

Pender County

605 E Fremont St
Burgaw, NC 28425-5115

Surface Water Treatment Plant

Client Project# Post GAC Exchange
Samples Received: 12/23/2024

Analytical Report
1224-834

PFAS by Isotope Dilution (non-potable water)

Report Issue Date: 1/13/2025

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 25 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:



Alexandra Mejia, Quality Assurance Associate I



Enthalpy Analytical, LLC – Wilmington
Christina Kurnath, Project Manager
chkurnath@montrose-env.com / www.enthalpy.com
O: 910-876-6895
2714 Exchange Drive, Wilmington, NC 28405

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)
 Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name Raw
 Sampling Site
 Enthalpy ID 1224-834-003-1 Prep Batch EU18746
 Matrix aqueous Analyst ext-magennaef
 Sampling Date 2024-12-23 11:33 Instrument Sauron
 Received Date 2024-12-23 Sample Vol mL 283.04
 Prep Date 2024-12-30 09:54 Extract Vol mL 0.4
 Analysis Date 2024-12-30 22:38 Split Factor N/A
 Sample Type 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	S301224027	<LOD (0.224)	0.224	0.565			U	
	PFPeA	2706-90-3	S301224027	9.04	0.162	0.565				
	PFHxA	307-24-4	S301224027	7.16	0.189	0.565				
	PFHpA	375-85-9	S301224027	3.28	0.198	0.565				
	PFOA	335-67-1	S301224027	6.65	0.129	0.565				
	PFNA	375-95-1	S301224027	0.654	0.128	0.565				
	PFDA	335-76-2	S301224027	0.233	0.162	0.565			J	
	PFUnDA	2059-94-8	S301224027	<LOD (0.128)	0.128	0.565			U	
	PFDoDA	307-85-1	S301224027	<LOD (0.230)	0.230	0.565			U	
	PFTtDA	72629-94-8	S301224027	<LOD (0.187)	0.187	0.585			U	
	PFTsDA	376-06-7	S301224027	<LOD (0.216)	0.216	0.565			U	
	PFHxDA	67905-19-5	S301224027	<LOD (0.300)	0.300	0.565			U	
	Sulfonates	PFBS	375-73-5	S301224027	3.64	0.300	0.565			
		PFPeS	2706-91-4	S301224027	0.568	0.116	0.533			
PFHxS		355-48-4	S301224027	3.66	0.436	0.518				
PFHpS		375-82-8	S301224027	<LOD (0.274)	0.274	0.539			U	
PFOS		1763-23-1	S301224027	9.23	0.299	0.524				
PFNS		68259-12-1	S301224027	<LOD (0.175)	0.175	0.544			U	
PFDS		335-77-3	S301224027	<LOD (0.297)	0.297	0.544			U	
4:2 FTS		757124-72-4	S301224027	<LOD (0.0733)	0.0733	0.530			U	
6:2 FTS		27619-97-2	S301224027	<LOD (0.267)	0.267	0.539			U	
8:2 FTS		39108-34-4	S301224027	<LOD (0.127)	0.127	0.541			U	
10:2 FTS		120226-60-0	S301224027	<LOD (0.433)	0.433	0.565			U	
Sulfonamides	FBSA	30334-69-1	S301224027	0.292	0.269	0.565			J	
	N-EFOSA	4151-50-2	S301224027	<LOD (0.350)	0.350	0.585			U	
	N-EFOSAA	2991-50-6	S301224027	<LOD (0.230)	0.230	0.585			U	
	N-EFOSE	1691-99-2	S301224027	<LOD (0.866)	0.866	2.54			U	
	N-MeFOSA	31506-32-8	S301224027	<LOD (0.233)	0.233	0.565			U	
	N-MeFOSAA	2355-31-9	S301224027	<LOD (0.159)	0.159	0.565			U	
	N-MeFOSE	24448-09-7	S301224027	<LOD (0.537)	0.537	2.54			U	
	PFOSA	754-91-6	S301224027	<LOD (0.0793)	0.0793	0.565			U	
	PFECAs	ADONA	919005-14-4	S301224027	<LOD (0.153)	0.153	0.536			U
		HFPO-DA	13252-13-6	S301224027	3.12	0.0599	0.565			
NFDHA		151772-58-6	S301224027	<LOD (0.119)	0.119	0.565			U	
FEPA		267239-61-2	S301224027	2.37	0.106	0.565				
PFECA-G		801212-69-9	S301224027	<LOD (0.0754)	0.0754	0.565			U	
PFMOAA		674-13-5	S301224027	30.0	0.286	0.565				
PFMOBA		863090-89-5	S301224027	<LOD (0.949)	0.949	1.27			U	
PFMOPrA		377-73-1	S301224027	<LOD (0.201)	0.201	0.565			U	
PF02HxA		39492-88-1	S301224027	<LOD (0.182)	0.182	0.565			U	
PF03OA		39492-89-2	S301224027	<LOD (0.260)	0.260	0.565			U	
PF04DA		39492-90-5	S301224027	<LOD (0.447)	0.447	2.83			U	
PF05DA		39492-91-6	S301224027	<LOD (0.452)	0.452	2.83			U	
PMPA		13140-29-9	S301224027	6.52	0.133	0.565				
PFESAs		11Cl-PF3OUdS	763051-92-9	S301224027	<LOD (0.267)	0.267	0.533			U
	9Cl-PF3ONS	756426-50-1	S301224027	<LOD (0.362)	0.362	0.527			U	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S301224027	<LOD (0.302)	0.302	0.585			U	
	Nafion Byproduct 2 (hydroPS Acid)	749839-20-2	S301224027	<LOD (0.468)	0.468	0.565			U	
ES	PFEEESA	113507-82-7	S301224027	<LOD (0.170)	0.170	0.585			U	
	MPPFA		S301224027				20-150%	79.4%		
	M5PPFA		S301224027				20-150%	168%	Q	
	M3PFBS		S301224027				20-150%	236%	Q	
	M2-4:2 FTS		S301224027				20-150%	147%		
	M5PFHxA		S301224027				20-150%	99.6%		
	M3HFPO-DA		S301224027				20-150%	80.3%		
	M4PFHpA		S301224027				20-150%	97.8%		
	M3PFHxS		S301224027				20-150%	107%		
	M2-6:2 FTS		S301224027				20-150%	105%		
	M8PFOA		S301224027				20-150%	90.6%		
	M8PFNA		S301224027				20-150%	89.1%		
	M8PFOS		S301224027				20-150%	91.8%		
	M2-8:2 FTS		S301224027				20-150%	82.7%		
M8FOSA-I		S301224027				20-150%	79.4%			

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)
 Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name	Raw	Prep Batch	EU18746
Sampling Site		Analyst	ext-magenraef
Enthalpy ID	1224-834-003-1	Instrument	Saaron
Matrix	aqueous	Sample Vol mL	283.04
Sampling Date	2024-12-23 11:33	Extract Vol mL	0.4
Received Date	2024-12-23	Split Factor	N/A
Prep Date	2024-12-30 09:54	Method Code	EU-047-NPW
Analysis Date	2024-12-30 22:38		
Sample Type	Sample		
Bottle ID	A		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M6PFDA		S301224027				20-150%	90.0%	
d3-N-MeFOSAA		S301224027				20-150%	81.7%	
d5-N-EtFOSAA		S301224027				20-150%	71.7%	
M7PFUdA		S301224027				20-150%	66.6%	
MPPFDaA		S301224027				20-150%	51.2%	
M2PFTeDA		S301224027				20-150%	11.8%	Q

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)
 Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name CFE
 Sampling Site
 Enthalpy ID 1224-834-002-1 Prep Batch EU18748
 Matrix aqueous Analyst ext:magennaeaf
 Sampling Date 2024-12-23 11:32 Instrument Sauron
 Received Date 2024-12-23 Sample Vol mL 285.48
 Prep Date 2024-12-30 09:54 Extract Vol mL 0.4
 Analysis Date 2024-12-30 22:15 Split Factor N/A
 Sample Type 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	S301224026	<LOD (0.222)	0.222	0.560			U	
	PFPeA	2706-90-3	S301224026	6.96	0.160	0.560				
	PFHxA	307-24-4	S301224026	6.06	0.187	0.560				
	PFHpA	375-86-9	S301224026	2.89	0.196	0.560				
	PFOA	335-67-1	S301224026	5.54	0.128	0.560				
	PFNA	375-95-1	S301224026	0.694	0.127	0.560				
	PFDA	335-76-2	S301224026	<LOD (0.160)	0.160	0.560			U	
	PFUnDA	2059-94-8	S301224026	<LOD (0.127)	0.127	0.560			U	
	PFDoDA	307-55-1	S301224026	<LOD (0.228)	0.228	0.560			U	
	PFTeDA	72829-94-8	S301224026	<LOD (0.188)	0.186	0.560			U	
	PFTeDA	376-08-7	S301224026	<LOD (0.214)	0.214	0.560			U	
	PFHxDA	67906-19-5	S301224026	<LOD (0.298)	0.298	0.560			U	
	Sulfonates	PFBS	375-73-5	S301224026	3.09	0.298	0.560			
		PFPeS	2706-91-4	S301224026	0.362	0.115	0.528			J
PFHxS		355-46-4	S301224026	2.71	0.438	0.513				
PFHpS		375-92-8	S301224026	<LOD (0.271)	0.271	0.534			U	
PFOS		1763-23-1	S301224026	7.05	0.296	0.519				
PFNS		68259-12-1	S301224026	<LOD (0.174)	0.174	0.540			U	
PFDS		335-77-3	S301224026	<LOD (0.294)	0.294	0.540			U	
4:2 FTS		757124-72-4	S301224026	<LOD (0.0727)	0.0727	0.525			U	
6:2 FTS		27619-97-2	S301224026	<LOD (0.264)	0.264	0.534			U	
8:2 FTS		39108-34-4	S301224026	<LOD (0.126)	0.126	0.537			U	
10:2 FTS		120226-80-0	S301224026	<LOD (0.429)	0.429	0.560			U	
Sulfonamides	FBSA	30334-69-1	S301224026	<LOD (0.266)	0.266	0.560			U	
	N-EFOSA	4151-50-2	S301224026	<LOD (0.347)	0.347	0.560			U	
	N-EIFOSAA	2991-50-6	S301224026	<LOD (0.228)	0.228	0.560			U	
	N-EIFOSE	1691-99-2	S301224026	<LOD (0.858)	0.858	2.52			U	
	N-MeFOSA	31506-32-8	S301224026	<LOD (0.231)	0.231	0.560			U	
	N-MeFOSAA	2355-31-9	S301224026	<LOD (0.157)	0.157	0.560			U	
	N-MeFOSE	24448-09-7	S301224026	<LOD (0.532)	0.532	2.52			U	
	PFOSA	754-91-6	S301224026	0.190	0.0786	0.560			J	
	PFECAs	ADONA	918005-14-4	S301224026	<LOD (0.152)	0.152	0.531			U
		HFPO-DA	13252-13-6	S301224026	3.09	0.0594	0.660			
NFDHA		151772-68-6	S301224026	<LOD (0.118)	0.118	0.560			U	
PEPA		267239-81-2	S301224026	1.62	0.105	0.660				
PFECA-G		801212-59-9	S301224026	<LOD (0.0748)	0.0748	0.560			U	
PFMOAA		674-13-6	S301224026	17.4	0.284	0.660				
PFMOBA		863090-89-5	S301224026	<LOD (0.941)	0.941	1.26			U	
PFMOPrA		377-73-1	S301224026	<LOD (0.200)	0.200	0.580			U	
PF02HxA		39492-88-1	S301224026	<LOD (0.180)	0.180	0.560			U	
PF03GA		39492-89-2	S301224026	<LOD (0.257)	0.257	0.560			U	
PF04DA		39492-90-5	S301224026	<LOD (0.443)	0.443	2.80			U	
PF06DA		39492-91-6	S301224026	<LOD (0.448)	0.448	2.80			U	
PMPA		13140-29-9	S301224026	4.95	0.132	0.560				
PFESAs		11Cl-PF3OUdS	763051-92-9	S301224026	<LOD (0.264)	0.264	0.528			U
		9Cl-PF3ONS	756426-58-1	S301224026	<LOD (0.399)	0.399	0.522			U
	Nallian Elyproduct 1 (PS Acid)	29311-67-9	S301224026	<LOD (0.289)	0.299	0.560			U	
	Nallian Elyproduct 2 (HydroPS Acid)	749936-20-2	S301224026	<LOD (0.464)	0.464	0.580			U	
ES	PFESAs	113507-82-7	S301224026	<LOD (0.168)	0.168	0.560			U	
	MPPBA		S301224026				20-150%	93.5%		
	M5PFPeA		S301224026				20-150%	138%		
	M3PFBS		S301224026				20-150%	184%	Q	
	M2-4:2 FTS		S301224026				20-150%	146%		
	M6PFHxA		S301224026				20-150%	92.4%		
	M3HFPO-DA		S301224026				20-150%	86.8%		
	M4PFHpA		S301224026				20-150%	92.7%		
	M3PFHxS		S301224026				20-150%	116%		
	M2-5:2 FTS		S301224026				20-150%	117%		
	M8PF0A		S301224026				20-150%	85.6%		
	M9PFNA		S301224026				20-150%	81.9%		
	M8PFOS		S301224026				20-150%	98.3%		
M2-8:2 FTS		S301224026				20-150%	80.4%			
M8FOSA-I		S301224026				20-150%	70.1%			

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)

Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name	CFE		
Sampling Site			
Enthalpy ID	1224-834-002-1	Prep Batch	EU18746
Matrix	aqueous	Analyst	ext-magennaef
Sampling Date	2024-12-23 11:32	Instrument	Sauron
Received Date	2024-12-23	Sample Vol mL	285.46
Prep Date	2024-12-30 09:54	Extract Vol mL	0.4
Analysis Date	2024-12-30 22:15	Splk Factor	N/A
Sample Type	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
M6PFDA		S301224026				20-150%	91.2%	
d3-N-MeFOSAA		S301224026				20-150%	82.6%	
d5-N-EtFOSAA		S301224026				20-150%	73.3%	
M7PFUdA		S301224026				20-150%	65.9%	
MPPFDcA		S301224026				20-150%	40.6%	
M2PFTeDA		S301224026				20-150%	11.7%	Q

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)

Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name	Post CW	Prep Batch	EU18748
Sampling Site		Analyst	exl-magennaef
Enthalpy ID	1224-834-001-1	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	289.33
Sampling Date	2024-12-23 11:30	Extract Vol mL	0.4
Received Date	2024-12-23	Split Factor	N/A
Prep Date	2024-12-30 09:54	Method Code	EU-047-NPW
Analysis Date	2024-12-30 21:53		
Sample Type	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	S301224025	<LOD (0.219)	0.219	0.553		U	
	PFPeA	2706-90-3	S301224025	3.58	0.168	0.553			
	PFHxA	307-24-4	S301224025	2.54	0.185	0.553			
	PFHpA	375-85-9	S301224025	0.927	0.194	0.553			
	PFDA	335-67-1	S301224025	1.96	0.126	0.553			
	PFNA	375-95-1	S301224025	0.168	0.126	0.553		J	
	PFDA	335-76-2	S301224025	<LOD (0.158)	0.158	0.553		U	
	PFUnDA	2058-94-8	S301224025	<LOD (0.125)	0.125	0.553		U	
	PFDoDA	307-55-1	S301224025	<LOD (0.225)	0.225	0.553		U	
	PFTeDA	72829-94-8	S301224025	<LOD (0.183)	0.183	0.553		U	
	PFTaDA	376-06-7	S301224025	<LOD (0.211)	0.211	0.553		U	
	PFHxDA	57905-19-5	S301224025	<LOD (0.294)	0.294	0.553		U	
	Sulfonates	PFBS	375-73-5	S301224025	1.21	0.294	0.553		
		PFPeS	2706-91-4	S301224025	<LOD (0.114)	0.114	0.521		U
		PFHxS	355-40-4	S301224025	0.865	0.427	0.506		
PFHpS		375-92-8	S301224025	<LOD (0.268)	0.268	0.527		U	
PFOS		1783-23-1	S301224025	1.86	0.292	0.512			
PFNS		88259-12-1	S301224025	<LOD (0.172)	0.172	0.633		U	
PFDS		335-77-3	S301224025	<LOD (0.290)	0.290	0.533		U	
4:2 FTS		757124-72-4	S301224025	<LOD (0.0717)	0.0717	0.518		U	
6:2 FTS		27619-97-2	S301224025	<LOD (0.261)	0.261	0.527		U	
8:2 FTS		39108-34-4	S301224025	<LOD (0.124)	0.124	0.530		U	
10:2 FTS		120226-60-0	S301224025	<LOD (0.423)	0.423	0.553		U	
Sulfonamides		FBSA	30334-99-1	S301224025	<LOD (0.263)	0.263	0.553		U
	N-EiFOSA	4151-50-2	S301224025	<LOD (0.342)	0.342	0.553		U	
	N-EiFOSAA	2991-50-6	S301224025	<LOD (0.225)	0.225	0.553		U	
	N-EiFOSE	1891-99-2	S301224025	<LOD (0.547)	0.547	2.49		U	
	N-MeFOSA	31506-32-8	S301224025	<LOD (0.228)	0.228	0.553		U	
	N-MeFOSAA	2355-31-9	S301224025	<LOD (0.155)	0.155	0.553		U	
	N-MeFOSE	24448-09-7	S301224025	<LOD (0.525)	0.525	2.49		U	
	PFOSA	754-91-6	S301224025	0.402	0.0776	0.553		J	
	PFECAs	ADONA	919065-14-4	S301224025	<LOD (0.150)	0.150	0.524		U
		HFPO-DA	13252-13-6	S301224025	1.72	0.0586	0.553		
NFDHA		151772-58-6	S301224025	<LOD (0.116)	0.116	0.553		U	
PEPA		267239-61-2	S301224025	0.611	0.104	0.553			
PFECA-G		801212-59-9	S301224025	<LOD (0.0738)	0.0738	0.553		U	
PFMOAA		674-13-5	S301224025	7.56	0.280	0.553			
PFMOBA		863090-89-5	S301224025	<LOD (0.928)	0.928	1.24		U	
PFMOPrA		377-73-1	S301224025	<LOD (0.197)	0.197	0.553		U	
PFQ2HxA		39492-98-1	S301224025	<LOD (0.178)	0.178	0.553		U	
PFQ3OA		39492-89-2	S301224025	<LOD (0.254)	0.254	0.553		U	
PFQ4DA		39492-90-5	S301224025	<LOD (0.437)	0.437	2.77		U	
PFQ5DA		39492-91-6	S301224025	<LOD (0.442)	0.442	2.77		U	
PMPA		13140-29-9	S301224025	3.39	0.130	0.553			
PFESAs		11Cl-PF3OUdS	769061-92-9	S301224025	<LOD (0.281)	0.281	0.521		U
	9Cl-PF3ONS	758426-58-1	S301224025	<LOD (0.354)	0.354	0.515		U	
	Nafion Byproduct 1 (PS Acid)	29311-67-9	S301224025	<LOD (0.296)	0.296	0.553		U	
	Nafion Byproduct 2 (DystroP9 Acid)	749836-20-2	S301224025	<LOD (0.458)	0.458	0.553		U	
PFEEsA	113507-82-7	S301224025	<LOD (0.166)	0.166	0.553		U		
ES	MPPFA	S301224025				20-150%	87.7%		
	M5PPeA	S301224025				20-150%	120%		
	M3PFBS	S301224025				20-150%	135%		
	M2-4:2 FTS	S301224025				20-150%	127%		
	M5PFHxA	S301224025				20-150%	112%		
	M3HFPO-DA	S301224025				20-150%	98.8%		
	M4PFHpA	S301224025				20-150%	99.1%		
	M3PFHxS	S301224025				20-150%	115%		
	M2-6:2 FTS	S301224025				20-150%	101%		
	M8PFCA	S301224025				20-150%	90.3%		
	M9PFNA	S301224025				20-150%	94.0%		
	M8PFOS	S301224025				20-150%	92.7%		
	M2-8:2 FTS	S301224025				20-150%	84.2%		
	M8FOSA-I	S301224025				20-150%	89.8%		

Enthalpy Analytical

Job No.: 1224-834-1 PFAS by Isotope Dilution (non-potable water)
 Pender County Post GAC Exchange Surface Water Treatment Plant

Details

Sample Name	Post CW	Prep Batch	EU18748
Sampling Site		Analyst	ext-magenneef
Enthalpy ID	1224-834-001-1	Instrument	Sauron
Matrix	aqueous	Sample Vol mL	289.33
Sampling Date	2024-12-23 11:30	Extract Vol mL	0.4
Received Date	2024-12-23	Split Factor	N/A
Prep Date	2024-12-30 09:54	Method Code	EU-047-NPW
Analysis Date	2024-12-30 21:53		
Sample Type	Sample		
Bottle ID	A		

Compound	CAS	Injection File Name	Sample Concentration ng/L	LOD ng/L	LOQ ng/L	Recovery Limits	Recovery	Flags
M6PFDA		S301224025				20-150%	98.4%	
d3-N-MeFOSAA		S301224025				20-150%	79.8%	
d5-N-EtFOSAA		S301224025				20-150%	73.2%	
M7PFUdA		S301224025				20-150%	81.5%	
MPPFDcA		S301224025				20-150%	58.4%	
M2PFTeDA		S301224025				20-150%	16.3%	Q