

# Pender County

605 E. Fremont Street  
Burgaw, NC 28425

PCU SWTP

Client Project: Pre GAC - Exchange

Samples Received: 10/20/22

Analytical Report

1022-793

*Isotope Dilution Method*

PFAS



**Enthalpy Analytical, LLC – Ultratrace**

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2714 Exchange Drive, Wilmington, NC 28405

### Enthalpy Analytical

Job No.: 1022-793-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Client Project: Pre GAC - Exchange Site, PCU SWTP

Enthalpy ID	1022-793-001-1	Prep Batch	EU14188	Sample Vol (mL)	287.26
Sample Name	RAW	Prep Date	2022-10-21 14:06	Extract Vol (mL)	0.4
Matrix	AQ	Analysis Date	10/24/2022 8:30:34 PM	Split Factor	N/A
Sampling Date	20221020 16:08	Analyst	rappelle	Method Code	WM-026
Received Date	2022-10-20 04:45	Instrument	Fisk/Kill	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	3976.87	5.54	5.54	0.133	0.557			
	PFPeA	2706-90-3	6698.33	9.33	9.33	0.148	0.557			
	PFFxA	307-24-4	4849.50	8.75	8.75	0.188	0.557			
	PFFpA	375-85-9	2275.00	3.17	3.17	0.106	0.557			
	PFOA	335-67-1	3173.97	4.42	4.42	0.154	0.557			
	PFNA	375-95-1	447.92	0.624	0.624	0.0882	0.557			
	PFDA	335-76-2	344.11	0.479	0.479	0.0735	0.557			
	PFUnDA	2058-94-8	ND	ND	<LOD	0.161	0.557			J
	PFDoDA	307-55-1	ND	ND	<LOD	0.176	0.557			U
	PFTdA	72629-94-8	ND	ND	<LOD	0.131	0.557			U
PFTeDA	376-06-7	ND	ND	<LOD	0.190	0.557			U	
Sulfonates	PFBS	375-73-5	3148.48	4.38	4.38	0.309	0.650			
	PFFeS	2706-81-4	324.31	0.452	0.452	0.179	0.525			J
	PFFxS	355-46-4	2273.08	3.17	3.17	0.166	0.510			
	PFFpS	375-92-8	60.96	0.0849	<LOD	0.117	0.531			U
	PFOS	1763-23-1	4954.44	6.90	6.90	0.139	0.516			
	PFNS	68259-12-1	ND	ND	<LOD	0.0752	0.536			U
	PFDS	335-77-3	ND	ND	<LOD	0.167	0.536			U
	4:2 FTS	757124-72-4	ND	ND	<LOD	0.103	0.522			U
	6:2 FTS	27619-97-2	139.98	0.195	0.195	0.101	0.531			J
	8:2 FTS	39108-34-4	9.75	0.0136	<LOD	0.149	0.534			U
Other	PFOSA	754-91-6	ND	ND	<LOD	0.113	0.557			U
	N-MeFOSAA	2355-31-9	ND	ND	<LOD	0.125	0.557			U
	N-EFOSAA	2991-60-6	ND	ND	<LOD	0.0949	0.657			U
	HFPO-DA	13252-13-6	5392.46	7.51	7.51	0.188	0.557			
	PFOA	674-13-5	34287.82	47.7	47.7	1.25	1.25			
	PFMOPrA	377-73-1	ND	ND	<LOD	0.209	0.557			U
	PFOHxA	39492-88-1	5354.94	7.46	7.46	1.25	1.25			
	PFO3OA	39492-89-2	1564.99	2.18	2.18	1.25	1.25			
	PFO4DA	39492-90-5	283.07	0.394	<LOD	1.32	1.32			U
	Nafion Byproduct 1	29311-67-9	ND	ND	<LOD	0.285	0.557			U
	ADONA	919005-14-4	ND	ND	<LOD	0.104	0.528			U
	9Cl-PF3ONS	756426-58-1	ND	ND	<LOD	0.104	0.519			U
	11Cl-PF3OUdS	76305-1-92-9	ND	ND	<LOD	0.104	0.525			U
	10:2 FTS	120226-60-0	ND	ND	<LOD	0.208	0.557			U
	FBSA	30334-69-1	294.78	0.410	0.410	0.208	0.557			J
	Nafion Byproduct 2	749936-20-2	355.92	0.496	0.496	0.265	0.557			J
	N-EFOSA	4151-50-2	ND	ND	<LOD	0.209	0.557			U
	N-EFOSE	1691-99-2	ND	ND	<LOD	6.27	6.27			U
	NFOHA	151772-58-6	ND	ND	<LOD	0.209	0.557			U
	N-MeFOSA	31506-32-8	ND	ND	<LOD	0.209	0.557			U
N-MeFOSE	24448-09-7	ND	ND	<LOD	6.27	6.27			U	
ES	PEPA	267239-61-2	2568.22	3.59	3.59	1.25	1.25			
	PFECA-G	801212-59-9	ND	ND	<LOD	0.285	1.25			U
	PFEESA	113507-82-7	ND	ND	<LOD	0.209	0.557			U
	PFFxDA	67905-19-5	27.99	0.0390	<LOD	1.25	1.25			U
	PFMOBA	863090-89-5	ND	ND	<LOD	1.25	1.25			U
	PFO6DA	39492-91-8	130.16	0.181	<LOD	1.32	1.32			U
	PMPA	13140-28-9	5159.41	7.18	7.18	1.25	1.25			
	MPPBA		4444.68	6.19				20-150%	88.9%	
	M5PFFeA		8922.02	12.4				20-150%	178.4%	Q
	M3PFBS		14513.36	20.2				20-150%	290.3%	Q
	M2-4:2 FTS		5862.05	8.16				20-150%	117.2%	
	M5PFFxA		5896.36	8.21				20-150%	117.9%	
	M3HFPO-DA		4177.21	5.82				20-150%	83.5%	
	M4PFFpA		4057.66	5.65				20-150%	81.2%	
	M3PFFxS		4563.98	6.36				20-150%	91.3%	
	M2-6:2 FTS		3166.34	4.41				20-150%	63.3%	
	M8PFOA		4182.49	5.84				20-150%	83.8%	
	M9PFNA		4712.16	6.56				20-150%	94.2%	
	M8PFOS		3916.25	5.45				20-150%	78.3%	
	M2-8:2 FTS		2788.27	3.88				20-150%	55.8%	
M8FOSA-I		2008.16	2.80				20-150%	40.2%		
M6PFDA		3888.89	5.30				20-150%	76.2%		
d3-N-MeFOSAA		1860.46	2.73				20-150%	38.2%		
d5-N-EFOSAA		1897.05	2.78				20-150%	38.9%		
M7PFUDa		3988.22	5.55				20-150%	79.8%		
MFFDeA		2585.20	3.60				20-150%	51.7%		
M2PFTeDA		700.78	0.976				20-150%	14.0%	Q	

### Enthalpy PFABal

Job No.: 1022-793-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Client Project: Pre GAC - Exchange Site: PCU SWTP

Enthalpy ID	1022-793-002-1	Prep Batch	EU14198	Sample Vol (mL)	284.38
Sample Name	CFE	Prep Date	2022-10-21 14:06	Extract Vol (mL)	0.4
Matrix	AQ	Analysis Date	10/24/2022 8:53:45 PM	Split Factor	N/A
Sampling Date	2022-10-20 18:04	Analyst	rappelle	Method Code	WM-026
Received Date	2022-10-20 04:45	Instrument	Fili/Kii	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	4142.93	5.83	5.83	0.135	0.583			
	PFPeA	2706-90-3	9284.31	8.84	8.84	0.149	0.583			
	PFHxA	307-24-4	5328.06	7.49	7.49	0.170	0.583			
	PFHpA	375-95-9	2484.28	3.49	3.49	0.107	0.583			
	PFOA	335-67-1	3129.98	4.40	4.40	0.156	0.583			
	PFNA	375-95-1	475.69	0.669	0.669	0.0668	0.583			
	PFDA	335-78-2	341.40	0.480	0.480	0.0743	0.583			
	PFUnDA	2058-04-8	ND	ND	<LOD	0.183	0.583			J
	PFDoDA	307-55-1	ND	ND	<LOD	0.178	0.583			U
	PFTtDA	72829-94-8	ND	ND	<LOD	0.133	0.583			U
Sulfonates	PFTeDA	376-08-7	ND	ND	<LOD	0.192	0.583			U
	PFBS	375-73-5	2974.54	4.18	4.18	0.312	0.657			
	PFPeS	2706-91-4	357.66	0.503	0.503	0.181	0.530			J
	PFHxS	355-46-4	2413.39	3.39	3.39	0.168	0.515			
	PFHpS	375-92-8	112.34	0.158	0.158	0.119	0.536			J
	PFOS	1783-23-1	5148.24	7.24	7.24	0.141	0.521			
	PFNS	68259-12-1	ND	ND	<LOD	0.0760	0.542			U
	PFDS	335-77-3	ND	ND	<LOD	0.169	0.542			U
	4:2 FTS	757124-72-4	ND	ND	<LOD	0.104	0.527			U
	6:2 FTS	27619-87-2	108.48	0.150	0.150	0.102	0.536			J
Other	8:2 FTS	38108-34-4	ND	ND	<LOD	0.150	0.539			U
	PFOA	754-91-6	84.55	0.119	0.119	0.114	0.583			J
	N-MeFOSAA	2355-31-9	ND	ND	<LOD	0.127	0.563			U
	N-EtFOSAA	2891-50-6	ND	ND	<LOD	0.0858	0.563			U
	HFPO-DA	13252-13-6	4185.83	5.86	5.86	0.200	0.563			
	PFMOAA	874-13-5	32333.81	45.5	45.5	1.27	1.27			
	PFMOPrA	377-73-1	ND	ND	<LOD	0.211	0.583			U
	PFOzHxA	39482-88-1	4645.87	6.53	6.53	1.27	1.27			
	PFO3OA	39482-89-2	1238.37	1.74	1.74	1.27	1.27			
	PFO4DA	39482-90-5	ND	ND	<LOD	1.34	1.34			U
Other	Nafion Byproduct 1	28311-67-8	ND	ND	<LOD	0.267	0.563			U
	ADONA	919005-14-4	ND	ND	<LOD	0.105	0.533			U
	9Cl-PF3ONS	758426-58-1	ND	ND	<LOD	0.105	0.524			U
	11Cl-PF3OUdS	763051-82-9	ND	ND	<LOD	0.105	0.530			U
	10:2 FTS	120226-80-0	ND	ND	<LOD	0.211	0.563			U
	FBSA	30334-69-1	279.40	0.383	0.383	0.211	0.563			J
	Nafion Byproduct 2	749836-20-2	336.93	0.474	0.474	0.267	0.563			J
	N-EtFOA	4151-50-2	ND	ND	<LOD	0.211	0.563			U
	N-EtFOSE	1681-88-2	ND	ND	<LOD	6.33	6.33			U
	NFDHA	151772-58-6	ND	ND	<LOD	0.211	0.563			U
ES	N-MeFOA	31506-32-8	ND	ND	<LOD	0.211	0.563			U
	N-MeFOGE	24448-09-7	ND	ND	<LOD	6.33	6.33			U
	PEPA	287238-61-2	1381.11	1.94	1.94	1.27	1.27			
	PFECA-G	801212-59-9	ND	ND	<LOD	0.267	1.27			U
	PFEESA	113507-82-7	ND	ND	<LOD	0.211	0.563			U
	PFHxDA	87805-19-5	ND	ND	<LOD	1.27	1.27			U
	PFMOBA	883090-89-5	ND	ND	<LOD	1.27	1.27			U
	PFO5DA	39482-91-8	ND	ND	<LOD	1.34	1.34			U
	PMPA	13140-29-9	3536.34	4.97	4.97	1.27	1.27			
	MFPBA		4770.29	6.71				20-150%	95.4%	
M5PPeA		7449.79	10.5				20-150%	149.0%		
M3PFBS		12677.98	17.8				20-150%	253.6%	Q	
M2-4:2 FTS		7278.97	10.2				20-150%	145.6%		
M5PFHxA		5507.89	7.75				20-150%	110.2%		
M3HFPO-DA		3280.02	4.59				20-150%	65.2%		
M4PFHpA		4368.69	6.14				20-150%	87.4%		
M3PFHxS		4759.52	6.69				20-150%	95.2%		
M2-6:2 FTS		4087.80	5.75				20-150%	81.8%		
M8PFOA		4693.56	6.60				20-150%	93.6%		
M9PFNA		4990.40	7.02				20-150%	89.8%		
M8PFOS		4540.83	6.39				20-150%	80.8%		
M2-8:2 FTS		4044.46	5.68				20-150%	80.9%		
M8FOSA-I		3495.07	4.92				20-150%	69.9%		
M9PFDA		4589.71	6.45				20-150%	91.8%		
d3-N-MeFOSAA		2884.72	3.78				20-150%	53.7%		
d5-N-EtFOSAA		2575.03	3.62				20-150%	51.5%		
M7PFUdA		4806.87	6.76				20-150%	96.1%		
MPPDoA		3215.99	4.52				20-150%	64.3%		
M2PFTeDA		1034.93	1.46				20-150%	20.7%		

### Enthalpy Analytical

Job No. 1022-793-1 PFAS by Isotope Dilution (non-potable water)  
 Pender County Client Project: Pre GAC - Exchange Site: PCU SWTP

Enthalpy ID	1022-793-003-1	Prep Batch	EJ14186	Sample Vol (mL)	287.81
Sample Name	Post-CW	Prep Date	2022-10-21 14:06	Extract Vol (mL)	0.4
Matrix	AQ	Analysis Date	10/24/2022 9:16:55 PM	Split Factor	N/A
Sampling Date	20221020 16:02	Analyst	rappelle	Method Code	WM-026
Received Date	2022-10-20 04:45	Instrument	File/Kill	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	4828.17	6.72	6.72	0.133	0.556			
	PFPeA	2708-90-3	5831.62	7.83	7.83	0.148	0.556			
	PFHxA	307-24-4	4086.52	5.68	5.68	0.168	0.556			
	PFHpA	375-85-9	1529.49	2.13	2.13	0.106	0.556			
	PFOA	335-87-1	1840.63	2.28	2.28	0.154	0.556			
	PFNA	375-95-1	77.08	0.107	0.107	0.0661	0.556			J
	PFDA	335-76-2	ND	ND	<LOD	0.0734	0.556			U
	PFUnDA	2058-94-8	ND	ND	<LOD	0.161	0.556			U
	PFDoDA	307-55-1	ND	ND	<LOD	0.176	0.556			U
	PFTriDA	72629-94-8	ND	ND	<LOD	0.131	0.556			U
PFTeDA	376-06-7	ND	ND	<LOD	0.189	0.556			U	
Sulfonates	PFBS	375-73-5	2920.92	4.06	4.06	0.309	0.650			
	PFPeS	2708-91-4	192.10	0.267	0.267	0.179	0.524			J
	PFHxS	356-46-4	957.69	1.33	1.33	0.166	0.509			
	PFHpS	375-92-8	ND	ND	<LOD	0.117	0.530			U
	PFOS	1763-23-1	1017.03	1.41	1.41	0.139	0.515			
	PFNS	68259-12-1	ND	ND	<LOD	0.0751	0.536			U
	PFDS	335-77-3	ND	ND	<LOD	0.167	0.536			U
	4:2 FTS	757124-72-4	ND	ND	<LOD	0.103	0.521			U
	6:2 FTS	27619-97-2	14.33	0.0199	<LOD	0.101	0.530			U
	8:2 FTS	39109-34-4	ND	ND	<LOD	0.149	0.533			U
Other	PFOSA	754-91-6	232.73	0.324	0.324	0.113	0.556			J
	N-MeFOSAA	2355-31-9	ND	ND	<LOD	0.125	0.556			U
	N-EtFOSAA	2981-50-8	ND	ND	<LOD	0.0948	0.556			U
	HFPO-DA	13252-13-8	2630.28	3.66	3.66	0.198	0.556			
	PFMOAA	674-13-5	17057.76	23.7	23.7	1.25	1.25			
	PFMOPrA	377-73-1	ND	ND	<LOD	0.209	0.556			U
	PFO2HxA	39492-88-1	2279.60	3.17	3.17	1.25	1.25			
	PFO3OA	39492-89-2	260.68	0.363	<LOD	1.25	1.25			U
	PFO4DA	39492-90-5	ND	ND	<LOD	1.32	1.32			U
	Nafion Byproduct 1	29311-67-9	ND	ND	<LOD	0.264	0.556			U
	ADONA	918005-14-4	ND	ND	<LOD	0.104	0.527			U
	9CI-PF3ONS	756428-58-1	ND	ND	<LOD	0.104	0.518			U
	11CI-PF3OUdS	763051-82-8	ND	ND	<LOD	0.104	0.524			U
	10:2 FTS	120226-60-0	ND	ND	<LOD	0.209	0.556			U
	FBSA	30334-89-1	22.17	0.0308	<LOD	0.209	0.556			U
	Nafion Byproduct 2	749838-20-2	ND	ND	<LOD	0.264	0.556			U
	N-EtFOSA	4151-50-2	ND	ND	<LOD	0.208	0.556			U
	N-EtFOSE	1691-89-2	ND	ND	<LOD	6.26	6.26			U
	NFDHA	151772-58-6	ND	ND	<LOD	0.209	0.556			U
	N-MeFOSA	31508-32-8	ND	ND	<LOD	0.209	0.556			U
N-MeFOSE	24448-09-7	ND	ND	<LOD	6.26	6.26			U	
ES	PEPA	267239-61-2	1237.75	1.72	1.72	1.25	1.25			
	PFECA-G	801212-59-9	ND	ND	<LOD	0.264	1.25			U
	PFEESA	112507-82-7	ND	ND	<LOD	0.209	0.556			U
	PFHxDA	67905-19-5	ND	ND	<LOD	1.25	1.25			U
	PFMOBA	863090-88-5	ND	ND	<LOD	1.25	1.25			U
	PFO5DA	39492-91-6	ND	ND	<LOD	1.32	1.32			U
	PMPA	13140-29-9	3394.96	4.72	4.72	1.25	1.25			
	MPFBA		4287.04	5.96				20-150%	85.7%	
	MSPFPeA		5538.12	7.70				20-150%	110.7%	
	M3PFBS		6736.68	9.37				20-150%	134.7%	
	M2-4:2 FTS		3437.33	4.78				20-150%	68.7%	
	M5PFHxA		4539.70	6.31				20-150%	90.8%	
	M3HFPO-DA		3202.66	4.45				20-150%	64.1%	
	M4PFHpA		3817.51	5.31				20-150%	76.4%	
	M3PFHxS		4437.14	6.17				20-150%	88.7%	
	M2-6:2 FTS		2717.87	3.78				20-150%	54.4%	
	M8PFOA		3773.48	5.25				20-150%	75.5%	
	M8PFNA		3886.24	5.29				20-150%	76.1%	
	M8PFOS		3769.21	5.24				20-150%	75.4%	
	M2-8:2 FTS		2915.36	4.05				20-150%	58.3%	
M8FOSA-I		2873.95	4.00				20-150%	57.5%		
M8PFDA		3550.57	4.94				20-150%	71.0%		
d3-N-MeFOSAA		2156.47	3.00				20-150%	43.1%		
d5-N-EtFOSAA		2144.03	2.98				20-150%	42.9%		
M7PFUDa		3688.75	5.13				20-150%	73.8%		
MPPDoA		2816.01	3.64				20-150%	52.3%		
M2PFTeDA		1361.04	1.89				20-150%	27.2%		