Brunswick County Public Utilities - NC

PO Box 249
Bolivia, NC 28422-0249

LELAND N.C.

Client Project# NORTHWEST WATER PLANT
Samples Received: 1/10/2025

Analytical Report
0125-730

PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 1/27/2025

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:

Laura Boivin, QA Associate II

ENTHALPY
ANALYTICAL

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Narrative Summary

Enthalpy Analytical Narrative Summary

Company	Brunswick County Public Utilities - NC
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1. Custody

Jayson-Shane Santos received the samples at 4.9 °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
0125-730-001-1	011025-S01	aqueous	2025-01-10
0125-730-001-1A	011025-S01	aqueous	2025-01-10
0125-730-002-1A	011025-E01	aqueous	2025-01-10
0125-730-002-1B	011025-E01	aqueous	2025-01-10

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 Sciex Triple Quad 7500 (LC/MS/MS "Starscream") and Waters Acquity UPLC equipped with Xevo TQ MS (LC/MS/MS "Pippin" and "Sauron").

The samples were analyzed using more than one batch preparation and analytical sequence to meet method acceptance criteria and report all analytes of interest.

Polar compound PFPrA in the samples, including the method blank (MB) and Ongoing Precision Recovery (OPR) samples, was analyzed by direct inject calibration.

4. Calibration

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

Enthalpy Analytical Narrative Summary

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The Standards that did not were:

• SID BH57 (PFEESA, PFTeDA)
• SID BH58 (PFTeDA)

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

5. QC Notes

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

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

QC samples that did not meet method acceptance criteria were:

• OPR_18815_PFAS (PFTrDA) exceeds method control limits but was not detected >LOQ in sample 011025-S01. Data is reported with no adverse impact.

• MB_18815_PFAS (M2PFTeDA, d3-N-MeFOSA, d5-N-EtFOSA)
• MB_18836_PFAS (d3-N-MeFOSA)
• OPR_18815_PFAS (M2PFTeDA, d3-N-MeFOSA, d5-N-EtFOSA)

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

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

6. Reporting Notes

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

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

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

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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.

- 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
*, #	PFTrDA (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-chloroeicosafluoro-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-methoxybutanic acid
*, ^	NFDHA	151772-58-6	Nonafluoro-3,6-dioxaheptanoic 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.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Summary

	Compound	CAS	011025-S01 ng/L	011025-E01 ng/L
Acids	PFPrA	422-64-0	ND U	ND U
	PFBA	375-22-4	4.02	2.91
	PFPeA	2706-90-3	5.26	5.44
	PFHxA	307-24-4	5.25	5.04
	PFHpA	375-85-9	2.60	2.56
	PFOA	335-67-1	4.78	4.84
	PFNA	375-95-1	0.490 J	0.472 J
	PFDA	335-76-2	0.129 L	0.140 L
	PFUnDA	2058-94-8	ND U	ND U
	PFDoDA	307-55-1	ND U	ND U
	PFTrDA	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	3.16	2.98
	PFPeS	2706-91-4	0.488 J	0.599
	PFHxS	355-46-4	3.28	3.52
	PFHpS	375-92-8	0.0135 L	0.118 L
	PFOS	1763-23-1	9.15	9.09
	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	0.326 J	0.160 L
	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	0.189 L	0.376 J
	N-EtFOSA	4151-50-2	ND U	ND U
	N-EtFOSAA	2991-50-6	ND U	0.0946 L
	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	3.51	3.64
	Hydro-EVE Acid	773804-62-9	0.123 L	0.0219 L
	NFDHA	151772-58-6	ND U	ND U
	PEPA	267239-61-2	2.37	1.76
	PFECA-G	801212-59-9	ND U	ND U
	PFMOAA	674-13-5	24.3	14.2
	PFMOBA	863090-89-5	ND U	ND U
	PFMOPrA	377-73-1	ND U	ND U
	PFO2HxA	39492-88-1	3.78	3.51
	PFO3OA	39492-89-2	ND U	0.791
	PFO4DA	39492-90-5	ND U	ND U
	PFO5DA	39492-91-6	ND U	ND U
	PMPA	13140-29-9	10.2	6.47
	R-EVE	2416366-22-6	7.59	4.63
PFESAs	11Cl-PF3OUdS	763051-92-9	ND U	ND U
	9Cl-PF3ONS	756426-58-1	ND U	ND U
	Hydrolyzed PSDA	2416366-19-1	3.10	3.70
	Nafion Byproduct 1 (PS Acid)	29311-67-9	ND U	ND U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	0.136 L	0.154 L
	NVHOS	1132933-86-8	ND U	ND U
	PFEESA	113507-82-7	ND U	ND U
	R-PSDA	2416366-18-0	3.96	2.38 L
	R-PSDCA	2416366-21-5	ND U	ND U

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-S01		
Sampling Site			
Enthalpy ID	0125-730-001-1	Prep Batch	EU18815
Matrix	aqueous	Analyst	jogres
Sampling Date	2025-01-10 12:45	Instrument	Sauron
Received Date	2025-01-10	Sample Vol mL	285.58
Prep Date	2025-01-14 13:36	Extract Vol mL	0.4
AnalysisDate	2025-01-16 01:41	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	S150125026	4.02	0.222	0.560			
	PFPeA	2706-90-3	S150125026	5.26	0.160	0.560			
	PFHxA	307-24-4	S150125026	5.25	0.187	0.560			
	PFHpA	375-85-9	S150125026	2.60	0.196	0.560			
	PFOA	335-67-1	S150125026	4.78	0.128	0.560			
	PFNA	375-95-1	S150125026	0.490	0.127	0.560			J
	PFDA	335-76-2	S150125026	0.129	0.160	0.560			L
	PFUnDA	2058-94-8	S150125026	ND	0.127	0.560			U
	PFDoDA	307-55-1	S150125026	ND	0.228	0.560			U
	PFTrDA	72629-94-8	S150125026	ND	0.186	0.560			U
	PFTeDA	376-06-7	S150125026	ND	0.214	0.560			U
	PFHxDA	67905-19-5	S150125026	ND	0.298	0.560			U
Sulfonates	PFBS	375-73-5	S150125026	3.16	0.298	0.560			
	PFPeS	2706-91-4	S150125026	0.488	0.115	0.528			J
	PFHxS	355-46-4	S150125026	3.28	0.432	0.513			
	PFHpS	375-92-8	S150125026	0.0135	0.271	0.534			L
	PFOS	1763-23-1	S150125026	9.15	0.296	0.519			
	PFNS	68259-12-1	S150125026	ND	0.174	0.540			U
	PFDS	335-77-3	S150125026	ND	0.294	0.540			U
	4:2 FTS	757124-72-4	S150125026	ND	0.0727	0.525			U
	6:2 FTS	27619-97-2	S150125026	0.326	0.264	0.534			J
	8:2 FTS	39108-34-4	S150125026	ND	0.126	0.537			U
	10:2 FTS	120226-60-0	S150125026	ND	0.429	0.560			U
Sulfonamidos	FBSA	30334-69-1	S150125026	0.189	0.266	0.560			L
	N-EtFOSA	4151-50-2	S150125026	ND	0.347	0.560			U
	N-EtFOSAA	2991-50-6	S150125026	ND	0.228	0.560			U
	N-EtFOSE	1691-99-2	S150125026	ND	0.858	2.52			U
	N-MeFOSA	31506-32-8	S150125026	ND	0.231	0.560			U
	N-MeFOSAA	2355-31-9	S150125026	ND	0.157	0.560			U
	N-MeFOSE	24448-09-7	S150125026	ND	0.532	2.52			U
	PFOSA	754-91-6	S150125026	ND	0.0786	0.560			U
PFECAs	ADONA	919005-14-4	S150125026	ND	0.152	0.531			U
	EVE Acid	69087-46-3	S150125026	ND	0.179	1.26			U
	HFPO-DA	13252-13-6	S150125026	3.51	0.0594	0.560			
	Hydro-EVE Acid	773804-62-9	S150125026	0.123	0.184	0.560			L
	NFDHA	151772-58-6	S150125026	ND	0.118	0.560			U
	PEPA	267239-61-2	S150125026	2.37	0.105	0.560			
	PFECA-G	801212-59-9	S150125026	ND	0.0748	0.560			U
	PFMOAA	674-13-5	S150125026	24.3	0.284	0.560			
	PFMOBA	863090-89-5	S150125026	ND	0.940	1.26			U
	PFMOPrA	377-73-1	S150125026	ND	0.200	0.560			U
	PFO2HxA	39492-88-1	S150125026	3.78	0.180	0.560			
	PFO3OA	39492-89-2	S150125026	ND	0.257	0.560			U
	PFO4DA	39492-90-5	S150125026	ND	0.443	2.80			U
	PFO5DA	39492-91-6	S150125026	ND	0.448	2.80			U
	PMPA	13140-29-9	S150125026	10.2	0.132	0.560			
	R-EVE	2416366-22-6	S150125026	7.59	0.930	1.26			
PFESAs	11Cl-PF3OUdS	763051-92-9	S150125026	ND	0.264	0.528			U
	9Cl-PF3ONS	756426-58-1	S150125026	ND	0.359	0.522			U
	Hydrolyzed PSDA	2416366-19-1	S150125026	3.10	0.373	0.560			
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S150125026	ND	0.299	0.560			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	S150125026	0.136	0.464	0.560			L
	NVHOS	1132933-86-8	S150125026	ND	0.0863	0.560			U
	PFEESA	113507-82-7	S150125026	ND	0.168	0.560			U
	R-PSDA	2416366-18-0	S150125026	3.96	2.47	2.47			
	R-PSDCA	2416366-21-5	S150125026	ND	0.236	0.560			U
ES	MPFBA		S150125026				20-150%	78.2%	
	M5PFPeA		S150125026				20-150%	142%	
	M3PFBS		S150125026				20-150%	179%	Q
	M2-4:2 FTS		S150125026				20-150%	104%	
	M5PFHxA		S150125026				20-150%	87.3%	
	M3HFPO-DA		S150125026				20-150%	82.7%	
	M4PFHpA		S150125026				20-150%	94.7%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-S01		
Sampling Site			
Enthalpy ID	0125-730-001-1	Prep Batch	EU18815
Matrix	aqueous	Analyst	jogres
Sampling Date	2025-01-10 12:45	Instrument	Sauron
Received Date	2025-01-10	Sample Vol mL	285.58
Prep Date	2025-01-14 13:36	Extract Vol mL	0.4
AnalysisDate	2025-01-16 01:41	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		S150125026				20-150%	87.7%	
	M2-6:2 FTS		S150125026				20-150%	92.6%	
	M8PFOA		S150125026				20-150%	96.3%	
	M9PFNA		S150125026				20-150%	101%	
	M8PFOS		S150125026				20-150%	86.5%	
	M2-8:2 FTS		S150125026				20-150%	84.0%	
	M8FOSA-I		S150125026				20-150%	77.8%	
	M6PFDA		S150125026				20-150%	92.3%	
	d3-N-MeFOSAA		S150125026				20-150%	84.7%	
	d5-N-EtFOSAA		S150125026				20-150%	83.8%	
	M7PFUdA		S150125026				20-150%	83.5%	
	MPFDoA		S150125026				20-150%	69.4%	
	M2PFTeDA		S150125026				20-150%	34.0%	
	d3-N-MeFOSA		S150125026				10-200%	10.1%	
	d5-N-EtFOSA		S150125026				10-200%	10.7%	
	d7-N-MeFOSE		S150125026				10-200%	51.4%	
	d9-N-EtFOSE		S150125026				10-200%	47.5%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-S01		
Sampling Site			
Enthalpy ID	0125-730-001-1A	Prep Batch	EU18816
Matrix	aqueous	Analyst	zoearndt
Sampling Date	2025-01-10 12:45	Instrument	Starscream
Received Date	2025-01-10	Sample Vol mL	0.1
Prep Date	2025-01-15 14:52	Extract Vol mL	0.2
AnalysisDate	2025-01-17 20:42	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	PFPrA	422-64-0	ST170125-01172042	ND	700	700			U
ES	13C3-PFPrA		ST170125-01172042				20-150%	91.5%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-E01		
Sampling Site			
Enthalpy ID	0125-730-002-1A	Prep Batch	EU18816
Matrix	aqueous	Analyst	zoearndt
Sampling Date	2025-01-10 12:45	Instrument	Starscream
Received Date	2025-01-10	Sample Vol mL	0.1
Prep Date	2025-01-15 14:52	Extract Vol mL	0.2
AnalysisDate	2025-01-17 20:54	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	PFPrA	422-64-0	ST170125-01172054	ND	700	700			U
ES	13C3-PFPrA		ST170125-01172054				20-150%	93.9%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-E01		
Sampling Site			
Enthalpy ID	0125-730-002-1B	Prep Batch	EU18836
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2025-01-10 12:45	Instrument	Pippin
Received Date	2025-01-10	Sample Vol mL	286.18
Prep Date	2025-01-20 12:40	Extract Vol mL	0.4
AnalysisDate	2025-01-21 05:56	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	PFBA	375-22-4	P200125054	2.91	0.222	0.559			
	PFPeA	2706-90-3	P200125054	5.44	0.160	0.559			
	PFHxA	307-24-4	P200125054	5.04	0.187	0.559			
	PFHpA	375-85-9	P200125054	2.56	0.196	0.559			
	PFOA	335-67-1	P200125054	4.84	0.128	0.559			
	PFNA	375-95-1	P200125054	0.472	0.126	0.559			J
	PFDA	335-76-2	P200125054	0.140	0.160	0.559			L
	PFUnDA	2058-94-8	P200125054	ND	0.126	0.559			U
	PFDoDA	307-55-1	P200125054	ND	0.227	0.559			U
	PFTrDA	72629-94-8	P200125054	ND	0.185	0.559			U
	PFTeDA	376-06-7	P200125054	ND	0.213	0.559			U
	PFHxDA	67905-19-5	P200125054	ND	0.297	0.559			U
Sulfonates	PFBS	375-73-5	P200125054	2.98	0.297	0.559			
	PFPeS	2706-91-4	P200125054	0.599	0.115	0.527			
	PFHxS	355-46-4	P200125054	3.52	0.432	0.512			
	PFHpS	375-92-8	P200125054	0.118	0.271	0.533			L
	PFOS	1763-23-1	P200125054	9.09	0.295	0.518			
	PFNS	68259-12-1	P200125054	ND	0.173	0.538			U
	PFDS	335-77-3	P200125054	ND	0.294	0.538			U
	4:2 FTS	757124-72-4	P200125054	ND	0.0725	0.524			U
	6:2 FTS	27619-97-2	P200125054	0.160	0.264	0.533			L
	8:2 FTS	39108-34-4	P200125054	ND	0.125	0.536			U
	10:2 FTS	120226-60-0	P200125054	ND	0.428	0.559			U
Sulfonamidos	FBSA	30334-69-1	P200125054	0.376	0.266	0.559			J
	N-EtFOSA	4151-50-2	P200125054	ND	0.346	0.559			U
	N-EtFOSAA	2991-50-6	P200125054	0.0946	0.227	0.559			L
	N-EtFOSE	1691-99-2	P200125054	ND	0.856	2.52			U
	N-MeFOSA	31506-32-8	P200125054	ND	0.231	0.559			U
	N-MeFOSAA	2355-31-9	P200125054	ND	0.157	0.559			U
	N-MeFOSE	24448-09-7	P200125054	ND	0.531	2.52			U
	PFOSA	754-91-6	P200125054	ND	0.0784	0.559			U
PFECAs	ADONA	919005-14-4	P200125054	ND	0.151	0.530			U
	EVE Acid	69087-46-3	P200125054	ND	0.178	1.26			U
	HFPO-DA	13252-13-6	P200125054	3.64	0.0592	0.559			
	Hydro-EVE Acid	773804-62-9	P200125054	0.0219	0.183	0.559			L
	NFDHA	151772-58-6	P200125054	ND	0.118	0.559			U
	PEPA	267239-61-2	P200125054	1.76	0.105	0.559			
	PFECA-G	801212-59-9	P200125054	ND	0.0746	0.559			U
	PFMOAA	674-13-5	P200125054	14.2	0.283	0.559			
	PFMOBA	863090-89-5	P200125054	ND	0.938	1.26			U
	PFMOPrA	377-73-1	P200125054	ND	0.199	0.559			U
	PFO2HxA	39492-88-1	P200125054	3.51	0.180	0.559			
	PFO3OA	39492-89-2	P200125054	0.791	0.257	0.559			
	PFO4DA	39492-90-5	P200125054	ND	0.442	2.80			U
	PFO5DA	39492-91-6	P200125054	ND	0.447	2.80			U
	PMPA	13140-29-9	P200125054	6.47	0.132	0.559			
	R-EVE	2416366-22-6	P200125054	4.63	0.928	1.26			
PFESAs	11Cl-PF3OUdS	763051-92-9	P200125054	ND	0.264	0.527			U
	9Cl-PF3ONS	756426-58-1	P200125054	ND	0.358	0.521			U
	Hydrolyzed PSDA	2416366-19-1	P200125054	3.70	0.372	0.559			
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P200125054	ND	0.299	0.559			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P200125054	0.154	0.463	0.559			L
	NVHOS	1132933-86-8	P200125054	ND	0.0861	0.559			U
	PFEESA	113507-82-7	P200125054	ND	0.168	0.559			U
	R-PSDA	2416366-18-0	P200125054	2.38	2.46	2.46			L
	R-PSDCA	2416366-21-5	P200125054	ND	0.236	0.559			U
ES	MPFBA		P200125054				20-150%	85.5%	
	M5PFPeA		P200125054				20-150%	132%	
	M3PFBS		P200125054				20-150%	152%	Q
	M2-4:2 FTS		P200125054				20-150%	98.2%	
	M5PFHxA		P200125054				20-150%	71.8%	
	M3HFPO-DA		P200125054				20-150%	58.5%	
	M4PFHpA		P200125054				20-150%	80.3%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	011025-E01		
Sampling Site			
Enthalpy ID	0125-730-002-1B	Prep Batch	EU18836
Matrix	aqueous	Analyst	jacksullivan
Sampling Date	2025-01-10 12:45	Instrument	Pippin
Received Date	2025-01-10	Sample Vol mL	286.18
Prep Date	2025-01-20 12:40	Extract Vol mL	0.4
AnalysisDate	2025-01-21 05:56	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
	M3PFHxS		P200125054				20-150%	85.7%	
	M2-6:2 FTS		P200125054				20-150%	102%	
	M8PFOA		P200125054				20-150%	81.8%	
	M9PFNA		P200125054				20-150%	88.8%	
	M8PFOS		P200125054				20-150%	78.7%	
	M2-8:2 FTS		P200125054				20-150%	95.5%	
	M8FOSA-I		P200125054				20-150%	74.2%	
	M6PFDA		P200125054				20-150%	75.9%	
	d3-N-MeFOSAA		P200125054				20-150%	73.0%	
	d5-N-EtFOSAA		P200125054				20-150%	72.8%	
	M7PFUdA		P200125054				20-150%	73.7%	
	MPFDoA		P200125054				20-150%	69.8%	
	M2PFTeDA		P200125054				20-150%	60.9%	
	d3-N-MeFOSA		P200125054				10-200%	14.3%	
	d5-N-EtFOSA		P200125054				10-200%	12.4%	
	d7-N-MeFOSE		P200125054				10-200%	43.4%	
	d9-N-EtFOSE		P200125054				10-200%	37.4%	

QC Data

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18815_PFAS		
Sampling Site			
Enthalpy ID	MB_18815_PFAS	Prep Batch	EU18815
Matrix	aqueous	Analyst	jogres
Sampling Date		Instrument	Sauron
Received Date		Sample Vol mL	250
Prep Date	2025-01-14 13:36	Extract Vol mL	0.4
AnalysisDate	2025-01-15 23:03	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	S150125019	ND	0.254	0.640			U
	PFPeA	2706-90-3	S150125019	ND	0.183	0.640			U
	PFHxA	307-24-4	S150125019	ND	0.214	0.640			U
	PFHpA	375-85-9	S150125019	ND	0.224	0.640			U
	PFOA	335-67-1	S150125019	ND	0.146	0.640			U
	PFNA	375-95-1	S150125019	ND	0.145	0.640			U
	PFDA	335-76-2	S150125019	ND	0.183	0.640			U
	PFUnDA	2058-94-8	S150125019	ND	0.145	0.640			U
	PFDoDA	307-55-1	S150125019	ND	0.260	0.640			U
	PFTrDA	72629-94-8	S150125019	ND	0.212	0.640			U
	PFTeDA	376-06-7	S150125019	ND	0.244	0.640			U
	PFHxDA	67905-19-5	S150125019	ND	0.340	0.640			U
Sulfonates	PFBS	375-73-5	S150125019	ND	0.340	0.640			U
	PFPeS	2706-91-4	S150125019	ND	0.131	0.603			U
	PFHxS	355-46-4	S150125019	ND	0.494	0.586			U
	PFHpS	375-92-8	S150125019	ND	0.310	0.610			U
	PFOS	1763-23-1	S150125019	ND	0.338	0.593			U
	PFNS	68259-12-1	S150125019	ND	0.199	0.616			U
	PFDS	335-77-3	S150125019	ND	0.336	0.616			U
	4:2 FTS	757124-72-4	S150125019	ND	0.0830	0.600			U
	6:2 FTS	27619-97-2	S150125019	0.0419	0.302	0.610			L
	8:2 FTS	39108-34-4	S150125019	ND	0.143	0.613			U
	10:2 FTS	120226-60-0	S150125019	ND	0.490	0.640			U
Sulfonamidos	FBSA	30334-69-1	S150125019	ND	0.304	0.640			U
	N-EtFOSA	4151-50-2	S150125019	0.301	0.396	0.640			L
	N-EtFOSAA	2991-50-6	S150125019	ND	0.260	0.640			U
	N-EtFOSE	1691-99-2	S150125019	ND	0.980	2.88			U
	N-MeFOSA	31506-32-8	S150125019	ND	0.264	0.640			U
	N-MeFOSAA	2355-31-9	S150125019	ND	0.180	0.640			U
	N-MeFOSE	24448-09-7	S150125019	ND	0.608	2.88			U
	PFOSA	754-91-6	S150125019	ND	0.0898	0.640			U
PFECAs	ADONA	919005-14-4	S150125019	ND	0.173	0.606			U
	EVE Acid	69087-46-3	S150125019	ND	0.204	1.44			U
	HFPO-DA	13252-13-6	S150125019	ND	0.0678	0.640			U
	Hydro-EVE Acid	773804-62-9	S150125019	ND	0.210	0.640			U
	NFDHA	151772-58-6	S150125019	ND	0.135	0.640			U
	PEPA	267239-61-2	S150125019	ND	0.120	0.640			U
	PFECA-G	801212-59-9	S150125019	ND	0.0854	0.640			U
	PFMOAA	674-13-5	S150125019	ND	0.324	0.640			U
	PFMOBA	863090-89-5	S150125019	ND	1.07	1.44			U
	PFMOPrA	377-73-1	S150125019	ND	0.228	0.640			U
	PFO2HxA	39492-88-1	S150125019	ND	0.206	0.640			U
	PFO3OA	39492-89-2	S150125019	ND	0.294	0.640			U
	PFO4DA	39492-90-5	S150125019	ND	0.506	3.20			U
	PFO5DA	39492-91-6	S150125019	ND	0.512	3.20			U
	PMPA	13140-29-9	S150125019	ND	0.151	0.640			U
	R-EVE	2416366-22-6	S150125019	ND	1.06	1.44			U
PFESAs	11Cl-PF3OUdS	763051-92-9	S150125019	ND	0.302	0.603			U
	9Cl-PF3ONS	756426-58-1	S150125019	ND	0.410	0.596			U
	Hydrolyzed PSDA	2416366-19-1	S150125019	ND	0.426	0.640			U
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S150125019	ND	0.342	0.640			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	S150125019	ND	0.530	0.640			U
	NVHOS	1132933-86-8	S150125019	ND	0.0986	0.640			U
	PFEESA	113507-82-7	S150125019	ND	0.192	0.640			U
	R-PSDA	2416366-18-0	S150125019	ND	2.82	2.82			U
	R-PSDCA	2416366-21-5	S150125019	ND	0.270	0.640			U
ES	MPFBA		S150125019				20-150%	96.7%	
	M5PFPeA		S150125019				20-150%	106%	
	M3PFBS		S150125019				20-150%	102%	
	M2-4:2 FTS		S150125019				20-150%	93.5%	
	M5PFHxA		S150125019				20-150%	89.7%	
	M3HFPO-DA		S150125019				20-150%	67.1%	
	M4PFHpA		S150125019				20-150%	86.8%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18815_PFAS		
Sampling Site			
Enthalpy ID	MB_18815_PFAS	Prep Batch	EU18815
Matrix	aqueous	Analyst	jogres
Sampling Date		Instrument	Sauron
Received Date		Sample Vol mL	250
Prep Date	2025-01-14 13:36	Extract Vol mL	0.4
AnalysisDate	2025-01-15 23:03	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		S150125019				20-150%	79.1%	
	M2-6:2 FTS		S150125019				20-150%	97.9%	
	M8PFOA		S150125019				20-150%	91.1%	
	M9PFNA		S150125019				20-150%	88.3%	
	M8PFOS		S150125019				20-150%	83.2%	
	M2-8:2 FTS		S150125019				20-150%	77.8%	
	M8FOSA-I		S150125019				20-150%	52.7%	
	M6PFDA		S150125019				20-150%	89.2%	
	d3-N-MeFOSAA		S150125019				20-150%	77.6%	
	d5-N-EtFOSAA		S150125019				20-150%	73.9%	
	M7PFUdA		S150125019				20-150%	73.8%	
	MPFDoA		S150125019				20-150%	49.3%	
	M2PFTeDA		S150125019				20-150%	18.8%	Q
	d3-N-MeFOSA		S150125019				10-200%	2.07%	Q
	d5-N-EtFOSA		S150125019				10-200%	2.68%	Q
	d7-N-MeFOSE		S150125019				10-200%	43.3%	
	d9-N-EtFOSE		S150125019				10-200%	45.9%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18816_PFAS		
Sampling Site			
Enthalpy ID	MB_18816_PFAS	Prep Batch	EU18816
Matrix	aqueous	Analyst	zoearndt
Sampling Date		Instrument	Starscream
Received Date		Sample Vol mL	0.1
Prep Date	2025-01-15 14:52	Extract Vol mL	0.2
AnalysisDate	2025-01-17 20:19	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	ST170125-01172019	ND	700	700			U
ES	13C3-PFPrA		ST170125-01172019				20-150%	90.7%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18836_PFAS		
Sampling Site			
Enthalpy ID	MB_18836_PFAS	Prep Batch	EU18836
Matrix	aqueous	Analyst	jacksullivan
Sampling Date		Instrument	Pippin
Received Date		Sample Vol mL	250
Prep Date	2025-01-20 12:40	Extract Vol mL	0.4
AnalysisDate	2025-01-21 05:11	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	P200125052	ND	0.254	0.640			U
	PFPeA	2706-90-3	P200125052	ND	0.183	0.640			U
	PFHxA	307-24-4	P200125052	ND	0.214	0.640			U
	PFHpA	375-85-9	P200125052	ND	0.224	0.640			U
	PFOA	335-67-1	P200125052	ND	0.146	0.640			U
	PFNA	375-95-1	P200125052	ND	0.145	0.640			U
	PFDA	335-76-2	P200125052	ND	0.183	0.640			U
	PFUnDA	2058-94-8	P200125052	ND	0.145	0.640			U
	PFDoDA	307-55-1	P200125052	ND	0.260	0.640			U
	PFTrDA	72629-94-8	P200125052	ND	0.212	0.640			U
	PFTeDA	376-06-7	P200125052	ND	0.244	0.640			U
	PFHxDA	67905-19-5	P200125052	ND	0.340	0.640			U
Sulfonates	PFBS	375-73-5	P200125052	ND	0.340	0.640			U
	PFPeS	2706-91-4	P200125052	ND	0.131	0.603			U
	PFHxS	355-46-4	P200125052	ND	0.494	0.586			U
	PFHpS	375-92-8	P200125052	ND	0.310	0.610			U
	PFOS	1763-23-1	P200125052	ND	0.338	0.593			U
	PFNS	68259-12-1	P200125052	ND	0.199	0.616			U
	PFDS	335-77-3	P200125052	ND	0.336	0.616			U
	4:2 FTS	757124-72-4	P200125052	ND	0.0830	0.600			U
	6:2 FTS	27619-97-2	P200125052	ND	0.302	0.610			U
	8:2 FTS	39108-34-4	P200125052	ND	0.143	0.613			U
	10:2 FTS	120226-60-0	P200125052	ND	0.490	0.640			U
Sulfonamidos	FBSA	30334-69-1	P200125052	ND	0.304	0.640			U
	N-EtFOSA	4151-50-2	P200125052	ND	0.396	0.640			U
	N-EtFOSAA	2991-50-6	P200125052	0.0298	0.260	0.640			L
	N-EtFOSE	1691-99-2	P200125052	ND	0.980	2.88			U
	N-MeFOSA	31506-32-8	P200125052	ND	0.264	0.640			U
	N-MeFOSAA	2355-31-9	P200125052	ND	0.180	0.640			U
	N-MeFOSE	24448-09-7	P200125052	ND	0.608	2.88			U
	PFOSA	754-91-6	P200125052	ND	0.0898	0.640			U
PFECAs	ADONA	919005-14-4	P200125052	ND	0.173	0.606			U
	EVE Acid	69087-46-3	P200125052	ND	0.204	1.44			U
	HFPO-DA	13252-13-6	P200125052	ND	0.0678	0.640			U
	Hydro-EVE Acid	773804-62-9	P200125052	ND	0.210	0.640			U
	NFDHA	151772-58-6	P200125052	ND	0.135	0.640			U
	PEPA	267239-61-2	P200125052	ND	0.120	0.640			U
	PFECA-G	801212-59-9	P200125052	ND	0.0854	0.640			U
	PFMOAA	674-13-5	P200125052	ND	0.324	0.640			U
	PFMOBA	863090-89-5	P200125052	ND	1.07	1.44			U
	PFMOPrA	377-73-1	P200125052	ND	0.228	0.640			U
	PFO2HxA	39492-88-1	P200125052	ND	0.206	0.640			U
	PFO3OA	39492-89-2	P200125052	ND	0.294	0.640			U
	PFO4DA	39492-90-5	P200125052	ND	0.506	3.20			U
	PFO5DA	39492-91-6	P200125052	ND	0.512	3.20			U
	PMPA	13140-29-9	P200125052	ND	0.151	0.640			U
	R-EVE	2416366-22-6	P200125052	ND	1.06	1.44			U
PFESAs	11Cl-PF3OUdS	763051-92-9	P200125052	ND	0.302	0.603			U
	9Cl-PF3ONS	756426-58-1	P200125052	ND	0.410	0.596			U
	Hydrolyzed PSDA	2416366-19-1	P200125052	ND	0.426	0.640			U
	Nafion Byproduct 1 (PS Acid)	29311-67-9	P200125052	ND	0.342	0.640			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	P200125052	ND	0.530	0.640			U
	NVHOS	1132933-86-8	P200125052	ND	0.0986	0.640			U
	PFEESA	113507-82-7	P200125052	ND	0.192	0.640			U
	R-PSDA	2416366-18-0	P200125052	ND	2.82	2.82			U
	R-PSDCA	2416366-21-5	P200125052	ND	0.270	0.640			U
ES	MPFBA		P200125052				20-150%	83.3%	
	M5PFPeA		P200125052				20-150%	82.4%	
	M3PFBS		P200125052				20-150%	84.4%	
	M2-4:2 FTS		P200125052				20-150%	88.0%	
	M5PFHxA		P200125052				20-150%	76.4%	
	M3HFPO-DA		P200125052				20-150%	65.1%	
	M4PFHpA		P200125052				20-150%	83.7%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Details

Sample Name	MB_18836_PFAS		
Sampling Site			
Enthalpy ID	MB_18836_PFAS	Prep Batch	EU18836
Matrix	aqueous	Analyst	jacksullivan
Sampling Date		Instrument	Pippin
Received Date		Sample Vol mL	250
Prep Date	2025-01-20 12:40	Extract Vol mL	0.4
AnalysisDate	2025-01-21 05:11	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		P200125052				20-150%	80.4%	
	M2-6:2 FTS		P200125052				20-150%	103%	
	M8PFOA		P200125052				20-150%	88.5%	
	M9PFNA		P200125052				20-150%	96.0%	
	M8PFOS		P200125052				20-150%	88.3%	
	M2-8:2 FTS		P200125052				20-150%	103%	
	M8FOSA-I		P200125052				20-150%	74.1%	
	M6PFDA		P200125052				20-150%	88.5%	
	d3-N-MeFOSAA		P200125052				20-150%	77.9%	
	d5-N-EtFOSAA		P200125052				20-150%	78.4%	
	M7PFUdA		P200125052				20-150%	86.1%	
	MPFDoA		P200125052				20-150%	78.1%	
	M2PFTeDA		P200125052				20-150%	54.4%	
	d3-N-MeFOSA		P200125052				10-200%	9.77%	Q
	d5-N-EtFOSA		P200125052				10-200%	10.3%	
	d7-N-MeFOSE		P200125052				10-200%	52.1%	
	d9-N-EtFOSE		P200125052				10-200%	50.4%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Enthalpy ID	OPR_18815_PFAS	Prep Batch	EU18815	Sample Vol (mL)	250
Sample Name	OPR_18815_PFAS	Prep Date	2025-01-14 13:36	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2025-01-15 23:25	Split Factor	N/A
Sampling Date		Analyst	jogres	Method Code	EU-047-NPW
Received Date		Instrument	Sauron	Sample Type	Control
		Bottle ID	-		

	Compound	CAS	InjFileName	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFBA	375-22-4	S150125020	17.5	0.254	0.640	47.9-144%	87.3%	
	PFPeA	2706-90-3	S150125020	17.2	0.183	0.640	41.7-159%	86.1%	
	PFHxA	307-24-4	S150125020	17.0	0.214	0.640	43.2-154%	85.1%	
	PFHpA	375-85-9	S150125020	18.4	0.224	0.640	42.1-155%	92.0%	
	PFOA	335-67-1	S150125020	18.6	0.146	0.640	51.1-148%	93.0%	
	PFNA	375-95-1	S150125020	18.0	0.145	0.640	51.6-153%	90.0%	
	PFDA	335-76-2	S150125020	19.2	0.183	0.640	44.5-156%	96.1%	
	PFUnDA	2058-94-8	S150125020	18.1	0.145	0.640	40.3-156%	90.7%	
	PFDoDA	307-55-1	S150125020	22.3	0.260	0.640	40.4-158%	111%	
	PFTrDA	72629-94-8	S150125020	63.2	0.212	0.640	42.2-201%	316%	Q
	PFTeDA	376-06-7	S150125020	23.3	0.244	0.640	43-162%	116%	
Sulfonates	PFBS	375-73-5	S150125020	18.0	0.340	0.640	42.7-155%	101%	
	PFPeS	2706-91-4	S150125020	19.9	0.131	0.603	40.3-152%	106%	
	PFHxS	355-46-4	S150125020	18.8	0.494	0.586	45-148%	103%	
	PFHpS	375-92-8	S150125020	17.6	0.310	0.610	39.8-166%	92.2%	
	PFOS	1763-23-1	S150125020	17.1	0.338	0.593	59.2-132%	92.2%	
	PFNS	68259-12-1	S150125020	19.1	0.199	0.616	38.1-153%	99.2%	
	PFDS	335-77-3	S150125020	17.4	0.336	0.616	28.6-148%	90.1%	
	4:2 FTS	757124-72-4	S150125020	18.4	0.0830	0.600	41.5-157%	97.9%	
	6:2 FTS	27619-97-2	S150125020	17.3	0.302	0.610	44.5-160%	91.1%	
	8:2 FTS	39108-34-4	S150125020	19.5	0.143	0.613	39.4-166%	102%	
Sulfonamidos	N-EtFOSA	4151-50-2	S150125020	19.2	0.396	0.640	26.7-172%	96.1%	
	N-EtFOSAA	2991-50-6	S150125020	17.7	0.260	0.640	42.8-156%	88.5%	
	N-MeFOSA	31506-32-8	S150125020	19.0	0.264	0.640	26.4-183%	95.2%	
	N-MeFOSAA	2355-31-9	S150125020	18.5	0.180	0.640	42-155%	92.5%	
	PFOSA	754-91-6	S150125020	20.8	0.0898	0.640	39.1-158%	104%	
PFECAs	ADONA	919005-14-4	S150125020	16.7	0.173	0.606	32.2-151%	83.5%	
	HFPO-DA	13252-13-6	S150125020	20.8	0.0678	0.640	61.8-131%	104%	
PFESAs	11Cl-PF3OUdS	763051-92-9	S150125020	14.8	0.302	0.603	21.8-141%	74.0%	
	9Cl-PF3ONS	756426-58-1	S150125020	16.3	0.410	0.596	37.6-146%	81.4%	
ES	MPFBA		S150125020				20-150%	90.9%	
	M5PFPeA		S150125020				20-150%	106%	
	M3PFBS		S150125020				20-150%	90.4%	
	M2-4:2 FTS		S150125020				20-150%	76.0%	
	M5PFHxA		S150125020				20-150%	89.6%	
	M3HFPO-DA		S150125020				20-150%	62.9%	
	M4PFHpA		S150125020				20-150%	79.8%	
	M3PFHxS		S150125020				20-150%	71.5%	
	M2-6:2 FTS		S150125020				20-150%	89.7%	
	M8PFOA		S150125020				20-150%	85.8%	
	M9PFNA		S150125020				20-150%	87.9%	
	M8PFOS		S150125020				20-150%	81.5%	
	M2-8:2 FTS		S150125020				20-150%	78.3%	
	M8FOSA-I		S150125020				20-150%	54.1%	
	M6PFDA		S150125020				20-150%	85.3%	
	d3-N-MeFOSAA		S150125020				20-150%	69.8%	
	d5-N-EtFOSAA		S150125020				20-150%	65.0%	
	M7PFUdA		S150125020				20-150%	80.2%	
	MPFDoA		S150125020				20-150%	57.9%	
	M2PFTeDA		S150125020				20-150%	14.3%	Q
	d3-N-MeFOSA		S150125020				10-200%	3.67%	Q
	d5-N-EtFOSA		S150125020				10-200%	3.29%	Q
	d7-N-MeFOSE		S150125020				10-200%	27.9%	
	d9-N-EtFOSE		S150125020				10-200%	22.5%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Enthalpy ID	OPR_18816_PFAS	Prep Batch	EU18816	Sample Vol (mL)	0.8
Sample Name	OPR_18816_PFAS	Prep Date	2025-01-15 14:52	Extract Vol (mL)	0.2
Matrix	aqueous	Analysis Date	2025-01-17 20:31	Split Factor	N/A
Sampling Date		Analyst	zoearndt	Method Code	EU-047-NPW
Received Date		Instrument	Starscream	Sample Type	Control
		Bottle ID	-		

	Compound	CAS	InjFileName	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFPrA	422-64-0	ST170125-01172031	2820	87.5	87.5	40-150%	113%	
ES	13C3-PFPrA		ST170125-01172031				20-150%	91.4%	

Enthalpy Analytical

Job No.: 0125-730-1 PFAS by Isotope Dilution (non-potable water)

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

Enthalpy ID	OPR_18836_PFAS	Prep Batch	EU18836	Sample Vol (mL)	250
Sample Name	OPR_18836_PFAS	Prep Date	2025-01-20 12:40	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2025-01-21 05:33	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	P200125053	18.7	0.254	0.640	47.9-144%	93.7%	
	PFPeA	2706-90-3	P200125053	19.3	0.183	0.640	41.7-159%	96.7%	
	PFHxA	307-24-4	P200125053	18.6	0.214	0.640	43.2-154%	93.0%	
	PFHpA	375-85-9	P200125053	19.0	0.224	0.640	42.1-155%	95.0%	
	PFOA	335-67-1	P200125053	18.7	0.146	0.640	51.1-148%	93.3%	
	PFNA	375-95-1	P200125053	18.5	0.145	0.640	51.6-153%	92.3%	
	PFDA	335-76-2	P200125053	20.3	0.183	0.640	44.5-156%	102%	
	PFUnDA	2058-94-8	P200125053	19.2	0.145	0.640	40.3-156%	96.2%	
	PFDoDA	307-55-1	P200125053	17.9	0.260	0.640	40.4-158%	89.7%	
	PFTrDA	72629-94-8	P200125053	24.0	0.212	0.640	42.2-201%	120%	
	PFTeDA	376-06-7	P200125053	20.7	0.244	0.640	43-162%	104%	
Sulfonates	PFBS	375-73-5	P200125053	17.4	0.340	0.640	42.7-155%	98.3%	
	PFPeS	2706-91-4	P200125053	18.5	0.131	0.603	40.3-152%	98.2%	
	PFHxS	355-46-4	P200125053	17.3	0.494	0.586	45-148%	94.5%	
	PFHpS	375-92-8	P200125053	17.8	0.310	0.610	39.8-166%	93.6%	
	PFOS	1763-23-1	P200125053	17.7	0.338	0.593	59.2-132%	95.6%	
	PFNS	68259-12-1	P200125053	17.6	0.199	0.616	38.1-153%	91.6%	
	PFDS	335-77-3	P200125053	16.6	0.336	0.616	28.6-148%	86.0%	
	4:2 FTS	757124-72-4	P200125053	17.6	0.0830	0.600	41.5-157%	94.1%	
	6:2 FTS	27619-97-2	P200125053	18.1	0.302	0.610	44.5-160%	95.3%	
	8:2 FTS	39108-34-4	P200125053	19.3	0.143	0.613	39.4-166%	100%	
Sulfonamidos	N-EtFOSA	4151-50-2	P200125053	19.9	0.396	0.640	26.7-172%	99.3%	
	N-EtFOSAA	2991-50-6	P200125053	18.5	0.260	0.640	42.8-156%	92.6%	
	N-MeFOSA	31506-32-8	P200125053	23.8	0.264	0.640	26.4-183%	119%	
	N-MeFOSAA	2355-31-9	P200125053	18.9	0.180	0.640	42-155%	94.7%	
	PFOSA	754-91-6	P200125053	20.8	0.0898	0.640	39.1-158%	104%	
PFECAs	ADONA	919005-14-4	P200125053	17.1	0.173	0.606	32.2-151%	85.7%	
	HFPO-DA	13252-13-6	P200125053	21.5	0.0678	0.640	61.8-131%	107%	
PFESAs	11Cl-PF3OUdS	763051-92-9	P200125053	15.9	0.302	0.603	21.8-141%	79.6%	
	9Cl-PF3ONS	756426-58-1	P200125053	16.7	0.410	0.596	37.6-146%	83.5%	
ES	MPFBA		P200125053				20-150%	85.2%	
	M5PFPeA		P200125053				20-150%	85.5%	
	M3PFBS		P200125053				20-150%	82.1%	
	M2-4:2 FTS		P200125053				20-150%	93.4%	
	M5PFHxA		P200125053				20-150%	79.0%	
	M3HFPO-DA		P200125053				20-150%	68.1%	
	M4PFHpA		P200125053				20-150%	86.5%	
	M3PFHxS		P200125053				20-150%	88.2%	
	M2-6:2 FTS		P200125053				20-150%	111%	
	M8PFOA		P200125053				20-150%	90.0%	
	M9PFNA		P200125053				20-150%	96.1%	
	M8PFOS		P200125053				20-150%	91.7%	
	M2-8:2 FTS		P200125053				20-150%	111%	
	M8FOSA-I		P200125053				20-150%	84.4%	
	M6PFDA		P200125053				20-150%	90.9%	
	d3-N-MeFOSAA		P200125053				20-150%	81.5%	
	d5-N-EtFOSAA		P200125053				20-150%	80.2%	
	M7PFUdA		P200125053				20-150%	90.4%	
	MPFDoA		P200125053				20-150%	85.4%	
	M2PFTeDA		P200125053				20-150%	59.9%	
	d3-N-MeFOSA		P200125053				10-200%	13.5%	
	d5-N-EtFOSA		P200125053				10-200%	13.3%	
	d7-N-MeFOSE		P200125053				10-200%	54.4%	
	d9-N-EtFOSE		P200125053				10-200%	48.0%	

Sample Custody

0125-730

Chain of Custody Record

ENTHALPY analytical

Enthalpy Ultratrace Job#: _____ **COC Page** 1 of 1

Special Handling:

X 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: # of Bottles	# of Jars	# of Bags	# Other				Analyses: 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	Notes:
011025-S01	1/10/2025	12:45 PM	250 ml	G	NW	2														X	Please Add PFPrA and
011025-E01	1/10/2025	12:45 PM	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	1/10/2025		1/10/25	14:46	☒ Iced ☐ Ambient °C 4.9
					☐ Iced ☐ Ambient °C_____
					☐ Iced ☐ Ambient °C_____

2714 Exchange Drive • Wilmington, NC 28405 • (910) 212-5858 • www.enthalpy.com

JOB ID: 0125-730 Date / Time: 1/10/25 14:46 Initials: S.S.

OR

Client: Brunswick County Public Utilities

Cooler 1 of 1

Temp °C: 4.9 Thermometer ID: T16

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:	☐	☑
Sample seals:	☐	☑
Good condition:	☑	☐

Comment:

Cooler ____ of ____

Temp °C: ____ Thermometer ID: ____

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:	☐	☐
Sample seals:	☐	☐
Good condition:	☐	☐

Comment:

Cooler ____ of ____

Temp °C: ____ Thermometer ID: ____

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:	☐	☐
Sample seals:	☐	☐
Good condition:	☐	☐

Comment: