Q

QC Data

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	MB_18413_PFAS	Prep Batch	EU18413
Sampling Site		Analyst	bmay
Enthalpy ID	MB_18413_PFAS	Instrument	Pippin
Matrix	aqueous	Sample Vol mL	250
Sampling Date		Extract Vol mL	0.4
Received Date		Split Factor	N/A
Prep Date	2024-10-25 13:13	Method Code	EU-047-NPW
AnalysisDate	2024-10-29 15:29		
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	P291024007	ND	0.254	0.640			U	
	PFPeA	2706-90-3	P291024007	ND	0.183	0.640			U	
	PFFhxA	307-24-4	P291024007	ND	0.214	0.640			U	
	PFFHpA	375-85-9	P291024007	ND	0.224	0.640			U	
	PFOA	335-67-1	P291024007	ND	0.146	0.640			U	
	PFNA	375-95-1	P291024007	ND	0.145	0.640			U	
	PFDA	335-76-2	P291024007	ND	0.183	0.640			U	
	PFUnDA	2058-94-8	P291024007	ND	0.145	0.640			U	
	PFDODA	307-55-1	P291024007	ND	0.260	0.640			U	
	PFTrDA	72629-94-8	P291024007	ND	0.212	0.640			U	
	PFTeDA	376-06-7	P291024007	ND	0.244	0.640			U	
	PFFhxDA	67905-19-5	P291024007	ND	0.340	0.640			U	
	Sulfonates	PFBS	375-73-5	P291024007	ND	0.340	0.640			U
		PFPeS	2706-91-4	P291024007	ND	0.131	0.603			U
		PFFhXS	355-46-4	P291024007	ND	0.494	0.586			U
PFFHpS		375-92-8	P291024007	ND	0.310	0.610			U	
PFOS		1763-23-1	P291024007	ND	0.338	0.593			U	
PFNS		68259-12-1	P291024007	ND	0.199	0.616			U	
PFDS		335-77-3	P291024007	ND	0.336	0.616			U	
4:2 FTS		757124-72-4	P291024007	ND	0.0830	0.600			U	
6:2 FTS		27619-97-2	P291024007	ND	0.302	0.610			U	
8:2 FTS		39108-34-4	P291024007	ND	0.143	0.613			U	
10:2 FTS	120226-60-0	P291024007	0.00895	0.490	0.640			L		
Sulfonamidos	FBSA	30334-69-1	P291024007	ND	0.304	0.640			U	
	N-EiFOSA	4151-50-2	P291024007	ND	0.396	0.640			U	
	N-EiFOSAA	2991-50-6	P291024007	ND	0.260	0.640			U	
	N-EiFOSE	1691-99-2	P291024007	ND	0.980	2.88			U	
	N-MeFOSA	31506-32-8	P291024007	ND	0.264	0.640			U	
	N-MeFOSAA	2355-31-9	P291024007	ND	0.180	0.640			U	
	N-MeFOSE	24448-09-7	P291024007	ND	0.608	2.88			U	
	PFOSA	754-91-6	P291024007	ND	0.0898	0.640			U	
PFECAs	ADONA	919005-14-4	P291024007	ND	0.173	0.606			U	
	EVE Acid	69087-46-3	P291024007	ND	0.204	1.44			U	
	HFPO-DA	13252-13-6	P291024007	ND	0.0678	0.640			U	
	Hydro-EVE Acid	773804-62-9	P291024007	ND	0.210	0.640			U	
	NFDHA	151772-58-6	P291024007	ND	0.135	0.640			U	
	PEPA	267239-61-2	P291024007	ND	0.120	0.640			U	
	PFECA-G	801212-59-9	P291024007	ND	0.0854	0.640			U	
	PFMOAA	674-13-5	P291024007	ND	0.324	0.640			U	
	PFMOBA	863090-89-5	P291024007	ND	1.07	1.44			U	
	PFMOPrA	377-73-1	P291024007	ND	0.228	0.640			U	
	PFO2HxA	39492-88-1	P291024007	ND	0.206	0.640			U	
	PFO3OA	39492-89-2	P291024007	ND	0.294	0.640			U	
	PFO4DA	39492-90-5	P291024007	ND	0.506	3.20			U	
	PFO5DA	39492-91-6	P291024007	ND	0.512	3.20			U	
	PMPA	13140-29-9	P291024007	ND	0.151	0.640			U	
	R-EVE	2416366-22-6	P291024007	ND	1.06	1.44			U	
	PFESAs	11Cl-PF3OUdS	763051-92-9	P291024007	ND	0.302	0.603			U
9Cl-PF3ONS		756426-58-1	P291024007	ND	0.410	0.596			U	
Hydrolyzed PSDA		2416366-19-1	P291024007	ND	0.426	0.640			U	
Nafion Byproduct 1 (PS Acid)		29311-67-9	P291024007	ND	0.342	0.640			U	
Nafion Byproduct 2 (Hydro-PS Acid)		749836-20-2	P291024007	ND	0.530	0.640			U	
NVHOS		1132933-86-8	P291024007	ND	0.0986	0.640			U	
PFEESA		113507-82-7	P291024007	ND	0.192	0.640			U	
R-PSDA		2416366-18-0	P291024007	ND	2.82	2.82			U	
R-PSDCA		2416366-21-5	P291024007	ND	0.270	0.640			U	
ES	MPFBA		P291024007				20-150%	95.5%		
	M5PFPeA		P291024007				20-150%	95.7%		
	M3PFBS		P291024007				20-150%	85.2%		
	M2-4:2 FTS		P291024007				20-150%	82.8%		
	M5PFFhxA		P291024007				20-150%	89.9%		
	M3HFPO-DA		P291024007				20-150%	84.9%		
	M4PFFHpA		P291024007				20-150%	105%		

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	MB_18413_PFA5		
Sampling Site			
Enthalpy ID	MB_18413_PFA5	Prep Batch	EU18413
Matrix	aqueous	Analyst	bmay
Sampling Date		Instrument	Pippin
Received Date		Sample Vol mL	250
Prep Date	2024-10-25 13:13	Extract Vol mL	0.4
AnalysisDate	2024-10-29 15:29	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		P291024007				20-150%	97.1%	
M2-6:2 FTS		P291024007				20-150%	69.8%	
M8PFOA		P291024007				20-150%	96.4%	
M9PFNA		P291024007				20-150%	93.5%	
M8PFOS		P291024007				20-150%	99.8%	
M2-8:2 FTS		P291024007				20-150%	81.1%	
M8FOSA-I		P291024007				20-150%	94.8%	
M6PFDA		P291024007				20-150%	99.4%	
d3-N-MeFOSAA		P291024007				20-150%	60.3%	
d5-N-EtFOSAA		P291024007				20-150%	60.0%	
M7PFUdA		P291024007				20-150%	88.6%	
MPFDoA		P291024007				20-150%	80.9%	
M2PFTeDA		P291024007				20-150%	73.1%	
d3-N-MeFOSA		P291024007				10-200%	27.4%	
d5-N-EtFOSA		P291024007				10-200%	29.8%	
d7-N-MeFOSE		P291024007				10-200%	63.9%	
d9-N-EtFOSE		P291024007				10-200%	64.1%	

Enthalpy Analytical

Job No.: 1024-801-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	MB_18398_PFAS		
Sampling Site			
Enthalpy ID	MB_18398_PFAS	Prep Batch	eu18398
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.1
Prep Date	2024-10-23 16:08	Extract Vol mL	0.2
AnalysisDate	2024-10-24 18:02	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	B2411024-10241802	ND	700	1530			U
ES	13C3-PFPfA		B2411024-10241802				20-150%	186%	Q

Enthalpy Analytical

Job No.: 1024-801-1 PFAS by Isotope Dilution (non-potable water)

Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Enthalpy ID	OPR_18413_PFAS	Prep Batch	EU18413	Sample Vol (mL)	250
Sample Name	OPR_18413_PFAS	Prep Date	2024-10-25 13:13	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2024-10-29 15:52	Split Factor	N/A
Sampling Date		Analyst	bmay	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	P291024008	16.9	0.254	0.640	69.1-122%	84.3%		
	PFPeA	2706-90-3	P291024008	20.5	0.183	0.640	68.5-121%	102%		
	PFHxA	307-24-4	P291024008	18.7	0.214	0.640	68.3-121%	93.7%		
	PFHpA	375-85-9	P291024008	18.2	0.224	0.640	62.4-128%	91.2%		
	PFOA	335-67-1	P291024008	19.2	0.146	0.640	66.3-124%	95.8%		
	PFNA	375-95-1	P291024008	18.5	0.145	0.640	70.5-120%	92.7%		
	PFDA	335-76-2	P291024008	20.3	0.183	0.640	68.9-117%	102%		
	PFUnDA	2058-94-8	P291024008	18.5	0.145	0.640	58.1-132%	92.5%		
	PFDoDA	307-55-1	P291024008	18.3	0.260	0.640	52.1-140%	91.5%		
	PFTeDA	72629-94-8	P291024008	22.7	0.212	0.640	65-144%	114%		
	PFTeDA	376-06-7	P291024008	20.1	0.244	0.640	36.1-161%	100%		
	Sulfonates	PFBS	375-73-5	P291024008	15.8	0.340	0.640	67.5-111.6%	89.0%	
		PFPeS	2706-91-4	P291024008	18.1	0.131	0.603	51.8-142%	96.1%	
PFHxS		355-46-4	P291024008	15.8	0.494	0.586	59.6-128%	86.6%		
PFHpS		375-92-8	P291024008	15.5	0.310	0.610	46.9-157%	81.4%		
PFOS		1763-23-1	P291024008	16.9	0.338	0.593	59.2-132%	91.2%		
PFNS		68259-12-1	P291024008	19.1	0.199	0.616	53.9-133%	99.4%		
PFDS		335-77-3	P291024008	16.4	0.336	0.616	38.1-142%	84.7%		
4:2 FTS		757124-72-4	P291024008	16.5	0.0830	0.600	61.9-131%	87.8%		
6:2 FTS		27619-97-2	P291024008	19.6	0.302	0.610	62.3-129%	103%		
8:2 FTS		39108-34-4	P291024008	18.1	0.143	0.613	37.5-159%	94.4%		
Sulfonamidos		N-EtFOSAA	2991-50-6	P291024008	19.3	0.260	0.640	61.5-133%	96.3%	
		N-MeFOSAA	2355-31-9	P291024008	19.1	0.180	0.640	57.3-138%	95.3%	
		PFOSA	754-91-6	P291024008	18.5	0.0898	0.640	49.1-143%	92.5%	
PFECAs	HFPO-DA	13252-13-6	P291024008	20.5	0.0678	0.640	57.2-130%	103%		
ES	MPFBA		P291024008				20-150%	101%		
	M5PFPeA		P291024008				20-150%	101%		
	M3PFBS		P291024008				20-150%	89.1%		
	M2-4:2 FTS		P291024008				20-150%	81.4%		
	M5PFHxA		P291024008				20-150%	93.3%		
	M3HFPO-DA		P291024008				20-150%	88.5%		
	M4PFHpA		P291024008				20-150%	105%		
	M3PFHxS		P291024008				20-150%	101%		
	M2-6:2 FTS		P291024008				20-150%	69.7%		
	M8PFOA		P291024008				20-150%	99.4%		
	M9PFNA		P291024008				20-150%	93.6%		
	M8PFOS		P291024008				20-150%	101%		
	M2-8:2 FTS		P291024008				20-150%	81.9%		
	M8FOSA-I		P291024008				20-150%	98.8%		
	M6PFDA		P291024008				20-150%	101%		
	d3-N-MeFOSAA		P291024008				20-150%	62.6%		
	d5-N-EtFOSAA		P291024008				20-150%	62.6%		
	M7PFUdA		P291024008				20-150%	87.9%		
	MPFDoA		P291024008				20-150%	80.5%		
	M2PFTeDA		P291024008				20-150%	65.2%		

Enthalpy Analytical

Job No.: 1024-801-2 PFAS by Isotope Dilution (non-potable water)
 Brunswick County Public Utilities - NC Northwest Water Plant Leland, N.C

Details

Sample Name	OPR_18398_PFAS		
Sampling Site			
Enthalpy ID	OPR_18398_PFAS	Prep Batch	eu18398
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date		Instrument	Bumblebee
Received Date		Sample Vol mL	0.08
Prep Date	2024-10-23 16:08	Extract Vol mL	0.2
AnalysisDate	2024-10-24 18:13	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	B241024-10241813	19000	875	1910	40-150%	76.2%	
ES	13C3-PFPrA		B241024-10241813				20-150%	182%	Q

Sample Custody



★ TEM.A.C. 1011824 801



1024-701★

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	
101824-S01	10/18/2024	9:00 AM	250 ml	G	NW	2												X	Please Add PFPRA and
101824-E01	10/18/2024	9:00 AM	250 ml	G	DW	2												X	PFPRA To The Testing.
																			Mark Hager Knows About
																			This If you Have Questions

Relinquished By: <u>PHIL MCCULLOCH</u>	Date: <u>10/18/2024</u>	Received By:	Date: <u>10/18/24</u>	Time: <u>13:38</u>	Sample Temperature Upon Receipt:
					<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 _____

JOB ID: 1024-801

Date / Time: 10/18/24 13:38

Initials: S.S.

Client: Brunswick County Public Utilities

Temp °C: 5.3

Thermometer ID: T15

Cooler 1 of 1

- Received via
- FedEx
- UPS
- DHL
- USPS
- Courier
- Other

Check one

On ice:

Melted ice:

Ambient:

Check one

in a Box:

in a Cooler:

Cooler in Box:

	Yes	No
Cooler seals:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample seals:	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Good condition:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Comment:

Empty comment box

Temp °C:

Thermometer ID:

Cooler of

- Received via
- FedEx
- UPS
- DHL
- USPS
- Courier
- Other

Check one

On ice:

Melted ice:

Ambient:

Check one

in a Box:

in a Cooler:

Cooler in Box:

	Yes	No
Cooler seals:	<input type="checkbox"/>	<input type="checkbox"/>
Sample seals:	<input type="checkbox"/>	<input type="checkbox"/>
Good condition:	<input type="checkbox"/>	<input type="checkbox"/>

Comment:

Empty comment box

Temp °C:

Thermometer ID:

Cooler of

- Received via
- FedEx
- UPS
- DHL
- USPS
- Courier
- Other

Check one

On ice:

Melted ice:

Ambient:

Check one

in a Box:

in a Cooler:

Cooler in Box:

	Yes	No
Cooler seals:	<input type="checkbox"/>	<input type="checkbox"/>
Sample seals:	<input type="checkbox"/>	<input type="checkbox"/>
Good condition:	<input type="checkbox"/>	<input type="checkbox"/>

Comment:

Empty comment box

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