August 2023

These tests were performed to determine the PFAS discharge concentration for the water plant and the wastewater treatment plant. Grants are available to help with remediating contaminants and these tests were used to prepare the grant applications.

ppt = Parts per trillion. 1 part per trillion is often described as equivalent to a single drop in 20 Olympic-sized swimming pools. Also expressed as ng/L.

WWTP Treated Wastewater Sample 001 -1120 (8/28/23)	
PFOA	5.8 ng/L
PFOS	2.9 ng/L
PFNA	0.65 J ng/L
PFHxS	1.4 ng/L
PFBS	4.1 ng/L
HFPO-DA (GenX)	1.3 J ng/L

WWTP Treated Wastewater Sample 002 - 1315 (8/28/23)	
PFOA	6.7 ng/L
PFOS	3.3 ng/L
PFNA	0.70 J ng/L
PFHxS	1.5 ng/L
PFBS	3.7 ng/L
HFPO-DA (GenX)	1.3 J ng/L

ng/L = also expressed as Parts Per Trillion (ppt).

J = Estimated result <LOQ (limit of quantitation) and ≥ DL (detection limit).

View the full test results in the attached document.

Report of Analysis

Village of Bald Head Island
106 Lighthouse Wynd
PO Box 3009
Bald Head Island, NC 28461
Attention: JP McCann

Project Name: PFAS Testing

Lot Number:**YH30018**

Date Completed:09/27/2023

09/28/2023 8:43 AM
Approved and released by:
Project Coordinator 1: **Jenna S. Holliday**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Village of Bald Head Island
Lot Number: YH30018

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: Drinking Water: VOC (excluding BTEX, MTBE, Naphthalene, & 1,2-dichloroethane) EPA 524.2, E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18, PFAS by Isotope Dilution SOP.

If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Sample Summary
Village of Bald Head Island
Lot Number: YH30018

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WWTP	Aqueous	08/28/2023 1120	08/30/2023
002	WWTP	Aqueous	08/28/2023 1315	08/30/2023

(2 samples)

Detection Summary

Village of Bald Head Island

Lot Number: YH30018

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WWTP	Aqueous	HFPO-DA	1633	1.3	J	ng/L	5
001	WWTP	Aqueous	NMeFOSAA	1633	0.50	J	ng/L	5
001	WWTP	Aqueous	PFBS	1633	4.1		ng/L	5
001	WWTP	Aqueous	PFDA	1633	0.51	J	ng/L	5
001	WWTP	Aqueous	PFHpA	1633	1.9		ng/L	5
001	WWTP	Aqueous	PFHxS	1633	1.4		ng/L	5
001	WWTP	Aqueous	PFHxA	1633	8.6		ng/L	5
001	WWTP	Aqueous	PFNA	1633	0.65	J	ng/L	5
001	WWTP	Aqueous	PFOS	1633	2.9		ng/L	5
001	WWTP	Aqueous	PFOA	1633	5.8		ng/L	5
001	WWTP	Aqueous	PFPeA	1633	11		ng/L	5
002	WWTP	Aqueous	HFPO-DA	1633	1.3	J	ng/L	7
002	WWTP	Aqueous	NMeFOSAA	1633	0.55	J	ng/L	7
002	WWTP	Aqueous	PFBS	1633	3.7		ng/L	7
002	WWTP	Aqueous	PFBA	1633	5.4		ng/L	7
002	WWTP	Aqueous	PFDA	1633	0.69	J	ng/L	7
002	WWTP	Aqueous	PFHpA	1633	2.1		ng/L	7
002	WWTP	Aqueous	PFHxS	1633	1.5		ng/L	7
002	WWTP	Aqueous	PFHxA	1633	8.8		ng/L	7
002	WWTP	Aqueous	PFNA	1633	0.70	J	ng/L	7
002	WWTP	Aqueous	PFOS	1633	3.3		ng/L	7
002	WWTP	Aqueous	PFOA	1633	6.7		ng/L	7
002	WWTP	Aqueous	PFPeA	1633	14		ng/L	7

(23 detections)

PFAS by LC/MS/MS

Client: **Village of Bald Head Island** Laboratory ID: **YH30018-001**

Description: **WWTP** Matrix: **Aqueous**

Date Sampled: **08/28/2023 1120**

Date Received: **08/30/2023**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	1633	1633	1	09/22/2023 2101	ALM	09/20/2023 1614	85288

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	1633	ND		3.9	0.84	ng/L	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	1633	ND		3.9	0.65	ng/L	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	1633	ND		3.9	0.64	ng/L	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	39108-34-4	1633	ND		3.9	0.59	ng/L	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	757124-72-4	1633	ND		3.9	0.38	ng/L	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	27619-97-2	1633	ND		4.8	1.9	ng/L	1
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	914637-49-3	1633	ND		24	4.1	ng/L	1
Hexafluoropropylene oxide dimer acid (HFPO-DA)	**13252-13-6**	**1633**	**1.3**	**J**	**3.9**	**0.96**	**ng/L**	**1**
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	1633	ND		0.96	0.12	ng/L	1
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	1633	ND		0.96	0.28	ng/L	1
N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	1633	ND		9.6	0.59	ng/L	1
N-methyl perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	1633	ND		0.96	0.21	ng/L	1
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	**2355-31-9**	**1633**	**0.50**	**J**	**0.96**	**0.28**	**ng/L**	**1**
N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	1633	ND		9.6	0.61	ng/L	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	151772-58-6	1633	ND		1.9	0.56	ng/L	1
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	113507-82-7	1633	ND		1.9	0.35	ng/L	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	1633	ND		1.9	0.18	ng/L	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	863090-89-5	1633	ND		1.9	0.37	ng/L	1
Perfluorobutanesulfonic acid (PFBS)	**375-73-5**	**1633**	**4.1**		**0.96**	**0.090**	**ng/L**	**1**
Perfluorobutanoic acid (PFBA)	375-22-4	1633	ND		3.9	0.49	ng/L	1
Perfluorodecanesulfonic acid (PFDS)	335-77-3	1633	ND		0.96	0.16	ng/L	1
Perfluorodecanoic acid (PFDA)	**335-76-2**	**1633**	**0.51**	**J**	**0.96**	**0.13**	**ng/L**	**1**
Perfluorododecanesulfonic acid (PFDoS)	79780-39-5	1633	ND		0.96	0.15	ng/L	1
Perfluorododecanoic acid (PFDoA)	307-55-1	1633	ND		0.96	0.10	ng/L	1
Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	1633	ND		0.96	0.18	ng/L	1
Perfluoroheptanoic acid (PFHpA)	**375-85-9**	**1633**	**1.9**		**0.96**	**0.20**	**ng/L**	**1**
3-Perfluoroheptyl propanoic acid (7:3FTCA)	812-70-4	1633	ND		24	4.0	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**1633**	**1.4**		**0.96**	**0.18**	**ng/L**	**1**
Perfluorohexanoic acid (PFHxA)	**307-24-4**	**1633**	**8.6**		**0.96**	**0.14**	**ng/L**	**1**
Perfluorononanesulfonic acid (PFNS)	68259-12-1	1633	ND		0.96	0.14	ng/L	1
Perfluorononanoic acid (PFNA)	**375-95-1**	**1633**	**0.65**	**J**	**0.96**	**0.099**	**ng/L**	**1**
Perfluorooctanesulfonamide (PFOSA)	754-91-6	1633	ND		0.96	0.19	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**1633**	**2.9**		**0.96**	**0.24**	**ng/L**	**1**
Perfluorooctanoic acid (PFOA)	**335-67-1**	**1633**	**5.8**		**0.96**	**0.20**	**ng/L**	**1**
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	1633	ND		0.96	0.25	ng/L	1
Perfluoropentanoic acid (PFPeA)	**2706-90-3**	**1633**	**11**		**1.9**	**0.18**	**ng/L**	**1**
3-Perfluoropropyl propanoic acid (3:3FTCA)	356-02-5	1633	ND		4.8	0.57	ng/L	1
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1633	ND		0.96	0.26	ng/L	1
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1633	ND		0.96	0.19	ng/L	1
Perfluoroundecanoic acid (PFUnA)	2058-94-8	1633	ND		0.96	0.24	ng/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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PFAS by LC/MS/MS

Client: **Village of Bald Head Island** Laboratory ID: **YH30018-001**

Description: **WWTP** Matrix: **Aqueous**

Date Sampled: **08/28/2023 1120**

Date Received: **08/30/2023**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2-4:2FTS		96	20-150
13C2-6:2FTS		106	20-150
13C2-8:2FTS		93	20-150
13C2-PFDoA		60	20-150
13C2-PFTeDA		45	20-150
13C3-HFPO-DA		82	20-150
13C3-PFBS		80	20-150
13C3-PFHxS		84	20-150
13C4-PFBA		83	20-150
13C4-PFHpA		86	20-150
13C5-PFHxA		84	20-150
13C5-PFPeA		89	20-150
13C6-PFDA		78	20-150
13C7-PFUnA		68	20-150
13C8-PFOA		82	20-150
13C8-PFOS		80	20-150
13C8-PFOSA		58	20-150
13C9-PFNA		73	20-150
D3-NMeFOSA		43	20-150
D5-NEtFOSA		37	20-150
D5-NEtFOSAA		75	20-150
D7-NMeFOSE		57	20-150
D9-NEtFOSE		45	20-150
D3-NMeFOSAA		80	20-150

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PFAS by LC/MS/MS

Client: **Village of Bald Head Island** Laboratory ID: **YH30018-002**

Description: **WWTP** Matrix: **Aqueous**

Date Sampled: **08/28/2023 1315**

Date Received: **08/30/2023**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	1633	1633	1	09/22/2023 2110	ALM	09/20/2023 1614	85288

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3...)	763051-92-9	1633	ND		3.9	0.85	ng/L	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	1633	ND		3.9	0.65	ng/L	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	1633	ND		3.9	0.65	ng/L	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	39108-34-4	1633	ND		3.9	0.59	ng/L	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	757124-72-4	1633	ND		3.9	0.39	ng/L	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	27619-97-2	1633	ND		4.9	2.0	ng/L	1
2H,2H,3H,3H-Perfluorooctanoic acid (5:3FTCA)	914637-49-3	1633	ND		24	4.2	ng/L	1
Hexafluoropropylene oxide dimer acid (HFPO-DA)	**13252-13-6**	**1633**	**1.3**	**J**	**3.9**	**0.97**	**ng/L**	**1**
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	4151-50-2	1633	ND		0.97	0.13	ng/L	1
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	1633	ND		0.97	0.28	ng/L	1
N-ethyl perfluorooctanesulfonamidoethanol (NEtFOSE)	1691-99-2	1633	ND		9.7	0.59	ng/L	1
N-methyl perfluorooctanesulfonamide (NMeFOSA)	31506-32-8	1633	ND		0.97	0.21	ng/L	1
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	**2355-31-9**	**1633**	**0.55**	**J**	**0.97**	**0.29**	**ng/L**	**1**
N-methyl perfluorooctanesulfonamidoethanol (NMeFOSE)	24448-09-7	1633	ND		9.7	0.61	ng/L	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	151772-58-6	1633	ND		1.9	0.56	ng/L	1
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	113507-82-7	1633	ND		1.9	0.35	ng/L	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	1633	ND		1.9	0.18	ng/L	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	863090-89-5	1633	ND		1.9	0.38	ng/L	1
Perfluorobutanesulfonic acid (PFBS)	**375-73-5**	**1633**	**3.7**		**0.97**	**0.091**	**ng/L**	**1**
Perfluorobutanoic acid (PFBA)	**375-22-4**	**1633**	**5.4**		**3.9**	**0.50**	**ng/L**	**1**
Perfluorodecanesulfonic acid (PFDS)	335-77-3	1633	ND		0.97	0.16	ng/L	1
Perfluorodecanoic acid (PFDA)	**335-76-2**	**1633**	**0.69**	**J**	**0.97**	**0.13**	**ng/L**	**1**
Perfluorododecanesulfonic acid (PFDoS)	79780-39-5	1633	ND		0.97	0.15	ng/L	1
Perfluorododecanoic acid (PFDoA)	307-55-1	1633	ND		0.97	0.10	ng/L	1
Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	1633	ND		0.97	0.19	ng/L	1
Perfluoroheptanoic acid (PFHpA)	**375-85-9**	**1633**	**2.1**		**0.97**	**0.21**	**ng/L**	**1**
3-Perfluoroheptyl propanoic acid (7:3FTCA)	812-70-4	1633	ND		24	4.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	**355-46-4**	**1633**	**1.5**		**0.97**	**0.18**	**ng/L**	**1**
Perfluorohexanoic acid (PFHxA)	**307-24-4**	**1633**	**8.8**		**0.97**	**0.14**	**ng/L**	**1**
Perfluorononanesulfonic acid (PFNS)	68259-12-1	1633	ND		0.97	0.14	ng/L	1
Perfluorononanoic acid (PFNA)	**375-95-1**	**1633**	**0.70**	**J**	**0.97**	**0.10**	**ng/L**	**1**
Perfluorooctanesulfonamide (PFOSA)	754-91-6	1633	ND		0.97	0.19	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	**1763-23-1**	**1633**	**3.3**		**0.97**	**0.24**	**ng/L**	**1**
Perfluorooctanoic acid (PFOA)	**335-67-1**	**1633**	**6.7**		**0.97**	**0.20**	**ng/L**	**1**
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	1633	ND		0.97	0.25	ng/L	1
Perfluoropentanoic acid (PFPeA)	**2706-90-3**	**1633**	**14**		**1.9**	**0.18**	**ng/L**	**1**
3-Perfluoropropyl propanoic acid (3:3FTCA)	356-02-5	1633	ND		4.9	0.58	ng/L	1
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	1633	ND		0.97	0.26	ng/L	1
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	1633	ND		0.97	0.19	ng/L	1
Perfluoroundecanoic acid (PFUnA)	2058-94-8	1633	ND		0.97	0.24	ng/L	1

LOQ = Limit of Quantitation
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PFAS by LC/MS/MS

Client: **Village of Bald Head Island** Laboratory ID: **YH30018-002**

Description: **WWTP** Matrix: **Aqueous**

Date Sampled: **08/28/2023 1315**

Date Received: **08/30/2023**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2-4:2FTS		84	20-150
13C2-6:2FTS		100	20-150
13C2-8:2FTS		73	20-150
13C2-PFDoA		53	20-150
13C2-PFTeDA		45	20-150
13C3-HFPO-DA		84	20-150
13C3-PFBS		78	20-150
13C3-PFHxS		81	20-150
13C4-PFBA		85	20-150
13C4-PFHpA		80	20-150
13C5-PFHxA		83	20-150
13C5-PFPeA		91	20-150
13C6-PFDA		66	20-150
13C7-PFUnA		64	20-150
13C8-PFOA		86	20-150
13C8-PFOS		78	20-150
13C8-PFOSA		56	20-150
13C9-PFNA		78	20-150
D3-NMeFOSA		42	20-150
D5-NEtFOSA		37	20-150
D5-NEtFOSAA		66	20-150
D7-NMeFOSE		48	20-150
D9-NEtFOSE		29	20-150
D3-NMeFOSAA		71	20-150

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S = MS/MSD failure

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QC Summary

PFAS by LC/MS/MS - MB

Sample ID: YQ85288-001
Batch: 85288
Analytical Method: 1633

Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
11Cl-PF3OUdS	ND		1	4.0	0.87	ng/L	09/22/2023 1749
9Cl-PF3ONS	ND		1	4.0	0.67	ng/L	09/22/2023 1749
ADONA	ND		1	4.0	0.66	ng/L	09/22/2023 1749
8:2FTS	ND		1	4.0	0.61	ng/L	09/22/2023 1749
4:2FTS	ND		1	4.0	0.40	ng/L	09/22/2023 1749
6:2FTS	ND		1	5.0	2.0	ng/L	09/22/2023 1749
5:3FTCA	ND		1	25	4.3	ng/L	09/22/2023 1749
HFPO-DA	ND		1	4.0	0.99	ng/L	09/22/2023 1749
NEtFOSA	ND		1	1.0	0.13	ng/L	09/22/2023 1749
NEtFOSAA	ND		1	1.0	0.29	ng/L	09/22/2023 1749
NEtFOSE	ND		1	10	0.61	ng/L	09/22/2023 1749
NMeFOSA	ND		1	1.0	0.22	ng/L	09/22/2023 1749
NMeFOSAA	ND		1	1.0	0.29	ng/L	09/22/2023 1749
NMeFOSE	ND		1	10	0.63	ng/L	09/22/2023 1749
NFDHA	ND		1	2.0	0.58	ng/L	09/22/2023 1749
2-ethoxyethane)sulfonic acid (PFEESA	ND		1	2.0	0.36	ng/L	09/22/2023 1749
PFMPA	ND		1	2.0	0.18	ng/L	09/22/2023 1749
PFMBA	ND		1	2.0	0.39	ng/L	09/22/2023 1749
PFBS	ND		1	1.0	0.094	ng/L	09/22/2023 1749
PFBA	ND		1	4.0	0.51	ng/L	09/22/2023 1749
PFDS	ND		1	1.0	0.16	ng/L	09/22/2023 1749
PFDA	ND		1	1.0	0.14	ng/L	09/22/2023 1749
PFDoS	ND		1	1.0	0.15	ng/L	09/22/2023 1749
PFDoA	ND		1	1.0	0.11	ng/L	09/22/2023 1749
PFHpS	ND		1	1.0	0.19	ng/L	09/22/2023 1749
PFHpA	ND		1	1.0	0.21	ng/L	09/22/2023 1749
7:3FTCA	ND		1	25	4.2	ng/L	09/22/2023 1749
PFHxS	ND		1	1.0	0.18	ng/L	09/22/2023 1749
PFHxA	ND		1	1.0	0.14	ng/L	09/22/2023 1749
PFNS	ND		1	1.0	0.15	ng/L	09/22/2023 1749
PFNA	ND		1	1.0	0.10	ng/L	09/22/2023 1749
PFOSA	ND		1	1.0	0.20	ng/L	09/22/2023 1749
PFOS	ND		1	1.0	0.25	ng/L	09/22/2023 1749
PFOA	ND		1	1.0	0.21	ng/L	09/22/2023 1749
PFPeS	ND		1	1.0	0.26	ng/L	09/22/2023 1749
PFPeA	ND		1	2.0	0.18	ng/L	09/22/2023 1749
3:3FTCA	ND		1	5.0	0.60	ng/L	09/22/2023 1749
PFTeDA	ND		1	1.0	0.27	ng/L	09/22/2023 1749
PFTrDA	ND		1	1.0	0.19	ng/L	09/22/2023 1749
PFUnA	ND		1	1.0	0.25	ng/L	09/22/2023 1749

Surrogate	Q	% Rec	Acceptance Limit
13C2-4:2FTS		84	20-150
13C2-6:2FTS		90	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - MB

Sample ID: YQ85288-001
Batch: 85288
Analytical Method: 1633
Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Surrogate	Q	% Rec	Acceptance Limit
13C2-8:2FTS		85	20-150
13C2-PFDoA		74	20-150
13C2-PFTeDA		88	20-150
13C3-HFPO-DA		81	20-150
13C3-PFBS		81	20-150
13C3-PFHxS		84	20-150
13C4-PFBA		82	20-150
13C4-PFHpA		82	20-150
13C5-PFHxA		80	20-150
13C5-PFPeA		86	20-150
13C6-PFDA		77	20-150
13C7-PFUnA		71	20-150
13C8-PFOA		82	20-150
13C8-PFOS		83	20-150
13C8-PFOSA		61	20-150
13C9-PFNA		78	20-150
D3-NMeFOSA		38	20-150
D5-NEtFOSA		40	20-150
D5-NEtFOSAA		83	20-150
D7-NMeFOSE		87	20-150
D9-NEtFOSE		85	20-150
D3-NMeFOSAA		80	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85288-002
Batch: 85288
Analytical Method: 1633
Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
11Cl-PF3OUdS	7.6	6.2		1	82	40-150	09/25/2023 2015
9Cl-PF3ONS	7.5	6.6		1	88	40-150	09/25/2023 2015
ADONA	7.6	7.9		1	105	40-150	09/25/2023 2015
8:2FTS	7.7	8.4		1	109	40-150	09/25/2023 2015
4:2FTS	7.5	7.3		1	97	40-150	09/25/2023 2015
6:2FTS	7.6	6.2		1	82	40-150	09/25/2023 2015
5:3FTCA	50	51		1	103	40-150	09/25/2023 2015
HFPO-DA	8.0	9.1		1	114	40-150	09/25/2023 2015
NEtFOSA	2.0	2.1		1	103	40-150	09/25/2023 2015
NEtFOSAA	2.0	2.4		1	120	40-150	09/25/2023 2015
NEtFOSE	20	20		1	101	40-150	09/25/2023 2015
NMeFOSA	2.0	2.0		1	99	40-150	09/25/2023 2015
NMeFOSAA	2.0	2.0		1	100	40-150	09/25/2023 2015
NMeFOSE	20	19		1	96	40-150	09/25/2023 2015
NFDHA	4.0	4.6		1	114	40-150	09/25/2023 2015
2-ethoxyethane)sulfonic acid (PFEESA	3.6	3.7		1	103	40-150	09/25/2023 2015
PFMPA	4.0	3.7		1	92	40-150	09/25/2023 2015
PFMBA	4.0	4.0		1	100	40-150	09/25/2023 2015
PFBS	1.8	1.9		1	105	40-150	09/25/2023 2015
PFBA	8.0	8.7		1	109	40-150	09/25/2023 2015
PFDS	1.9	2.1		1	108	40-150	09/25/2023 2015
PFDA	2.0	2.3		1	113	40-150	09/25/2023 2015
PFDoS	1.9	1.7		1	87	40-150	09/25/2023 2015
PFDoA	2.0	2.2		1	111	40-150	09/25/2023 2015
PFHpS	1.9	2.3		1	119	40-150	09/25/2023 2015
PFHpA	2.0	2.0		1	98	40-150	09/25/2023 2015
7:3FTCA	50	41		1	81	40-150	09/25/2023 2015
PFHxS	1.8	2.1		1	115	40-150	09/25/2023 2015
PFHxA	2.0	2.4		1	122	40-150	09/25/2023 2015
PFNS	1.9	1.7		1	89	40-150	09/25/2023 2015
PFNA	2.0	2.5		1	126	40-150	09/25/2023 2015
PFOSA	2.0	2.2		1	108	40-150	09/25/2023 2015
PFOS	1.9	1.7		1	94	40-150	09/25/2023 2015
PFOA	2.0	1.9		1	96	40-150	09/25/2023 2015
PFPeS	1.9	1.7		1	93	40-150	09/25/2023 2015
PFPeA	4.0	4.1		1	101	40-150	09/25/2023 2015
3:3FTCA	10	9.1		1	91	40-150	09/25/2023 2015
PFTeDA	2.0	2.3		1	113	40-150	09/25/2023 2015
PFTrDA	2.0	2.0		1	100	40-150	09/25/2023 2015
PFUnA	2.0	1.9		1	94	40-150	09/25/2023 2015

Surrogate	Q	% Rec	Acceptance Limit
13C2-4:2FTS		82	20-150
13C2-6:2FTS		92	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85288-002
Batch: 85288
Analytical Method: 1633
Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Surrogate	Q	% Rec	Acceptance Limit
13C2-8:2FTS		78	20-150
13C2-PFDoA		72	20-150
13C2-PFTeDA		64	20-150
13C3-HFPO-DA		87	20-150
13C3-PFBS		88	20-150
13C3-PFHxS		83	20-150
13C4-PFBA		83	20-150
13C4-PFHpA		91	20-150
13C5-PFHxA		83	20-150
13C5-PFPeA		86	20-150
13C6-PFDA		77	20-150
13C7-PFUnA		76	20-150
13C8-PFOA		79	20-150
13C8-PFOS		78	20-150
13C8-PFOSA		56	20-150
13C9-PFNA		78	20-150
D3-NMeFOSA		35	20-150
D5-NEtFOSA		39	20-150
D5-NEtFOSAA		68	20-150
D7-NMeFOSE		61	20-150
D9-NEtFOSE		60	20-150
D3-NMeFOSAA		75	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85288-102
Batch: 85288
Analytical Method: 1633

Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
11Cl-PF3OUdS	91	99		1	109	40-150	09/25/2023 2024
9Cl-PF3ONS	90	100		1	112	40-150	09/25/2023 2024
ADONA	91	110		1	117	40-150	09/25/2023 2024
8:2FTS	92	110		1	117	40-150	09/25/2023 2024
4:2FTS	90	97		1	108	40-150	09/25/2023 2024
6:2FTS	91	96		1	105	40-150	09/25/2023 2024
5:3FTCA	600	660		1	110	40-150	09/25/2023 2024
HFPO-DA	96	94		1	98	40-150	09/25/2023 2024
NEtFOSA	24	23		1	97	40-150	09/25/2023 2024
NEtFOSAA	24	27		1	114	40-150	09/25/2023 2024
NEtFOSE	240	250		1	104	40-150	09/25/2023 2024
NMeFOSA	24	23		1	98	40-150	09/25/2023 2024
NMeFOSAA	24	24		1	99	40-150	09/25/2023 2024
NMeFOSE	240	250		1	104	40-150	09/25/2023 2024
NFDHA	48	50		1	103	40-150	09/25/2023 2024
2-ethoxyethane)sulfonic acid (PFEESA	43	47		1	110	40-150	09/25/2023 2024
PFMPA	48	47		1	97	40-150	09/25/2023 2024
PFMBA	48	45		1	94	40-150	09/25/2023 2024
PFBS	21	23		1	108	40-150	09/25/2023 2024
PFBA	96	97		1	101	40-150	09/25/2023 2024
PFDS	23	21		1	91	40-150	09/25/2023 2024
PFDA	24	26		1	107	40-150	09/25/2023 2024
PFDoS	23	20		1	84	40-150	09/25/2023 2024
PFDoA	24	26		1	107	40-150	09/25/2023 2024
PFHpS	23	26		1	113	40-150	09/25/2023 2024
PFHpA	24	28		1	115	40-150	09/25/2023 2024
7:3FTCA	600	480		1	80	40-150	09/25/2023 2024
PFHxS	22	23		1	105	40-150	09/25/2023 2024
PFHxA	24	26		1	107	40-150	09/25/2023 2024
PFNS	23	22		1	97	40-150	09/25/2023 2024
PFNA	24	28		1	118	40-150	09/25/2023 2024
PFOSA	24	26		1	107	40-150	09/25/2023 2024
PFOS	22	22		1	99	40-150	09/25/2023 2024
PFOA	24	23		1	94	40-150	09/25/2023 2024
PFPeS	23	21		1	94	40-150	09/25/2023 2024
PFPeA	48	49		1	102	40-150	09/25/2023 2024
3:3FTCA	120	110		1	94	40-150	09/25/2023 2024
PFTeDA	24	26		1	110	40-150	09/25/2023 2024
PFTrDA	24	26		1	106	40-150	09/25/2023 2024
PFUnA	24	26		1	107	40-150	09/25/2023 2024

Surrogate	Q	% Rec	Acceptance Limit
13C2-4:2FTS		91	20-150
13C2-6:2FTS		99	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

PFAS by LC/MS/MS - LCS

Sample ID: YQ85288-102
Batch: 85288
Analytical Method: 1633

Matrix: Aqueous
Prep Method: 1633
Prep Date: 09/20/2023 1614

Surrogate	Q	% Rec	Acceptance Limit
13C2-8:2FTS		89	20-150
13C2-PFDoA		74	20-150
13C2-PFTeDA		72	20-150
13C3-HFPO-DA		92	20-150
13C3-PFBS		86	20-150
13C3-PFHxS		89	20-150
13C4-PFBA		89	20-150
13C4-PFHpA		90	20-150
13C5-PFHxA		87	20-150
13C5-PFPeA		97	20-150
13C6-PFDA		81	20-150
13C7-PFUnA		79	20-150
13C8-PFOA		87	20-150
13C8-PFOS		92	20-150
13C8-PFOSA		64	20-150
13C9-PFNA		80	20-150
D3-NMeFOSA		41	20-150
D5-NEtFOSA		46	20-150
D5-NEtFOSAA		74	20-150
D7-NMeFOSE		73	20-150
D9-NEtFOSE		71	20-150
D3-NMeFOSAA		86	20-150

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC
106 Vantage Point Drive • West Columbia, SC 29172
Telephone No. 803-791-9700 Fax No. 803-791-9111
www.pacelabs.com

Number 152217

Client: Village of Bald Head Island	Report to Contact: Nathan Lindsay / JP McCann	Telephone No. / E-mail: nlindsay@villageofbhi.org / 910-269-5718 / 910-457-4483 jmccann@villageofbhi.org	Quote No.
Address: 256 Edward Teach EXT.	Sampler's Signature: Nate Lindsay x Nathan Lindsay	Analysis (Attach list if more space is needed)	Page: ____ of ____
City: Bald Head Island	State: NC	Zip Code: 28461	
Project Name: BHI PFAS	Printed Name		YH30018 JSH
Project No.: 1633	P.O. No.		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line.)	Collection Date(s)	Collection Time (Military)	Lab ID (Lab Only)	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	No. of Containers by Preservative Type: Unpres	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Field Filtered
WWTP	8.28.23	1120											
WWTP	8.28.23	11:20											
WWTP	8-29-23	9:15											
WWTP	8-29-23	13:15											
WWTP	8-29-23	1345											
WWTP	8-28-23	1120											

Turn Around Time Required (Prior lab approval required for expedited TAT.): ☐ Standard ☐ Rush (Specify)	Sample Disposal: ☐ Return to Client ☐ Disposal by Lab	Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown	QC Requirements (Specify)		
1. Relinquished by: Jason Jacobs	Date: 8/29/23	Time: 1530	1. Received by	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date: 8/30/23	Time: 1000	4. Laboratory received by	Date: 8/30/23	Time: 1000

Note: All samples are retained for four weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on ice (Circle) Yes No Ice Pack — Receipt Temp. 2.8 °C — Temp Blank ☒ Y ☐ N

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: ME003N2-01

PACE ANALYTICAL SERVICES, LLC

DC#_Title: ENV-FRM-WCOL-0286 v02_Samples Receipt Checklist (SRC)
Effective Date: 8/2/2022

Sample Receipt Checklist (SRC)

Client: VILLAGE OF BALD HEAD ISLAND Cooler Inspected by/date: CJH / 08/30/23 Lot #: YH30018

Means of receipt: ☐ Pace ☐ Client ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

2.8 / 2.8 °C NA / NA °C NA / NA °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 8 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☑ Yes	☐ No	☐ NA	3. Were all coolers received at or below 6.0°C? If no, was Project Manager notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC and all sample containers?
☑ Yes	☐ No		7. Was collection date & time listed on the COC and all sample containers?
☑ Yes	☐ No		8. Did all container label information (ID, date, time) agree with the COC?
☐ Yes	☑ No		9. Were tests to be performed listed on the COC?
☑ Yes	☐ No		10. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		11. Was adequate sample volume available?
☑ Yes	☐ No		12. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☑ Yes	☐ No		13. Were all samples containers accounted for? (No missing/excess)
☐ Yes	☐ No	☑ NA	14. Were VOA, 8015C and RSK-175 samples free of bubbles >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	15. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	16. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	17. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☑ No	☐ NA	18. Was the quote number listed on the container label? If yes, Quote #

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA . ☐
Time of preservation NA . If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is *no*) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Unique ID: NA .

Comments: NO TESTS ON COC

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com