

# Pender County

605 E Fremont St  
Burgaw, NC 28425-5115

## Surface Water Treatment Plant

Client Project# Post GAC Exchange  
Samples Received: 12/4/2023

### Analytical Report 1223-730

#### PFAS by Isotope Dilution (non-potable water) PFAS 49 List

Report Issue Date: 1/4/2024

I certify that to the best of my knowledge all analytical data presented in this report have been checked for completeness, accuracy, errors and legibility in addition to having been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s). This analytical report was prepared in Portable Document Format (.PDF) and contains 27 pages. This report shall not be reproduced except in full without approval of the laboratory. This will provide assurance that parts of the report are not taken out of context.

Amendment(s):

Signature:



Laura Boivin, QA Associate II



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# Enthalpy Analytical

Job No.: 1223-730-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Post GAC Exchange Surface Water Treatment Plant

Enthalpy ID	1223-730-002-1	Prep Batch	EU16510	Sample Vol (mL)	289.46
Sample Name	CFE	Prep Date	2023-12-07 13:40	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2023-12-11 03:18	Split Factor	N/A
Sampling Date	2023-12-04 11:36	Analyst	wicleve	Method Code	EU-047-NPW
Received Date	2023-12-04	Instrument	Aragorn	Sample Type	Sample
		Bottle ID	A		

	Compound	CAS	Formatted Result ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFBA	375-22-4	5.06	0.219	0.553			
	PFPeA	2706-90-3	12.8	0.158	0.553			
	PFHxA	307-24-4	11.8	0.185	0.553			
	PFHpA	375-85-9	4.52	0.193	0.553			
	PFOA	335-67-1	6.38	0.126	0.553			
	PFNA	375-95-1	0.671	0.125	0.553			
	PFDA	335-76-2	0.288	0.158	0.553			J
	PFUnDA	2058-94-8	<LOD	0.125	0.553			U
	PFDoDA	307-55-1	<LOD	0.225	0.553			U
	PFTTrDA	72629-94-8	<LOD	0.183	0.553			U
	PFTeDA	376-06-7	<LOD	0.211	0.553			U
	PFHxDA	67905-19-5	<LOD	0.294	0.553			U
	Sulfonates	PFBS	375-73-5	7.34	0.294	0.553		
PFPeS		2706-91-4	1.07	0.113	0.521			
PFHxS		355-46-4	6.06	0.427	0.506			
PFHpS		375-92-8	<LOD	0.268	0.527			U
PFOS		1763-23-1	9.60	0.292	0.512			
PFNS		68259-12-1	<LOD	0.172	0.532			U
PFDS		335-77-3	<LOD	0.290	0.532			U
4:2 FTS		757124-72-4	<LOD	0.0717	0.518			U
6:2 FTS		27619-97-2	<LOD	0.261	0.527			U
8:2 FTS		39108-34-4	<LOD	0.124	0.529			U
10:2 FTS	120226-60-0	<LOD	0.423	0.553			U	
Other	Nafion Byproduct 1 (PS Acid)	29311-67-9	<LOD	0.295	0.553			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	<LOD	0.458	0.553			U
Sulfonamidos	FBSA	30334-69-1	1.15	0.263	0.553			
	N-EtFOSA	4151-50-2	<LOD	0.342	0.553			U
	N-EtFOSAA	2991-50-6	<LOD	0.225	0.553			U
	N-EtFOSE	1691-99-2	<LOD	0.846	2.49			U
	N-MeFOSA	31506-32-8	<LOD	0.228	0.553			U
	N-MeFOSAA	2355-31-9	<LOD	0.155	0.553			U
	N-MeFOSE	24448-09-7	<LOD	0.525	2.49			U
	PFOSA	754-91-6	<LOD	0.0776	0.553			U
PFECAs	ADONA	919005-14-4	<LOD	0.150	0.524			U
	HFPO-DA	13252-13-6	5.93	0.0586	0.553			
	NFDHA	151772-58-6	<LOD	0.116	0.553			U

# Enthalpy Analytical

Job No.: 1223-730-1 PFAS by Isotope Dilution (non-potable water)

Pender County Post GAC Exchange Surface Water Treatment Plant

	PEPA	267239-61-2	2.83	0.104	0.553			
	PFECA-G	801212-59-9	<LOD	0.0738	0.553			U
	PFMOAA	674-13-5	4.09	0.280	0.553			
	PFMOBA	863090-89-5	<LOD	0.928	1.24			U
	PFMOPrA	377-73-1	<LOD	0.197	0.553			U
	PFO2HxA	39492-88-1	<LOD	0.178	0.553			U
	PFO3OA	39492-89-2	<LOD	0.254	0.553			U
	PFO4DA	39492-90-5	<LOD	0.437	2.76			U
	PFO5DA	39492-91-6	<LOD	0.442	2.76			U
	PMPA	13140-29-9	14.6	0.130	0.553			
PFESAs	11Cl-PF3OUdS	763051-92-9	<LOD	0.261	0.521			U
	9Cl-PF3ONS	756426-58-1	<LOD	0.354	0.515			U
	PFEESA	113507-82-7	<LOD	0.166	0.553			U
ES	MPFBA					20-150%	73.1%	
	M5PFPeA					20-150%	76.7%	
	M3PFBS					20-150%	264.8%	Q
	M2-4:2 FTS					20-150%	235.7%	Q
	M5PFHxA					20-150%	52.4%	
	M3HFPO-DA					20-150%	46.9%	
	M4PFHpA					20-150%	58.6%	
	M3PFHxS					20-150%	99.3%	
	M2-6:2 FTS					20-150%	211.7%	Q
	M8PFOA					20-150%	59.0%	
	M9PFNA					20-150%	53.9%	
	M8PFOS					20-150%	94.5%	
	M2-8:2 FTS					20-150%	146.2%	
	M8FOSA-I					20-150%	86.6%	
	M6PFDA					20-150%	49.3%	
	d3-N-MeFOSAA					20-150%	59.2%	
	d5-N-EtFOSAA					20-150%	66.2%	
	M7PFUdA					20-150%	46.9%	
	MPFDoA					20-150%	41.4%	
	M2PFTeDA					20-150%	31.8%	
	d3-N-MeFOSA					10-200%	61.3%	
	d5-N-EtFOSA					10-200%	51.7%	
	d7-N-MeFOSE					10-200%	104.8%	
	d9-N-EtFOSE					10-200%	91.3%	

# Enthalpy Analytical

Job No.: 1223-730-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Post GAC Exchange Surface Water Treatment Plant

Enthalpy ID	1223-730-003-1	Prep Batch	EU16510	Sample Vol (mL)	293.61
Sample Name	Pre CW	Prep Date	2023-12-07 13:40	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2023-12-11 03:41	Split Factor	N/A
Sampling Date	2023-12-04 11:35	Analyst	wicleve	Method Code	EU-047-NPW
Received Date	2023-12-04	Instrument	Aragorn	Sample Type	Sample
		Bottle ID	A		

	Compound	CAS	Formatted Result ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags	
Acids	PFBA	375-22-4	<LOD	0.216	0.545			U	
	PFPeA	2706-90-3	8.53	0.156	0.545				
	PFHxA	307-24-4	6.62	0.182	0.545				
	PFHpA	375-85-9	2.18	0.191	0.545				
	PFOA	335-67-1	3.20	0.125	0.545				
	PFNA	375-95-1	0.161	0.123	0.545			J	
	PFDA	335-76-2	<LOD	0.156	0.545			U	
	PFUnDA	2058-94-8	<LOD	0.123	0.545			U	
	PFDaDA	307-55-1	<LOD	0.221	0.545			U	
	PFTTrDA	72629-94-8	<LOD	0.181	0.545			U	
	PFTeDA	376-06-7	<LOD	0.208	0.545			U	
	PFHxDA	67905-19-5	<LOD	0.289	0.545			U	
	Sulfonates	PFBS	375-73-5	3.64	0.289	0.545			J
		PFPeS	2706-91-4	0.382	0.112	0.513			
PFHxS		355-46-4	2.13	0.421	0.499			U	
PFHpS		375-92-8	<LOD	0.264	0.519				
PFOS		1763-23-1	2.67	0.288	0.505				
PFNS		68259-12-1	<LOD	0.169	0.525			U	
PFDS		335-77-3	<LOD	0.286	0.525			U	
4:2 FTS		757124-72-4	<LOD	0.0707	0.511			U	
6:2 FTS		27619-97-2	<LOD	0.257	0.519			U	
8:2 FTS		39108-34-4	<LOD	0.122	0.522			U	
10:2 FTS	120226-60-0	<LOD	0.417	0.545			U		
Other	Nafion Byproduct 1 (PS Acid)	29311-67-9	<LOD	0.291	0.545			U	
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	<LOD	0.451	0.545			U	
Sulfonamidos	FBSA	30334-69-1	<LOD	0.259	0.545			U	
	N-EtFOSA	4151-50-2	<LOD	0.337	0.545			U	
	N-EtFOSAA	2991-50-6	<LOD	0.221	0.545			U	
	N-EtFOSE	1691-99-2	<LOD	0.834	2.45			U	
	N-MeFOSA	31506-32-8	<LOD	0.225	0.545			U	
	N-MeFOSAA	2355-31-9	<LOD	0.153	0.545			U	
	N-MeFOSE	24448-09-7	<LOD	0.518	2.45			U	
	PFOSA	754-91-6	0.348	0.0765	0.545			J	
PFECAs	ADONA	919005-14-4	<LOD	0.148	0.516			U	
	HFPO-DA	13252-13-6	3.55	0.0577	0.545				
	NFDHA	151772-58-6	<LOD	0.115	0.545			U	

# Enthalpy Analytical

Job No.: 1223-730-1 PFAS by Isotope Dilution (non-potable water)

Pender County Post GAC Exchange Surface Water Treatment Plant

	PEPA	267239-61-2	2.74	0.102	0.545			
	PFECA-G	801212-59-9	<LOD	0.0727	0.545			U
	PFMOAA	674-13-5	<LOD	0.276	0.545			U
	PFMOBA	863090-89-5	<LOD	0.914	1.23			U
	PFMOPrA	377-73-1	<LOD	0.194	0.545			U
	PFO2HxA	39492-88-1	<LOD	0.175	0.545			U
	PFO3OA	39492-89-2	<LOD	0.250	0.545			U
	PFO4DA	39492-90-5	<LOD	0.431	2.72			U
	PFO5DA	39492-91-6	<LOD	0.436	2.72			U
	PMPA	13140-29-9	19.1	0.128	0.545			U
PFESAs	11Cl-PF3OUdS	763051-92-9	<LOD	0.257	0.513			U
	9Cl-PF3ONS	756426-58-1	<LOD	0.349	0.508			U
	PFEESA	113507-82-7	<LOD	0.164	0.545			U
ES	MPFBA					20-150%	70.1%	
	M5PFPeA					20-150%	79.6%	
	M3PFBS					20-150%	88.1%	Ac
	M2-4:2 FTS					20-150%	138.3%	
	M5PFHxA					20-150%	46.0%	
	M3HFPO-DA					20-150%	62.3%	
	M4PFHpA					20-150%	50.9%	
	M3PFHxS					20-150%	99.2%	
	M2-6:2 FTS					20-150%	170.7%	Q
	M8PFOA					20-150%	51.9%	
	M9PFNA					20-150%	45.2%	
	M8PFOS					20-150%	89.4%	
	M2-8:2 FTS					20-150%	129.1%	
	M8FOSA-I					20-150%	80.5%	
	M6PFDA					20-150%	45.6%	
	d3-N-MeFOSAA					20-150%	51.0%	
	d5-N-EtFOSAA					20-150%	59.9%	
	M7PFUdA					20-150%	37.8%	
	MPFDoA					20-150%	28.6%	
	M2PFTeDA					20-150%	8.9%	Q
	d3-N-MeFOSA					10-200%	28.4%	
	d5-N-EtFOSA					10-200%	26.8%	
	d7-N-MeFOSE					10-200%	155.4%	
	d9-N-EtFOSE					10-200%	126.3%	

# Enthalpy Analytical

Job No.: 1223-730-1 PFAS by Isotope Dilution (non-potable water)

Pender County Post GAC Exchange Surface Water Treatment Plant

Enthalpy ID	1223-730-001-1	Prep Batch	EU16510	Sample Vol (mL)	291.88
Sample Name	Post CW	Prep Date	2023-12-07 13:40	Extract Vol (mL)	0.4
Matrix	aqueous	Analysis Date	2023-12-11 02:33	Split Factor	N/A
Sampling Date	2023-12-04 11:33	Analyst	wicleve	Method Code	EU-047-NPW
Received Date	2023-12-04	Instrument	Aragorn	Sample Type	Sample
		Bottle ID	A		

	Compound	CAS	Formatted Result ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
Acids	PFBA	375-22-4	4.16	0.218	0.548			
	PFPeA	2706-90-3	9.60	0.157	0.548			
	PFHxA	307-24-4	6.14	0.183	0.548			
	PFHpA	375-85-9	1.96	0.192	0.548			
	PFOA	335-67-1	2.52	0.125	0.548			
	PFNA	375-95-1	0.187	0.124	0.548			J
	PFDA	335-76-2	<LOD	0.157	0.548			U
	PFUnDA	2058-94-8	<LOD	0.124	0.548			U
	PFDoDA	307-55-1	<LOD	0.223	0.548			U
	PFTTrDA	72629-94-8	<LOD	0.182	0.548			U
	PFTeDA	376-06-7	<LOD	0.209	0.548			U
	PFHxDA	67905-19-5	<LOD	0.291	0.548			U
	Sulfonates	PFBS	375-73-5	3.86	0.291	0.548		
PFPeS		2706-91-4	0.312	0.113	0.516			J
PFHxS		355-46-4	1.71	0.423	0.502			
PFHpS		375-92-8	<LOD	0.266	0.522			U
PFOS		1763-23-1	2.14	0.290	0.508			
PFNS		68259-12-1	<LOD	0.170	0.528			U
PFDS		335-77-3	<LOD	0.288	0.528			U
4:2 FTS		757124-72-4	<LOD	0.0711	0.514			U
6:2 FTS		27619-97-2	<LOD	0.259	0.522			U
8:2 FTS		39108-34-4	<LOD	0.123	0.525			U
10:2 FTS	120226-60-0	<LOD	0.420	0.548			U	
Other	Nafion Byproduct 1 (PS Acid)	29311-67-9	<LOD	0.293	0.548			U
	Nafion Byproduct 2 (Hydro-PS Acid)	749836-20-2	<LOD	0.454	0.548			U
Sulfonamidos	FBSA	30334-69-1	<LOD	0.260	0.548			U
	N-EtFOSA	4151-50-2	<LOD	0.339	0.548			U
	N-EtFOSAA	2991-50-6	<LOD	0.223	0.548			U
	N-EtFOSE	1691-99-2	<LOD	0.839	2.47			U
	N-MeFOSA	31506-32-8	<LOD	0.226	0.548			U
	N-MeFOSAA	2355-31-9	<LOD	0.154	0.548			U
	N-MeFOSE	24448-09-7	<LOD	0.521	2.47			U
	PFOSA	754-91-6	<LOD	0.0769	0.548			U
PFECAs	ADONA	919005-14-4	<LOD	0.149	0.519			U
	HFPO-DA	13252-13-6	4.51	0.0581	0.548			
	NFDHA	151772-58-6	<LOD	0.115	0.548			U

