



MEMORANDUM

To: Tom Rauth, NAVFAC SE
From: AH Engineering Consultants, Inc.
Subject: Vieques ROTHF Site, Per- and Polyfluoroalkyl Substances [PFAS] Sampling Support Analytical Results (USEPA Methods 533 and 537.1) – Event 1
Date: 6 May 2024

On 10 April 2024, AH engineer Anthony Gruber, visited the Vieques ROTHF site, following logistics coordination with Barry Corwin and Javier Sanchez, to collect samples from the potable water system that were subsequently analyzed for the presence of PFAS substances (USEPA Methods 537.1 and 533).

Finished water samples were collected from the galley sink in the main building. All PFAS sampling protocols were followed during sample collection and there were no anomalies. Samples were maintained on ice during travel and storage. Samples were prepared for shipping in accordance with the sample collection protocols for PFAS sample collection and were overnight shipped on 15 April 2024 to Pace Analytical Services located in Ormond Beach Florida. Samples were received in the laboratory on 16 April 2024 in satisfactory condition.

Analytical results show that 7 of the 29 PFAS parameters analyzed were detected above the respective Practical Quantification Limits (PQLs) (refer to the yellow highlighted lines in the table below). PFOS/PFOA was detected, at a combined total of 13 ng/L, well below the DoD Policy Health Advisory value of 70 ng/L. Lab QA/QC checks were satisfactory (Field Blank, Method Blank, Matrix Spike/Matrix Spike Duplicates).

Parameter	CAS Number	Method	Results (ng/L)	Practical Quantification Limit (PQL) AKA Method Report Limit (MRL) (ng/L)	Method Detection Limit (MDL) (ng/L)
11CI-PF3OUdS	763051-92-9	533	0.45U	2.0	0.45
4:2 FTS	757124-72-4	533	0.59U	2.0	0.59
6:2 FTS	27619-97-2	533	3.6U	4.0	3.6
8:2 FTS	39108-34-4	533	0.49U	2.0	0.49
9CI-PF3ONS	756426-58-1	533	0.51U	2.0	0.51
ADONA	919005-14-4	533	0.44U	2.0	0.44
HFPO-DA	13252-13-6	533	0.76U	2.0	0.76
NFDHA	151772-58-6	533	0.30U	2.0	0.30
PFBA	375-22-4	533	9.5	2.0	0.64
PFEEA	113507-82-7	533	0.36U	2.0	0.36
PFHpS	375-92-8	533	0.41U	2.0	0.41
PFMBA	863090-89-5	533	0.27U	2.0	0.27
PFMPA	377-73-1	533	0.34U	2.0	0.34
PFPeA	2706-90-3	533	3.5	2.0	0.32
PFPeS	2706-91-4	533	0.36U	2.0	0.36
NEtFOSAA	2991-50-6	537.1	0.87U	1.8	0.87
NMeFOSAA	2355-31-9	537.1	1.5U	1.8	1.5
Perfluorobutanesulfonic acid (PFBSA)	375-73-5	533	8.5	2.0	0.44
Perfluorodecanoic acid (PFDA)	335-76-2	533	0.32U	2.0	0.32
Perfluorododecanoic acid (PFDOA)	307-55-1	533	0.55U	2.0	0.55
Perfluoroheptanoic acid (PFHPA)	375-85-9	533	1.7 J	2.0	0.45
Perfluorohexanesulfonic acid (PFHXSa)	355-46-4	533	0.40 J	2.0	0.38
Perfluorohexanoic acid (PFHXA)	307-24-4	533	2.1	2.0	0.32
Perfluorononanoic acid (PFNA)	375-95-1	533	3.7	2.0	0.34
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	533	9.5	2.0	0.36
Perfluorooctanoic acid (PFOA)	335-67-1	533	3.5	2.0	0.32
Perfluorotetradecanoic acid (PFTeA)	376-06-7	537.1	1.8U	1.8	1.8
Perfluorotridecanoic acid (PFTRIA)	72629-94-8	537.1	1.6U	1.8	1.6
Perfluoroundecanoic acid (PFUNA)	2058-94-8	533	0.43U	2.0	0.43
DoD Policy Health Advisory (HA) for PFOS/PFOA Total = 70 ng/L					
PFOA/PFOS Total: 13 ng/L					

Notes:

J – Estimated concentration above the adjusted method detection limit and below the adjusted method reporting limit

U – Indicates the compound was analyzed for, but not detected.

HA - health advisory value

Attachment 1 provides the subject Pace Analytical Laboratory Report (USEPA Method 533 and 537.1), with the respective chain of custody forms.

Should you have any questions please let us know.

Attachment 1
Analytical Results Report



April 19, 2024

Anthony Gruber
AH Environmental

,

RE: Project: ROTH Site Vieques PR
Pace Project No.: 35873228

Dear Anthony Gruber:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Ormond Beach

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Brad Smith for
Bo Garcia
bo.garcia@pacelabs.com
(386)672-5668
Project Manager

Enclosures

cc: Jay Allen, AH Environmental Consultants
Faysal Bekdash, AH Environmental Consultants, Inc.
Nick DeGuida, AH Environmental Consultants



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: ROTH Site Vieques PR
 Pace Project No.: 35873228

Pace Analytical Services Ormond Beach

8 East Tower Circle, Ormond Beach, FL 32174
 Alaska DEC- CS/UST/LUST
 Alabama Certification #: 41320
 California Certification# 3096
 Colorado Certification: FL NELAC Reciprocity
 Connecticut Certification #: PH-0216
 Delaware Certification: FL NELAC Reciprocity
 DoD-ANAB #.ADE-3199
 Florida Certification #: E83079
 Georgia Certification #: 955
 Guam Certification: FL NELAC Reciprocity
 Hawaii Certification: FL NELAC Reciprocity
 Illinois Certification #: 200068
 Indiana Certification: FL NELAC Reciprocity
 Kansas Certification #: E-10383
 Kentucky Certification #: 90050
 Louisiana Certification #: FL NELAC Reciprocity
 Louisiana Environmental Certificate #: 05007
 Maine Certification #: FL01264
 Maryland Certification: #346
 Massachusetts Certification #: M-FL1264
 Michigan Certification #: 9911

Mississippi Certification: FL NELAC Reciprocity
 Missouri Certification #: 236
 Montana Certification #: Cert 0074
 Nebraska Certification: NE-OS-28-14
 New Hampshire Certification #: 2958
 New Jersey Certification #: FL022
 New York Certification #: 11608
 North Carolina Environmental Certificate #: 667
 North Carolina Certification #: 12710
 North Dakota Certification #: R-216
 Ohio DEP 87780
 Oklahoma Certification #: D9947
 Pennsylvania Certification #: 68-00547
 Puerto Rico Certification #: FL01264
 South Carolina Certification: #96042001
 Tennessee Certification #: TN02974
 Texas Certification: FL NELAC Reciprocity
 US Virgin Islands Certification: FL NELAC Reciprocity
 Virginia Environmental Certification #: 460165
 West Virginia Certification #: 9962C
 Wisconsin Certification #: 399079670
 Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: ROTHR Site Vieques PR
Pace Project No.: 35873228

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35873228001	Vieques-Field Blank-2-537.1	Drinking Water	04/10/24 09:30	04/16/24 10:35
35873228002	Vieques-Sample-5-537.1	Drinking Water	04/10/24 09:30	04/16/24 10:35
35873228003	Vieques-Field Blank-2-533	Drinking Water	04/10/24 09:15	04/16/24 10:35
35873228004	Vieques-Sample-5-533	Drinking Water	04/10/24 09:30	04/16/24 10:35

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SAMPLE ANALYTE COUNT

Project: ROTHF Site Vieques PR
Pace Project No.: 35873228

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35873228001	Vieques-Field Blank-2-537.1	EPA 537.1	TMM1	22	PASI-O
35873228002	Vieques-Sample-5-537.1	EPA 537.1	TMM1	22	PASI-O
35873228003	Vieques-Field Blank-2-533	EPA 533	TSW	41	PASI-O
35873228004	Vieques-Sample-5-533	EPA 533	TSW	41	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

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ANALYTICAL RESULTS

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

Sample: Vieques-Field Blank-2-537.1 **Lab ID:** 35873228001 **Collected:** 04/10/24 09:30 **Received:** 04/16/24 10:35 **Matrix:** Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
537.1 PFAS Compounds, Water									
Analytical Method: EPA 537.1 Preparation Method: EPA 537.1									
Pace Analytical Services - Ormond Beach									
11Cl-PF3OUdS	1.4U	ng/L	1.8	1.4	1	04/16/24 16:46	04/18/24 14:49	763051-92-9	
9Cl-PF3ONS	1.0U	ng/L	1.8	1.0	1	04/16/24 16:46	04/18/24 14:49	756426-58-1	
ADONA	0.66U	ng/L	1.8	0.66	1	04/16/24 16:46	04/18/24 14:49	919005-14-4	
HFPO-DA	1.5U	ng/L	1.8	1.5	1	04/16/24 16:46	04/18/24 14:49	13252-13-6	
NEtFOSAA	0.85U	ng/L	1.8	0.85	1	04/16/24 16:46	04/18/24 14:49	2991-50-6	
NMeFOSAA	1.4U	ng/L	1.8	1.4	1	04/16/24 16:46	04/18/24 14:49	2355-31-9	
PFBS	0.61U	ng/L	1.8	0.61	1	04/16/24 16:46	04/18/24 14:49	375-73-5	
PFDA	0.88U	ng/L	1.8	0.88	1	04/16/24 16:46	04/18/24 14:49	335-76-2	
PFHxA	1.2U	ng/L	1.8	1.2	1	04/16/24 16:46	04/18/24 14:49	307-24-4	
PFDoA	1.3U	ng/L	1.8	1.3	1	04/16/24 16:46	04/18/24 14:49	307-55-1	
PFHpA	0.92U	ng/L	1.8	0.92	1	04/16/24 16:46	04/18/24 14:49	375-85-9	
PFHxS	0.67U	ng/L	1.8	0.67	1	04/16/24 16:46	04/18/24 14:49	355-46-4	
PFNA	1.8U	ng/L	1.8	1.8	1	04/16/24 16:46	04/18/24 14:49	375-95-1	
PFOS	1.1U	ng/L	1.8	1.1	1	04/16/24 16:46	04/18/24 14:49	1763-23-1	
PFOA	0.80U	ng/L	1.8	0.80	1	04/16/24 16:46	04/18/24 14:49	335-67-1	
PFTeDA	1.7U	ng/L	1.8	1.7	1	04/16/24 16:46	04/18/24 14:49	376-06-7	
PFTDA	1.6U	ng/L	1.8	1.6	1	04/16/24 16:46	04/18/24 14:49	72629-94-8	
PFUnA	1.8U	ng/L	1.8	1.8	1	04/16/24 16:46	04/18/24 14:49	2058-94-8	
Surrogates									
13C2-PFDA (S)	102	%	70-130		1	04/16/24 16:46	04/18/24 14:49		
13C2-PFHxA (S)	94	%	70-130		1	04/16/24 16:46	04/18/24 14:49		
NEtFOSAA-d5 (S)	102	%	70-130		1	04/16/24 16:46	04/18/24 14:49		
HFPO-DAS (S)	95	%	70-130		1	04/16/24 16:46	04/18/24 14:49		

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ANALYTICAL RESULTS

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

Sample: Vieques-Sample-5-537.1 Lab ID: 35873228002 Collected: 04/10/24 09:30 Received: 04/16/24 10:35 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
537.1 PFAS Compounds, Water									
Analytical Method: EPA 537.1 Preparation Method: EPA 537.1									
Pace Analytical Services - Ormond Beach									
11Cl-PF3OUdS	1.5U	ng/L	1.8	1.5	1	04/16/24 16:46	04/18/24 15:05	763051-92-9	
9Cl-PF3ONS	1.1U	ng/L	1.8	1.1	1	04/16/24 16:46	04/18/24 15:05	756426-58-1	
ADONA	0.68U	ng/L	1.8	0.68	1	04/16/24 16:46	04/18/24 15:05	919005-14-4	
HFPO-DA	1.5U	ng/L	1.8	1.5	1	04/16/24 16:46	04/18/24 15:05	13252-13-6	
NEtFOSAA	0.87U	ng/L	1.8	0.87	1	04/16/24 16:46	04/18/24 15:05	2391-50-6	
NMeFOSAA	1.5U	ng/L	1.8	1.5	1	04/16/24 16:46	04/18/24 15:05	2355-31-9	
PFBS	7.8	ng/L	1.8	0.63	1	04/16/24 16:46	04/18/24 15:05	375-73-5	
PFDA	0.91U	ng/L	1.8	0.91	1	04/16/24 16:46	04/18/24 15:05	335-76-2	
PFHxA	1.8J	ng/L	1.8	1.2	1	04/16/24 16:46	04/18/24 15:05	307-24-4	
PFDoA	1.4U	ng/L	1.8	1.4	1	04/16/24 16:46	04/18/24 15:05	307-55-1	
PFHpA	1.8J	ng/L	1.8	0.95	1	04/16/24 16:46	04/18/24 15:05	375-85-9	
PFHxS	0.69U	ng/L	1.8	0.69	1	04/16/24 16:46	04/18/24 15:05	355-46-4	
PFNA	3.7	ng/L	1.8	1.8	1	04/16/24 16:46	04/18/24 15:05	375-95-1	
PFOS	9.4	ng/L	1.8	1.1	1	04/16/24 16:46	04/18/24 15:05	1763-23-1	
PFOA	3.8	ng/L	1.8	0.82	1	04/16/24 16:46	04/18/24 15:05	335-67-1	
PFTeDA	1.8U	ng/L	1.8	1.8	1	04/16/24 16:46	04/18/24 15:05	376-06-7	
PFTiDA	1.6U	ng/L	1.8	1.6	1	04/16/24 16:46	04/18/24 15:05	72629-94-8	
PFUnA	1.8U	ng/L	1.8	1.8	1	04/16/24 16:46	04/18/24 15:05	2058-94-8	
Surrogates									
13C2-PFDA (S)	97	%	70-130		1	04/16/24 16:46	04/18/24 15:05		
13C2-PFHxA (S)	98	%	70-130		1	04/16/24 16:46	04/18/24 15:05		
NEtFOSAA-d5 (S)	103	%	70-130		1	04/16/24 16:46	04/18/24 15:05		
HFPO-DAS (S)	95	%	70-130		1	04/16/24 16:46	04/18/24 15:05		



ANALYTICAL RESULTS

Project: ROTH Site Vieques PR
Pace Project No.: 35873228

Sample: Vieques-Field Blank-2-533 Lab ID: **35873228003** Collected: 04/10/24 09:15 Received: 04/16/24 10:35 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
533 PFAS Compounds, Water									
Analytical Method: EPA 533 Preparation Method: EPA 533									
Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	0.40U	ng/L	1.8	0.40	1	04/16/24 22:19	04/17/24 18:42	763051-92-9	
4:2 FTS	0.52U	ng/L	1.8	0.52	1	04/16/24 22:19	04/17/24 18:42	75124-72-4	
6:2 FTS	3.2U	ng/L	3.6	3.2	1	04/16/24 22:19	04/17/24 18:42	27619-97-2	
8:2 FTS	0.44U	ng/L	1.8	0.44	1	04/16/24 22:19	04/17/24 18:42	39108-34-4	
9CI-PF3ONS	0.45U	ng/L	1.8	0.45	1	04/16/24 22:19	04/17/24 18:42	756426-58-1	
ADONA	0.39U	ng/L	1.8	0.39	1	04/16/24 22:19	04/17/24 18:42	919005-14-4	
HFPO-DA	0.67U	ng/L	1.8	0.67	1	04/16/24 22:19	04/17/24 18:42	13252-13-6	
NFDHA	0.27U	ng/L	1.8	0.27	1	04/16/24 22:19	04/17/24 18:42	151772-58-6	
PFBS	0.39U	ng/L	1.8	0.39	1	04/16/24 22:19	04/17/24 18:42	375-73-5	
PFDA	0.29U	ng/L	1.8	0.29	1	04/16/24 22:19	04/17/24 18:42	335-76-2	
PFHxA	0.29U	ng/L	1.8	0.29	1	04/16/24 22:19	04/17/24 18:42	307-24-4	
PFBA	0.56U	ng/L	1.8	0.56	1	04/16/24 22:19	04/17/24 18:42	375-22-4	
PFEESA	0.32U	ng/L	1.8	0.32	1	04/16/24 22:19	04/17/24 18:42	113507-82-7	
PFHpS	0.37U	ng/L	1.8	0.37	1	04/16/24 22:19	04/17/24 18:42	375-92-8	
PFMBA	0.24U	ng/L	1.8	0.24	1	04/16/24 22:19	04/17/24 18:42	863090-89-5	
PFMPA	0.30U	ng/L	1.8	0.30	1	04/16/24 22:19	04/17/24 18:42	377-73-1	
PFPeA	0.29U	ng/L	1.8	0.29	1	04/16/24 22:19	04/17/24 18:42	2706-90-3	
PFPeS	0.32U	ng/L	1.8	0.32	1	04/16/24 22:19	04/17/24 18:42	2706-91-4	
PFDoA	0.49U	ng/L	1.8	0.49	1	04/16/24 22:19	04/17/24 18:42	307-55-1	
PFHpA	0.40U	ng/L	1.8	0.40	1	04/16/24 22:19	04/17/24 18:42	375-85-9	
PFHxS	0.34U	ng/L	1.8	0.34	1	04/16/24 22:19	04/17/24 18:42	355-46-4	
PFNA	0.30U	ng/L	1.8	0.30	1	04/16/24 22:19	04/17/24 18:42	375-95-1	
PFOS	0.32U	ng/L	1.8	0.32	1	04/16/24 22:19	04/17/24 18:42	1763-23-1	
PFOA	0.29U	ng/L	1.8	0.29	1	04/16/24 22:19	04/17/24 18:42	335-67-1	
PFUnA	0.38U	ng/L	1.8	0.38	1	04/16/24 22:19	04/17/24 18:42	2058-94-8	
Surrogates									
13C24:2FTS (S)	117	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C26:2FTS (S)	122	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C28:2FTS (S)	115	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C2-PFDoA (S)	106	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C3HFPO-DA(S)	113	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C3-PFBS (S)	121	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C3-PFHxS (S)	118	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C4-PFBA (S)	114	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C4-PFHpA (S)	110	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C5-PFHxA (S)	111	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C5-PFPeA (S)	110	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C6-PFDA (S)	107	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C7-PFUdA (S)	105	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C8-PFOA (S)	113	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C8-PFOS (S)	116	%	50-200		1	04/16/24 22:19	04/17/24 18:42		
13C9-PFNA (S)	106	%	50-200		1	04/16/24 22:19	04/17/24 18:42		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: ROTH Site Vieques PR
Pace Project No.: 35873228

Sample: Vieques-Sample-5-533 Lab ID: 35873228004 Collected: 04/10/24 09:30 Received: 04/16/24 10:35 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
533 PFAS Compounds, Water									
Analytical Method: EPA 533 Preparation Method: EPA 533									
Pace Analytical Services - Ormond Beach									
11CI-PF3OUdS	0.45U	ng/L	2.0	0.45	1	04/16/24 22:19	04/17/24 18:59	763051-92-9	
4:2 FTS	0.59U	ng/L	2.0	0.59	1	04/16/24 22:19	04/17/24 18:59	751724-72-4	
6:2 FTS	3.6U	ng/L	4.0	3.6	1	04/16/24 22:19	04/17/24 18:59	27619-97-2	M1
8:2 FTS	0.49U	ng/L	2.0	0.49	1	04/16/24 22:19	04/17/24 18:59	39108-34-4	
9CI-PF3ONS	0.51U	ng/L	2.0	0.51	1	04/16/24 22:19	04/17/24 18:59	756426-58-1	
ADONA	0.44U	ng/L	2.0	0.44	1	04/16/24 22:19	04/17/24 18:59	919005-14-4	
HFPO-DA	0.76U	ng/L	2.0	0.76	1	04/16/24 22:19	04/17/24 18:59	13252-13-6	
NFDHA	0.30U	ng/L	2.0	0.30	1	04/16/24 22:19	04/17/24 18:59	151772-58-6	
PFBS	8.5	ng/L	2.0	0.44	1	04/16/24 22:19	04/17/24 18:59	375-73-5	
PFDA	0.32U	ng/L	2.0	0.32	1	04/16/24 22:19	04/17/24 18:59	335-76-2	
PFHxA	2.1	ng/L	2.0	0.32	1	04/16/24 22:19	04/17/24 18:59	307-24-4	
PFBA	9.5	ng/L	2.0	0.64	1	04/16/24 22:19	04/17/24 18:59	375-22-4	
PFEESA	0.36U	ng/L	2.0	0.36	1	04/16/24 22:19	04/17/24 18:59	113507-82-7	M1
PFHpS	0.41U	ng/L	2.0	0.41	1	04/16/24 22:19	04/17/24 18:59	375-92-8	
PFMBA	0.27U	ng/L	2.0	0.27	1	04/16/24 22:19	04/17/24 18:59	863090-89-5	
PFMPA	0.34U	ng/L	2.0	0.34	1	04/16/24 22:19	04/17/24 18:59	377-73-1	
PFPeA	3.5	ng/L	2.0	0.32	1	04/16/24 22:19	04/17/24 18:59	2706-90-3	
PFPeS	0.36U	ng/L	2.0	0.36	1	04/16/24 22:19	04/17/24 18:59	2706-91-4	
PFDoA	0.55U	ng/L	2.0	0.55	1	04/16/24 22:19	04/17/24 18:59	307-55-1	
PFHpA	1.7J	ng/L	2.0	0.45	1	04/16/24 22:19	04/17/24 18:59	375-85-9	
PFHxS	0.40J	ng/L	2.0	0.38	1	04/16/24 22:19	04/17/24 18:59	355-46-4	
PFNA	3.7	ng/L	2.0	0.34	1	04/16/24 22:19	04/17/24 18:59	375-95-1	
PFOS	9.5	ng/L	2.0	0.36	1	04/16/24 22:19	04/17/24 18:59	1763-23-1	
PFOA	3.5	ng/L	2.0	0.32	1	04/16/24 22:19	04/17/24 18:59	335-67-1	
PFUnA	0.43U	ng/L	2.0	0.43	1	04/16/24 22:19	04/17/24 18:59	2058-94-8	
Surrogates									
13C24:2FTS (S)	125	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C26:2FTS (S)	120	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C28:2FTS (S)	116	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C2-PFDoA (S)	102	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C3HFPO-DA(S)	100	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C3-PFBS (S)	118	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C3-PFHxS (S)	118	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C4-PFBA (S)	106	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C4-PFHpA (S)	105	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C5-PFHxA (S)	105	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C5-PFPeA (S)	103	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C6-PFDA (S)	103	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C7-PFUDA (S)	103	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C8-PFOA (S)	105	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C8-PFOS (S)	114	%	50-200		1	04/16/24 22:19	04/17/24 18:59		
13C9-PFNA (S)	101	%	50-200		1	04/16/24 22:19	04/17/24 18:59		

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

QC Batch: 1004644 Analysis Method: EPA 533
QC Batch Method: EPA 533 Analysis Description: 533 PFAS Compounds, Water
Laboratory: Pace Analytical Services - Ormond Beach

Associated Lab Samples: 35873228003, 35873228004

METHOD BLANK: 5522077 Matrix: Drinking Water

Associated Lab Samples: 35873228003, 35873228004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11Cl-PF3OUdS	ng/L	0.45U	2.0	0.45	04/17/24 17:50	
4:2 FTS	ng/L	0.58U	2.0	0.58	04/17/24 17:50	
6:2 FTS	ng/L	3.6U	4.0	3.6	04/17/24 17:50	
8:2 FTS	ng/L	0.49U	2.0	0.49	04/17/24 17:50	
9Cl-PF3ONS	ng/L	0.51U	2.0	0.51	04/17/24 17:50	
ADONA	ng/L	0.44U	2.0	0.44	04/17/24 17:50	
HFPO-DA	ng/L	0.75U	2.0	0.75	04/17/24 17:50	
NFDHA	ng/L	0.30U	2.0	0.30	04/17/24 17:50	
PFBA	ng/L	0.63U	2.0	0.63	04/17/24 17:50	
PFBS	ng/L	0.44U	2.0	0.44	04/17/24 17:50	
PFDA	ng/L	0.32U	2.0	0.32	04/17/24 17:50	
PFDoA	ng/L	0.55U	2.0	0.55	04/17/24 17:50	
PFEESA	ng/L	0.36U	2.0	0.36	04/17/24 17:50	
PFHpA	ng/L	0.45U	2.0	0.45	04/17/24 17:50	
PFHpS	ng/L	0.41U	2.0	0.41	04/17/24 17:50	
PFHxA	ng/L	0.32U	2.0	0.32	04/17/24 17:50	
PFHxS	ng/L	0.38U	2.0	0.38	04/17/24 17:50	
PFMBA	ng/L	0.27U	2.0	0.27	04/17/24 17:50	
PFMPA	ng/L	0.34U	2.0	0.34	04/17/24 17:50	
PFNA	ng/L	0.34U	2.0	0.34	04/17/24 17:50	
PFOA	ng/L	0.32U	2.0	0.32	04/17/24 17:50	
PFOS	ng/L	0.36U	2.0	0.36	04/17/24 17:50	
PFPeA	ng/L	0.32U	2.0	0.32	04/17/24 17:50	
PFPeS	ng/L	0.36U	2.0	0.36	04/17/24 17:50	
PFUnA	ng/L	0.43U	2.0	0.43	04/17/24 17:50	
13C2-PFDoA (S)	%	101	50-200		04/17/24 17:50	
13C24:2FTS (S)	%	111	50-200		04/17/24 17:50	
13C26:2FTS (S)	%	113	50-200		04/17/24 17:50	
13C28:2FTS (S)	%	107	50-200		04/17/24 17:50	
13C3-PFBS (S)	%	111	50-200		04/17/24 17:50	
13C3-PFHxS (S)	%	110	50-200		04/17/24 17:50	
13C3HFPO-DA(S)	%	105	50-200		04/17/24 17:50	
13C4-PFBA (S)	%	106	50-200		04/17/24 17:50	
13C4-PFHpA (S)	%	104	50-200		04/17/24 17:50	
13C5-PFHxA (S)	%	105	50-200		04/17/24 17:50	
13C5-PFPeA (S)	%	102	50-200		04/17/24 17:50	
13C6-PEDA (S)	%	103	50-200		04/17/24 17:50	
13C7-PFUdA (S)	%	102	50-200		04/17/24 17:50	
13C8-PFOA (S)	%	105	50-200		04/17/24 17:50	
13C8-PFOS (S)	%	108	50-200		04/17/24 17:50	

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

METHOD BLANK: 5522077
Associated Lab Samples: 35873228003, 35873228004

Matrix: Drinking Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
13C9-PFNA (S)	%	101	50-200		04/17/24 17:50	

LABORATORY CONTROL SAMPLE: 5522078

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11C-PF3OUds	ng/L	37.8	36.5	97	70-130	
4:2 FTS	ng/L	37.5	38.2	102	70-130	
6:2 FTS	ng/L	38.1	32.6	86	70-130	
8:2 FTS	ng/L	38.4	36.3	95	70-130	
9CI-PF3ONS	ng/L	37.4	36.8	98	70-130	
ADONA	ng/L	37.8	35.4	94	70-130	
HFPO-DA	ng/L	40	37.5	94	70-130	
NFDHA	ng/L	40	38.6	96	70-130	
PFBA	ng/L	40	37.7	94	70-130	
PFBS	ng/L	35.5	34.5	97	70-130	
PFDA	ng/L	40	38.5	96	70-130	
PFDoA	ng/L	40	38.7	97	70-130	
PFEESA	ng/L	35.7	35.0	98	70-130	
PFHpA	ng/L	40	39.3	98	70-130	
PFHpS	ng/L	38.2	37.5	98	70-130	
PFHxA	ng/L	40	39.0	98	70-130	
PFHxS	ng/L	36.5	35.2	96	70-130	
PFMBA	ng/L	40	39.2	98	70-130	
PFMPA	ng/L	40	37.8	94	70-130	
PFNA	ng/L	40	38.3	96	70-130	
PFOA	ng/L	40	38.8	97	70-130	
PFOS	ng/L	37.2	36.2	97	70-130	
PFPeA	ng/L	40	40.0	100	70-130	
PFPeS	ng/L	37.6	36.0	96	70-130	
PFUnA	ng/L	40	37.7	94	70-130	
13C2-PFDoA (S)	%			101	50-200	
13C24:2FTS (S)	%			117	50-200	
13C26:2FTS (S)	%			119	50-200	
13C28:2FTS (S)	%			111	50-200	
13C3-PFBS (S)	%			119	50-200	
13C3-PFHxS (S)	%			116	50-200	
13C3HFPO-DA(S)	%			108	50-200	
13C4-PFBA (S)	%			111	50-200	
13C4-PFHpA (S)	%			109	50-200	
13C5-PFHxA (S)	%			110	50-200	
13C5-PFPeA (S)	%			108	50-200	
13C6-PFDA (S)	%			105	50-200	
13C7-PFUdA (S)	%			104	50-200	
13C8-PFOA (S)	%			108	50-200	

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

LABORATORY CONTROL SAMPLE: 5522078

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
13C8-PFOS (S)	%			113	50-200	
13C9-PFNA (S)	%			105	50-200	

LABORATORY CONTROL SAMPLE: 5522079

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUds	ng/L	1.9	1.8J	96	50-150	
4:2 FTS	ng/L	1.9	1.7J	92	50-150	
6:2 FTS	ng/L	1.9	3.6U	101	50-150	
8:2 FTS	ng/L	1.9	1.9J	102	50-150	
9Cl-PF3ONS	ng/L	1.9	1.9J	100	50-150	
ADONA	ng/L	1.9	1.7J	92	50-150	
HFPO-DA	ng/L	2	2.0	102	50-150	
NFDHA	ng/L	2	2.1	105	50-150	
PFBA	ng/L	2	1.9J	94	50-150	
PFBS	ng/L	1.8	1.9J	106	50-150	
PFDA	ng/L	2	1.9J	95	50-150	
PFDoA	ng/L	2	1.9J	97	50-150	
PFEESA	ng/L	1.8	1.8J	102	50-150	
PFHpA	ng/L	2	2.0J	99	50-150	
PFHpS	ng/L	1.9	1.9J	99	50-150	
PFHxA	ng/L	2	2.2	110	50-150	
PFHxS	ng/L	1.8	1.9J	106	50-150	
PFMBA	ng/L	2	1.9J	96	50-150	
PFMPA	ng/L	2	1.9J	96	50-150	
PFNA	ng/L	2	1.9J	97	50-150	
PFOA	ng/L	2	2.0	102	50-150	
PFOS	ng/L	1.9	2.0	106	50-150	
PFPeA	ng/L	2	2.0J	99	50-150	
PFPeS	ng/L	1.9	1.7J	92	50-150	
PFUnA	ng/L	2	1.9J	95	50-150	
13C2-PFDoA (S)	%			102	50-200	
13C24:2FTS (S)	%			117	50-200	
13C26:2FTS (S)	%			114	50-200	
13C28:2FTS (S)	%			110	50-200	
13C3-PFBS (S)	%			119	50-200	
13C3-PFHxS (S)	%			116	50-200	
13C3HFPO-DA(S)	%			112	50-200	
13C4-PFBA (S)	%			110	50-200	
13C4-PFHpA (S)	%			107	50-200	
13C5-PFHxA (S)	%			110	50-200	
13C5-PFPeA (S)	%			106	50-200	
13C6-PFDA (S)	%			104	50-200	
13C7-PFUDa (S)	%			102	50-200	
13C8-PFOA (S)	%			108	50-200	

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QUALITY CONTROL DATA

Project: ROTH Site Vieques PR
Pace Project No.: 35873228

LABORATORY CONTROL SAMPLE: 5522079

Parameter	Units		Spike Conc.	LCS Result	LCS % Rec	% Rec Limits		Qualifiers
	Result	%				MSD	%	
13C8-PFOS (S)	%	113				50-200		
13C9-PFNA (S)	%	104				50-200		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5522080 5522081

Parameter	Units	35873228004		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	%										
11CI-PF3OUdS	ng/L	0.45U	1.8	1.8	1.8J	1.8J	1.8J	99	103	70-130		30	
4:2 FTS	ng/L	0.59U	1.8	1.8	2.0	1.7J	1.7J	108	95	70-130		30	
6:2 FTS	ng/L	3.6U	1.8	1.8	10.5	3.3U	3.3U	490	59	70-130		30	M1
8:2 FTS	ng/L	0.49U	1.8	1.8	2.0	2.0	2.0	107	113	70-130	1	30	
9CI+PF3ONS	ng/L	0.51U	1.8	1.8	1.8J	1.8J	1.8J	98	100	70-130		30	
ADONA	ng/L	0.44U	1.8	1.8	2.1	1.7J	1.7J	110	92	70-130		30	
HFPO-DA	ng/L	0.76U	1.9	1.8	2.2	1.8J	1.8J	105	89	70-130		30	
NFDHA	ng/L	0.30U	1.9	1.8	2.0	2.0	2.0	97	99	70-130	2	30	
PFBA	ng/L	9.5	1.9	1.8	10.4	10.3	10.3	51	46	70-130	1	30	M1
PFBS	ng/L	8.5	1.7	1.7	10.6	10.1	10.1	122	94	70-130	5	30	
PFDA	ng/L	0.32U	1.9	1.8	1.9	1.8J	1.8J	95	94	70-130		30	
PFDoA	ng/L	0.55U	1.9	1.8	2.0	1.8J	1.8J	100	98	70-130		30	
PFEEESA	ng/L	0.36U	1.7	1.7	1.8J	1.7J	1.7J	101	99	70-130		30	
PFHpA	ng/L	1.7J	1.9	1.8	3.8	3.6	3.6	108	105	70-130	4	30	
PFHpS	ng/L	0.41U	1.8	1.8	2.0	1.9	1.9	107	105	70-130	7	30	
PFHxA	ng/L	2.1	1.8	1.8	4.2	4.1	4.1	107	109	70-130	2	30	
PFHXS	ng/L	0.40J	1.7	1.7	2.3	2.2	2.2	110	106	70-130	7	30	
PFMBA	ng/L	0.27U	1.9	1.8	1.9J	1.9	1.9	97	100	70-130		30	
PFMPA	ng/L	0.34U	1.9	1.8	1.9J	1.8J	1.8J	96	95	70-130		30	
PFNA	ng/L	3.7	1.9	1.8	5.7	5.5	5.5	107	102	70-130	3	30	
PFOA	ng/L	3.5	1.9	1.8	5.4	5.3	5.3	98	95	70-130	3	30	
PFOs	ng/L	9.5	1.8	1.8	11.1	10.9	10.9	88	78	70-130	2	30	
PFPeA	ng/L	3.5	1.9	1.8	5.6	5.5	5.5	105	103	70-130	2	30	
PFPeS	ng/L	0.36U	1.8	1.8	1.9J	1.9J	2.0	97	104	70-130		30	
PFUnA	ng/L	0.43U	1.9	1.8	1.9J	1.7J	1.7J	96	94	70-130		30	
13C2-PFDoA (S)	%							88	99	50-200			
13C24:2FTS (S)	%							128	130	50-200			
13C26:2FTS (S)	%							123	129	50-200			
13C28:2FTS (S)	%							116	117	50-200			
13C3-PFBS (S)	%							117	121	50-200			
13C3-PFHxS (S)	%							118	118	50-200			
13C3HFPO-DA(S)	%							105	104	50-200			
13C4-PFBA (S)	%							111	108	50-200			
13C4-PFHpA (S)	%							104	106	50-200			
13C5-PFHxA (S)	%							110	108	50-200			
13C5-PFPeA (S)	%							108	104	50-200			
13C6-PFDA (S)	%							97	102	50-200			
13C7-PFUdA (S)	%							91	103	50-200			

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
 Pace Project No.: 35873228

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 5522080 5522081

Parameter	Units	MS 35873228004		MS 5522081		MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD
		Result	Spike Conc.	Result	Spike Conc.					
13C8-PFOA (S)	%						103	105	50-200	
13C8-PFOS (S)	%						114	115	50-200	
13C9-PFNA (S)	%						96	102	50-200	

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

QC Batch: 1004577 Analysis Method: EPA 537.1
QC Batch Method: EPA 537.1 Analysis Description: 537.1 PFOA Compounds, Water
Laboratory: Pace Analytical Services - Ormond Beach

Associated Lab Samples: 35873228001, 35873228002

METHOD BLANK: 5521629 Matrix: Water

Associated Lab Samples: 35873228001, 35873228002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11Cl-PF3OUdS	ng/L	1.6U	2.0	1.6	04/18/24 11:07	
9Cl-PF3ONS	ng/L	1.2U	2.0	1.2	04/18/24 11:07	
ADONA	ng/L	0.74U	2.0	0.74	04/18/24 11:07	
HFPO-DA	ng/L	1.7U	2.0	1.7	04/18/24 11:07	
NEtFOSAA	ng/L	0.95U	2.0	0.95	04/18/24 11:07	
NMeFOSAA	ng/L	1.6U	2.0	1.6	04/18/24 11:07	
PFBS	ng/L	0.68U	2.0	0.68	04/18/24 11:07	
PFDA	ng/L	0.99U	2.0	0.99	04/18/24 11:07	
PFDaA	ng/L	1.5U	2.0	1.5	04/18/24 11:07	
PFHpA	ng/L	1.0U	2.0	1.0	04/18/24 11:07	
PFHxA	ng/L	1.3U	2.0	1.3	04/18/24 11:07	
PFHxS	ng/L	0.75U	2.0	0.75	04/18/24 11:07	
PFNA	ng/L	2.0U	2.0	2.0	04/18/24 11:07	
PFOA	ng/L	0.89U	2.0	0.89	04/18/24 11:07	
PFOA	ng/L	1.2U	2.0	1.2	04/18/24 11:07	
PFTeDA	ng/L	1.9U	2.0	1.9	04/18/24 11:07	
PFTrDA	ng/L	1.8U	2.0	1.8	04/18/24 11:07	
PFUnA	ng/L	2.0U	2.0	2.0	04/18/24 11:07	
13C2-PFDA (S)	%	93	70-130	92	04/18/24 11:07	
13C2-PFHxA (S)	%	93	70-130	92	04/18/24 11:07	
HFPO-DAS (S)	%	92	70-130	92	04/18/24 11:07	
NEtFOSAA-d5 (S)	%	94	70-130	92	04/18/24 11:07	

LABORATORY CONTROL SAMPLE: 5521630

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUdS	ng/L	151	139	92	70-130	
9Cl-PF3ONS	ng/L	150	142	95	70-130	
ADONA	ng/L	151	147	97	70-130	
HFPO-DA	ng/L	160	155	97	70-130	
NEtFOSAA	ng/L	160	156	97	70-130	
NMeFOSAA	ng/L	160	156	98	70-130	
PFBS	ng/L	142	121	86	70-130	
PFDA	ng/L	160	150	94	70-130	
PFDaA	ng/L	160	147	92	70-130	
PFHpA	ng/L	160	157	98	70-130	
PFHxA	ng/L	160	147	92	70-130	
PFHxS	ng/L	146	145	99	70-130	
PFNA	ng/L	160	155	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: ROTH Site Vieques PR
Pace Project No.: 35873228

LABORATORY CONTROL SAMPLE: 5521630

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PFOA	ng/L	160	162	101	70-130	
PFOS	ng/L	148	145	98	70-130	
PFTeDA	ng/L	160	142	89	70-130	
PFTriDA	ng/L	160	144	90	70-130	
PFUnA	ng/L	160	149	93	70-130	
13C2-PFDA (S)	%			102	70-130	
13C2-PFHxA (S)	%			100	70-130	
HFPO-DAS (S)	%			101	70-130	
NEtFOSAA-d5 (S)	%			103	70-130	

LABORATORY CONTROL SAMPLE: 5521631

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUds	ng/L	1.9	1.6U	77	50-150	
9Cl-PF3ONS	ng/L	1.9	1.6J	85	50-150	
ADONA	ng/L	1.9	1.6J	86	50-150	
HFPO-DA	ng/L	2	1.8J	88	50-150	
NEtFOSAA	ng/L	2	1.8J	90	50-150	
NMeFOSAA	ng/L	2	1.6J	81	50-150	
PFBS	ng/L	1.8	1.3J	76	50-150	
PFDA	ng/L	2	1.6J	82	50-150	
PFDoA	ng/L	2	1.6J	81	50-150	
PFHpA	ng/L	2	1.7J	85	50-150	
PFHxA	ng/L	2	1.6J	79	50-150	
PFHxS	ng/L	1.8	1.6J	87	50-150	
PFNA	ng/L	2	2.0U	86	50-150	
PFOA	ng/L	2	1.8J	90	50-150	
PFOS	ng/L	1.9	1.8J	96	50-150	
PFTeDA	ng/L	2	1.9U	80	50-150	
PFTriDA	ng/L	2	1.8U	80	50-150	
PFUnA	ng/L	2	2.0U	81	50-150	
13C2-PFDA (S)	%			105	70-130	
13C2-PFHxA (S)	%			102	70-130	
HFPO-DAS (S)	%			105	70-130	
NEtFOSAA-d5 (S)	%			106	70-130	

MATRIX SPIKE SAMPLE: 5521632

Parameter	Units	35872829001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUds	ng/L	ND	6.4	4.9	76	70-130	
9Cl-PF3ONS	ng/L	ND	6.3	5.2	82	70-130	
ADONA	ng/L	ND	6.4	5.8	92	70-130	
HFPO-DA	ng/L	ND	6.7	5.4	79	70-130	
NEtFOSAA	ng/L	ND	6.7	5.9	87	70-130	

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QUALITY CONTROL DATA

Project: ROTH R Site Vieques PR
Pace Project No.: 35873228

MATRIX SPIKE SAMPLE: 5521632

Parameter	Units	35872829001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
NMeFOSAA	ng/L	ND	6.7	5.7	84	70-130	
PFBS	ng/L	ND	6	6.6	96	70-130	
PFDA	ng/L	ND	6.7	5.7	83	70-130	
PFDoA	ng/L	ND	6.7	5.6	82	70-130	
PFHpA	ng/L	0.0019 ug/L	6.7	8.2	93	70-130	
PFHxA	ng/L	0.0024 ug/L	6.7	7.9	82	70-130	
PFHxS	ng/L	ND	6.2	6.5	99	70-130	
PFNA	ng/L	ND	6.7	6.3	86	70-130	
PFOA	ng/L	0.0049 ug/L	6.7	11.7	100	70-130	
PFOS	ng/L	0.0025 ug/L	6.3	8.5	95	70-130	
PFTeDA	ng/L	ND	6.7	5.1	75	70-130	
PFTrDA	ng/L	ND	6.7	5.3	78	70-130	
PFUnA	ng/L	ND	6.7	5.7	84	70-130	
13C2-PFDA (S)	%				95	70-130	
13C2-PFHxA (S)	%				94	70-130	
HFPO-DAS (S)	%				89	70-130	
NEtFOSAA-d5 (S)	%				100	70-130	

SAMPLE DUPLICATE: 5521633

Parameter	Units	35873058001 Result	Dup Result	RPD	Max RPD	Qualifiers
11Cl-PF3OUds	ng/L	ND	1.4U		30	
9Cl-PF3ONS	ng/L	ND	0.99U		30	
ADONA	ng/L	ND	0.63U		30	
HFPO-DA	ng/L	ND	1.4U		30	
NEtFOSAA	ng/L	ND	0.81U		30	
NMeFOSAA	ng/L	ND	1.4U		30	
PFBS	ng/L	0.036 ug/L	36.7	2	30	
PFDA	ng/L	ND	0.84U		30	
PFDoA	ng/L	ND	1.3U		30	
PFHpA	ng/L	0.0031 ug/L	3.2	4	30	
PFHxA	ng/L	0.0075 ug/L	7.6	2	30	
PFHxS	ng/L	ND	1.8		30	
PFNA	ng/L	ND	1.7U		30	
PFOA	ng/L	0.0090 ug/L	9.2	2	30	
PFOS	ng/L	0.011 ug/L	12.0	5	30	
PFTeDA	ng/L	ND	1.6U		30	
PFTrDA	ng/L	ND	1.5U		30	
PFUnA	ng/L	ND	1.7U		30	
13C2-PFDA (S)	%	90	91			
13C2-PFHxA (S)	%	90	91			
HFPO-DAS (S)	%	86	88			
NEtFOSAA-d5 (S)	%	94	96			

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: ROTH Site Vieques PR
Pace Project No.: 35873228

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ROTH R Site Vieques PR
 Pace Project No.: 35873228

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35873228003	Vieques-Field Blank-2-533	EPA 533	1004644	EPA 533	1004742
35873228004	Vieques-Sample-5-533	EPA 533	1004644	EPA 533	1004742
35873228001	Vieques-Field Blank-2-537.1	EPA 537.1	1004577	EPA 537.1	1004768
35873228002	Vieques-Sample-5-537.1	EPA 537.1	1004577	EPA 537.1	1004768

CHAIN-OF-CUSTODY Analytical Request Document
 Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY - Affix Workorder/Login Label Here



Scan QR Code for instructions

WO#: 35873228



35873228

Company Name: AH Environmental Consultants, Inc.

Street Address:

Contact/Report To: Anthony Gruber

Phone #:

E-Mail: agruber@ahenv.com

Cc E-Mail:

Customer Project #: ROTH Site Vieques PR

Invoice To: Laura Huss

Invoice E-Mail: accounting@ahenv.com

Purchase Order # (if applicable):

Quote #:

Site Collection Info/Facility ID (as applicable):

County / State origin of sample(s): Florida

Regulatory Program (DW, RCRA, etc.) as applicable: Reportable Yes No

Time Zone Collected: [] AK [] PT [] MT [] CT [] ET

Date Results Requested:

[] Level II [] Level III [] Level IV

Rush (Pre-approval required):

[] Same Day [] 1 Day [] 2 Day [] 3 Day [] Other

Field Filtered (if applicable): [] Yes [] No

Analysis:

Matrix Codes (insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW), Sediment (SED), Sludge (SL), Caulk (CX), Leachate (L), Biosolid (BS), Other (OT)

Customer Sample ID

Comp / Grab

Composite Start

Date

Time

Collected or Composite End

Cont.

Res. Chlorine

Results

Units

Vieques-Field Blank-2-537.1

DW

G

4/10/24

0930

2

X

537.1 PFAS Compounds, Water

537.1 PFAS Field Blank

X

Vieques-Sample-5-537.1

DW

G

0930

0930

5

X

537.1 PFAS Compounds, Water

537.1 PFAS Field Blank

X

Vieques-Field Blank-2-533

DW

G

0915

0930

2

X

533 PFAS Compounds, Water

533 PFAS-Field Blank

X

Vieques-Sample-5-533

DW

G

0930

0930

5

X

533 PFAS Compounds, Water

533 PFAS-Field Blank

X

Additional Instructions from Pace*:

Collected By: Anthony Gruber

Customer Remarks / Special Conditions / Possible Hazards:

Coolers: Thermometer ID: Correction Factor (°C): Obs. Temp. (°C) Corrected Temp. (°C) On Ice: 5.8

Relinquished by Company (Signature)

12 APR 24 / 1100

Received by Company (Signature)

Anthony Gruber

Tracking Number: 4/10/24 1035

Relinquished by Company (Signature)

Date/Time:

Received by Company (Signature)

Anthony Gruber

Date/Time:

Relinquished by Company (Signature)

Date/Time:

Received by Company (Signature)

Anthony Gruber

Date/Time:

Relinquished by Company (Signature)

Date/Time:

Received by Company (Signature)

Anthony Gruber

Date/Time:

Relinquished by Company (Signature)

Date/Time:

Received by Company (Signature)

Anthony Gruber

Date/Time:

Pace

Sample Condition Upon Receipt Form (SCUR) WO#: 35873228

Project #
Project Manager:
Client:

PM: VEG **Due Date:** 04/30/24
CLIENT: AHENVI

Date and Initials of person: _____

Examining contents: AS

Label: _____

Deliver: _____

pH: _____

Initials: NPI

Thermometer Used: T-414 Date: 4-16-24 Time: 1036

State of Origin: _____ For WV projects, all containers verified to ≤6 °C

Cooler #1 Temp. °C 5.9 (Visual) -0.1 (Correction Factor) 5.8 (Actual)

Cooler #2 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #3 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #4 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #5 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Cooler #6 Temp. °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Recheck for OOT °C _____ (Visual) _____ (Correction Factor) _____ (Actual)

Courier: Fed Ex UPS USPS Client Commercial Pace Other:

Shipping Method: Standard Overnight First Overnight Priority Overnight Ground International Priority Other:

Billing: Recipient Sender Third Party Credit Card Unknown

Tracking # _____ Time: _____ Initials: _____

Custody Seal Present: Yes No Seal properly placed and intact: Yes No

Packing Material: Bubble Wrap Bubble Bags None Other:

Samples shorted to lab: Yes No (If yes, complete the following)

Shorted Date: _____



Bottle Quantity / Type: _____

Ice: Wet Blue Dry None Melted

Shorted Time: _____

Chain of Custody:	Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampler Name: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Relinquished To Pace: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampling Date(s): <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Sampling Time(s): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
	Samples Arrived within Hold Time.	
Rush Turnaround Requested on COC.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:
Sufficient Volume.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Comments:
Correct Containers Used.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:
Containers Intact.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:
Sample Labels Match COC (Sample ID, Date/Time of Collection).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Comments:
All containers needing acid / base preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Comments:
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Comments:
Headspace in Volatile Vials? (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Preservative: _____ Date: _____
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Lot / Trace: _____ Time: _____
Comments / Resolutions (use back for additional comments):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Amount added (mL): _____ Initials: _____		

PFC Sample Collection Form

Facility:	Vieques ROTH		
Sample Collection Date/Time:	10 April 2024/ 0930 hrs		
Sampled By:	A. Gruber		
Sample Location Description - (Well House, WTP, etc.):	Galley Sink, Main Building - See Photos below		
Water Supply Source (Check one)	Well	Surface Water	Consecutive System
Sample Port Type (tap, hose bib, etc.)	Galley Sink Faucet		
Weather Conditions:	Sunny, Warm, 80 Degrees F. 15 mph winds out of the east.		
Field Blank Collected:	Yes	No	
Duplicate Collected:	Yes	No	
Shipping Container type:	Cooler	Box	
Ice Added?	Yes	No	
Shipper Used?	UPS Overnight		
Notes & Photos:	<div style="display: flex; justify-content: space-around;">   </div>		