

# Pender County

605 E Fremont Street  
Burgaw, NC 28425-5115

## Surface Water Treatment Plant

Client Project: Post GAC-Exchange  
Samples Received: 1/13/2023

### Analytical Report 0123-744

#### PFAS by Isotope Dilution PFAS

Report Issue Date: 2/1/2023

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 20 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.

Signature:



Laura Boivin, QA Associate II

Amendments:



Enthalpy Analytical, LLC – Ultratrace  
Mark Hager, Project Manager  
O: 910-876-6894 / F: 910-212-6886  
mark.hager@enthalpy.com / www.enthalpy.com  
2714 Exchange Drive, Wilmington, NC 28405

Enthalpy Analytical

Job No.: 0123-744-1 PFAS by Isotope Dilution (non-potable water)

Pender County Client Project: Post GAC-Exchange Site: Surface Water Treatment Plant

Enthalpy ID	0123-744-001-1	Prep Batch	EU14562	Sample Vol (mL)	297.43
Sample Name	CFE	Prep Date	2023-01-18 13:35	Extract Vol (mL)	0.4
Matrix	DW	Analysis Date	1/17/2023 7:23:03 AM	Split Factor	N/A
Sampling Date	20230113 13:05	Analyst	bmay	Method Code	WM-025
Received Date	2023-01-13 04:29	Instrument	Pippin	Sample Type	Sample

	Compound	CAS	Extract Concentration ng/L	Sample Concentration ng/L	Formatted Result ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	2211.62	3.00	3.00	0.221	0.557				
	PFPeA	2706-90-3	4201.57	5.85	5.85	0.159	0.557				
	PFHxA	307-24-4	3581.23	4.98	4.98	0.186	0.557				
	PFHxA	375-95-9	1763.92	2.45	2.45	0.195	0.557				
	PFOA	335-67-1	3241.27	4.51	4.51	0.127	0.557				
	PFNA	375-95-1	433.38	0.603	0.603	0.128	0.557				
	PFDA	335-78-2	170.77	0.238	0.238	0.159	0.567				
	PFUnDA	2059-94-9	ND	ND	<LOD	0.126	0.557			J	
	PFDoDA	307-55-1	ND	ND	<LOD	0.226	0.557			U	
	PFTeDA	72629-94-8	ND	ND	<LOD	0.184	0.557			U	
	PFTeDA	378-08-7	ND	ND	<LOD	0.212	0.557			U	
	Sulfonates	PFBS	375-73-5	2747.92	3.82	3.82	0.296	0.557			
		PFPeS	2706-91-4	310.63	0.432	0.432	0.114	0.524			J
PFHxS		355-48-4	1981.20	2.76	2.76	0.430	0.510				
PFHpS		375-62-8	253.91	0.353	0.353	0.270	0.630			J	
PFOS		1783-23-1	5891.10	8.20	8.20	0.284	0.516				
PFNS		68256-12-1	ND	ND	<LOD	0.173	0.536			U	
PFDS		335-77-3	ND	ND	<LOD	0.292	0.536			U	
4:2 FTS		757124-72-4	ND	ND	<LOD	0.0722	0.521			U	
6:2 FTS		27819-97-2	331.43	0.461	0.461	0.283	0.530			J	
8:2 FTS		39109-34-4	ND	ND	<LOD	0.125	0.533			U	
Other		PFOA	754-81-8	31.94	0.0445	<LOD	0.0781	0.557			U
		N-MeFOSAA	2365-31-9	ND	ND	<LOD	0.158	0.557			U
		N-EFOSAA	2961-50-8	ND	ND	<LOD	0.226	0.557			U
	HFPO-DA	13252-13-8	1201.14	1.87	1.87	0.0580	0.557				
	PFMOAA	674-13-5	7883.96	11.0	11.0	0.282	0.557				
	PFMOPhA	377-73-1	ND	ND	<LOD	0.198	0.567			U	
	PFOzHA	39492-88-1	1923.53	2.68	2.68	0.179	0.557				
	PFO3OA	39492-89-2	424.32	0.590	0.590	0.258	0.557				
	PFO4DA	39492-80-5	ND	ND	<LOD	0.440	2.78			U	
	Nation Byproduct 1	29311-87-9	ND	ND	<LOD	0.287	0.557			U	
	ADONA	919005-14-4	ND	ND	<LOD	0.151	0.527			U	
	9CI-PF3ONS	756426-58-1	ND	ND	<LOD	0.357	0.519			U	
	11CI-PF3OUs	763051-92-9	ND	ND	<LOD	0.263	0.524			U	
	10:2 FTS	120228-00-0	ND	ND	<LOD	0.428	0.557			U	
	F8SA	30334-86-1	378.38	0.524	0.524	0.284	0.557			J	
	Nation Byproduct 2	749836-20-2	ND	ND	<LOD	0.481	0.557			U	
	N-EFOSA	4151-50-2	ND	ND	<LOD	0.344	0.557			U	
	N-EFOSE	1691-99-2	ND	ND	<LOD	0.852	2.50			U	
	NFDHA	151772-68-6	ND	ND	<LOD	0.117	0.567			U	
	N-MeFOA	31505-32-8	ND	ND	<LOD	0.230	0.557			U	
	N-MeFOSE	24448-09-7	ND	ND	<LOD	0.529	2.50			U	
	PEPA	267239-81-2	485.12	0.675	0.675	0.104	0.557				
	PFECA-G	801212-59-9	ND	ND	<LOD	0.0743	0.557			U	
	PFEESA	113507-82-7	ND	ND	<LOD	0.167	0.557			U	
	PFHxDA	67905-19-5	69.02	0.0847	<LOD	0.298	0.557			U	
	PFMOBA	965090-89-6	ND	ND	<LOD	0.934	1.25			U	
	PFO5DA	39492-81-6	ND	ND	<LOD	0.445	2.78			U	
	PMPA	13140-29-9	1732.59	2.41	2.41	0.131	0.557				
	ES	MPFBA		4113.47	5.72				20-150%	82.3%	
		M5PFPeA		4450.92	6.19				20-150%	89.0%	
M3PFBS			5059.11	7.04				20-150%	101.2%		
M2-4:2 FTS			5490.62	7.93				20-150%	109.0%		
M5PFHxA			4899.41	6.82				20-150%	98.0%		
M3HFPO-DA			4407.15	6.13				20-150%	98.1%		
M4PFHpA			4243.04	5.90				20-150%	84.9%		
M3PFHxS			4479.11	6.23				20-150%	89.6%		
M2-6:2 FTS			4787.58	6.66				20-150%	95.5%		
M8PFOA			4423.15	6.16				20-150%	88.5%		
M9PFNA			4493.50	6.24				20-150%	89.7%		
M8PFOS			4015.32	5.59				20-150%	80.3%		
M2-8:2 FTS			4870.02	6.78				20-150%	97.4%		
M8FOSA-I			4550.49	6.33				20-150%	91.0%		
M9PFDA			4388.98	6.11				20-150%	87.8%		
d3-N-MeFOSAA			4385.43	6.10				20-150%	87.7%		
d5-N-EFOSAA			4176.24	5.81				20-150%	83.5%		
M7PFUnA			4303.64	5.99				20-150%	86.1%		
M2PFDoA			4538.74	6.32				20-150%	90.8%		
M2PFTeDA			3367.81	4.89				20-150%	67.4%		
d3-N-MeFOA			4309.63	6.00				10-200%	43.1%		
d5-N-EFOA			4133.30	5.75				10-200%	41.3%		
d7-N-MeFOSE			6479.66	9.02				10-200%	64.8%		
d8-N-EFOSE			6246.75	8.89				10-200%	62.5%		

Enthalpy Analytical

Job No. 0123-744-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Client Project: Post GAC-Exchange Site Surface Water Treatment Plant

Enthalpy ID	0123-744-002-1	Prep Batch	EU14592	Sample Vol (mL)	290.16
Sample Name	Post-CW	Prep Date	2023-01-16 13:35	Extract Vol (mL)	0.4
Matrix	DW	Analysis Date	1/17/2023 7:45:43 AM	Split Factor	N/A
Sampling Date	20230113 13:06	Analyst	binay	Method Code	WM-026
Received Date	2023-01-13 04:29	Instrument	Pippin	Sample Type	Sample

	Compound	CAS	Extract Concentration ng/L	Sample Concentration ng/L	Formatted Result ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	1738.38	2.48	2.48	0.227	0.571				
	PFPeA	2706-80-3	2866.12	4.09	4.09	0.183	0.671				
	PFHxA	307-24-4	1887.98	2.70	2.70	0.191	0.571				
	PFHpA	375-85-9	776.93	1.11	1.11	0.200	0.571				
	PFOA	335-87-1	1067.91	1.52	1.52	0.131	0.571				
	PFNA	375-86-1	44.32	0.0833	<LOD	0.129	0.571			U	
	PFDA	335-78-2	ND	ND	<LOD	0.163	0.571			U	
	PFUnDA	2058-84-8	ND	ND	<LOD	0.129	0.571			U	
	PFDoDA	307-55-1	ND	ND	<LOD	0.232	0.571			U	
	PFTeDA	72829-94-8	ND	ND	<LOD	0.189	0.571			U	
	PFTeDA	376-06-7	ND	ND	<LOD	0.218	0.571			U	
	Sulfonates	PFBS	375-73-5	1318.57	1.88	1.88	0.303	0.571			
		PFPeS	2706-81-4	66.21	0.0945	<LOD	0.117	0.538			U
		PFHxS	355-48-4	402.49	0.575	0.575	0.441	0.523			
PFHpS		375-82-8	ND	ND	<LOD	0.277	0.544			U	
PFOS		1783-23-1	661.68	0.945	0.945	0.302	0.529				
PFNS		68258-12-1	ND	ND	<LOD	0.177	0.650			U	
PFDS		335-77-3	ND	ND	<LOD	0.300	0.650			U	
4:2 FTS		757124-72-4	ND	ND	<LOD	0.0741	0.635			U	
6:2 FTS		27819-87-2	70.33	0.100	<LOD	0.269	0.544			U	
8:2 FTS		39108-34-4	ND	ND	<LOD	0.128	0.547			U	
Other		PFOA	754-81-6	398.95	0.570	0.570	0.0801	0.571			J
		N-MeFOSAA	2355-31-9	ND	ND	<LOD	0.160	0.571			U
		N-EtFOSAA	2891-50-8	ND	ND	<LOD	0.232	0.571			U
		HFPO-DA	13282-13-8	887.50	1.24	1.24	0.0805	0.571			
	PFMOA	874-13-5	4373.70	6.24	6.24	0.288	0.571				
	PFMOHA	377-73-1	ND	ND	<LOD	0.203	0.571			U	
	PFOzHA	39482-88-1	1208.12	1.73	1.73	0.184	0.571				
	PFO3OA	39482-88-2	141.18	0.202	<LOD	0.262	0.571			U	
	PFO4DA	39482-90-5	ND	ND	<LOD	0.452	2.86			U	
	Nafion Byproduct 1	28311-87-9	ND	ND	<LOD	0.305	0.571			U	
	ADONA	919005-14-4	ND	ND	<LOD	0.155	0.541			U	
	9Cl-PF3OUds	758426-58-1	ND	ND	<LOD	0.368	0.532			U	
	11Cl-PF3OUds	763051-82-9	ND	ND	<LOD	0.289	0.538			U	
	10:2 FTS	120226-60-0	ND	ND	<LOD	0.437	0.571			U	
	FBSA	30334-89-1	59.72	0.0853	<LOD	0.271	0.571			U	
	Nafion Byproduct 2	749838-20-2	ND	ND	<LOD	0.473	0.571			U	
	N-EtFOA	4181-50-2	ND	ND	<LOD	0.353	0.571			U	
	N-EtFOSE	1881-99-2	ND	ND	<LOD	0.875	2.57			U	
	NFDHA	151772-58-6	ND	ND	<LOD	0.120	0.571			U	
	N-MeFOA	31506-32-8	ND	ND	<LOD	0.238	0.571			U	
	N-MeFOSE	24448-09-7	ND	ND	<LOD	0.543	2.57			U	
	PEPA	267238-81-2	311.55	0.445	0.445	0.107	0.671			J	
	PFECa-G	801212-68-9	ND	ND	<LOD	0.0782	0.671			U	
	PFEEA	113507-82-7	ND	ND	<LOD	0.172	0.671			U	
	PFHxDA	67905-19-5	ND	ND	<LOD	0.303	0.571			U	
	PFMOBA	863090-89-5	ND	ND	<LOD	0.858	1.28			U	
	PFO6DA	39482-91-6	ND	ND	<LOD	0.457	2.86			U	
	PMPA	13140-29-9	1269.57	1.81	1.81	0.136	0.571				
ES	MPPFA		4087.49	5.84				20-150%	81.7%		
	M6PPeA		3701.07	5.28				20-150%	74.0%		
	M3PFBS		3453.46	4.93				20-150%	89.1%		
	M2-4:2 FTS		4120.98	5.88				20-150%	82.4%		
	M5PPHxA		5415.65	7.73				20-150%	108.3%		
	M3HFPO-DA		3980.07	5.68				20-150%	79.6%		
	M4PPHpA		4022.10	5.74				20-150%	80.4%		
	M3PPHxS		3788.72	5.41				20-150%	75.8%		
	M2-6:2 FTS		4111.57	5.87				20-150%	82.2%		
	M8PFOA		4037.27	5.76				20-150%	80.7%		
	M8PFNA		4499.88	6.42				20-150%	90.0%		
	M8PFOS		4054.28	5.79				20-150%	81.1%		
	M2-8:2 FTS		4051.12	5.78				20-150%	81.0%		
	M8FOA-I		3575.08	5.10				20-150%	71.5%		
	M8PFDA		3967.87	5.67				20-150%	79.4%		
	d3-N-MeFOSAA		4002.35	5.71				20-150%	80.0%		
	d5-N-EtFOSAA		3887.89	5.55				20-150%	77.8%		
	M7PFUDa		3921.79	5.60				20-150%	78.4%		
	MPPDGA		3817.09	5.16				20-150%	72.3%		
	M2PFTeDA		3331.05	4.76				20-150%	66.6%		
	d3-N-MeFOA		3541.47	5.06				10-200%	35.4%		
	d5-N-EtFOA		3857.71	5.22				10-200%	36.8%		
	d7-N-MeFOSE		8942.97	9.91				10-200%	69.4%		
	d9-N-EtFOSE		6440.45	9.20				10-200%	64.4%		