Pace Analytical Services, LLC
8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

May 08, 2024

Stephen Herda
North Dakota Army National Guard - DoD
Attn: Environmental Office
Bldg 30 Fraine Barracks Dr.
Bismarck, ND 58504

RE: Project: DoD_PFAS 537.1
Pace Project No.: 35876724

Dear Stephen Herda:

Enclosed are the analytical results for sample(s) received by the laboratory on May 02, 2024. The results relate only to the samples included in this report. Results reported herein conform to the DOD Quality Systems Manual Version 5.4 and the laboratory's Quality Assurance 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,

Lorraine Noronha
lorraine.noronha@pacelabs.com
(386)672-5668
Project Manager

Enclosures

Pace Analytical Services, LLC
8 East Tower Circle
Ormond Beach, FL 32174
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CERTIFICATIONS

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

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: DoD_PFAS 537.1
Pace Project No.: 35876724

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35876724001	**DIX 240430 DW01**	Drinking Water	04/30/24 09:15	05/02/24 10:40
35876724002	**FRB 1**	Drinking Water	04/30/24 09:12	05/02/24 10:40
35876724003	**WSH 240430 DW01**	Drinking Water	04/30/24 13:25	05/02/24 10:40
35876724004	**FRB 2**	Drinking Water	04/30/24 13:22	05/02/24 10:40
35876724005	**LIS 240430 DW01**	Drinking Water	04/30/24 15:20	05/02/24 10:40
35876724006	**FRB 3**	Drinking Water	04/30/24 15:18	05/02/24 10:40
35876724007	**WAH 240430 DW01**	Drinking Water	04/30/24 16:53	05/02/24 10:40
35876724008	**FRB 4**	Drinking Water	04/30/24 16:50	05/02/24 10:40
35876724009	**DLR 240501 DW01**	Drinking Water	05/01/24 11:00	05/02/24 10:40
35876724010	**FRB 5**	Drinking Water	05/01/24 10:57	05/02/24 10:40

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SAMPLE ANALYTE COUNT

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35876724001	**DIX 240430 DW01**	EPA 537.1	TMM1	22	PASI-O
35876724002	**FRB 1**	EPA 537.1	TMM1	22	PASI-O
35876724003	**WSH 240430 DW01**	EPA 537.1	TMM1	22	PASI-O
35876724004	**FRB 2**	EPA 537.1	TMM1	22	PASI-O
35876724005	**LIS 240430 DW01**	EPA 537.1	TMM1	22	PASI-O
35876724006	**FRB 3**	EPA 537.1	TMM1	22	PASI-O
35876724007	**WAH 240430 DW01**	EPA 537.1	TMM1	22	PASI-O
35876724008	**FRB 4**	EPA 537.1	TMM1	22	PASI-O
35876724009	**DLR 240501 DW01**	EPA 537.1	TMM1	22	PASI-O
35876724010	**FRB 5**	EPA 537.1	TMM1	22	PASI-O

PASI-O = Pace Analytical Services - Ormond Beach

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PROJECT NARRATIVE

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

Method: **EPA 537.1**
Description: 537.1 PFAS Compounds, DOD
Client: NDARNG - North Dakota Army National Guard - DoD
Date: May 08, 2024

General Information:
10 samples were analyzed for EPA 537.1 by Pace Analytical Services Ormond Beach. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 537.1 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

Sample: WAH 240430 DW01 **Lab ID: 35876724007** Collected: 04/30/24 16:53 Received: 05/02/24 10:40 Matrix: Drinking Water

Parameters	Results	Units	DL	LOD	LOQ	DF	Prepared	Analyzed	CAS No.	Qual
537.1 PFAS Compounds, DOD	Analytical Method: EPA 537.1 Preparation Method: EPA 537.1 Initial Volume/Weight: 258.07 mL Final Volume/Weight: 1 mL Pace Analytical Services - Ormond Beach									
11Cl-PF3OUdS	**0.0018U**	ug/L	0.00092	0.0018	0.0039	1	05/07/24 09:45	05/08/24 01:41	763051-92-9	
9Cl-PF3ONS	**0.0018U**	ug/L	0.00055	0.0018	0.0039	1	05/07/24 09:45	05/08/24 01:41	756426-58-1	
ADONA	**0.0018U**	ug/L	0.00072	0.0018	0.0039	1	05/07/24 09:45	05/08/24 01:41	919005-14-4	
HFPO-DA	**0.0019U**	ug/L	0.00073	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	13252-13-6	
NEtFOSAA	**0.0019U**	ug/L	0.00093	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	2991-50-6	
NMeFOSAA	**0.0019U**	ug/L	0.00079	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	2355-31-9	
PFBS	**0.0017U**	ug/L	0.00081	0.0017	0.0039	1	05/07/24 09:45	05/08/24 01:41	375-73-5	
PFDA	**0.0019U**	ug/L	0.00076	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	335-76-2	
PFHxA	**0.0019U**	ug/L	0.00068	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	307-24-4	
PFDoA	**0.0019U**	ug/L	0.00084	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	307-55-1	
PFHpA	**0.0019U**	ug/L	0.00097	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	375-85-9	
PFHxS	**0.0017U**	ug/L	0.00086	0.0017	0.0039	1	05/07/24 09:45	05/08/24 01:41	355-46-4	
PFNA	**0.0019U**	ug/L	0.00061	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	375-95-1	
PFOS	**0.0018U**	ug/L	0.00073	0.0018	0.0039	1	05/07/24 09:45	05/08/24 01:41	1763-23-1	
PFOA	**0.0019U**	ug/L	0.00059	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	335-67-1	
PFTeDA	**0.0019U**	ug/L	0.00086	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	376-06-7	
PFTrDA	**0.0019U**	ug/L	0.00086	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	72629-94-8	
PFUnA	**0.0019U**	ug/L	0.00073	0.0019	0.0039	1	05/07/24 09:45	05/08/24 01:41	2058-94-8	
Surrogates										
13C2-PFDA (S)	100	%		70-130		1	05/07/24 09:45	05/08/24 01:41		
13C2-PFHxA (S)	103	%		70-130		1	05/07/24 09:45	05/08/24 01:41		
NEtFOSAA-d5 (S)	75	%		70-130		1	05/07/24 09:45	05/08/24 01:41		
HFPO-DAS (S)	89	%		70-130		1	05/07/24 09:45	05/08/24 01:41		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

ANALYTICAL RESULTS

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

Sample: FRB 4 **Lab ID: 35876724008** Collected: 04/30/24 16:50 Received: 05/02/24 10:40 Matrix: Drinking Water

Parameters	Results	Units	DL	LOD	LOQ	DF	Prepared	Analyzed	CAS No.	Qual
537.1 PFAS Compounds, DOD	Analytical Method: EPA 537.1 Preparation Method: EPA 537.1 Initial Volume/Weight: 267.91 mL Final Volume/Weight: 1 mL Pace Analytical Services - Ormond Beach									
11Cl-PF3OUdS	**0.0018U**	ug/L	0.00089	0.0018	0.0037	1	05/07/24 09:45	05/08/24 02:29	763051-92-9	
9Cl-PF3ONS	**0.0018U**	ug/L	0.00053	0.0018	0.0037	1	05/07/24 09:45	05/08/24 02:29	756426-58-1	
ADONA	**0.0018U**	ug/L	0.00069	0.0018	0.0037	1	05/07/24 09:45	05/08/24 02:29	919005-14-4	
HFPO-DA	**0.0019U**	ug/L	0.00070	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	13252-13-6	
NEtFOSAA	**0.0019U**	ug/L	0.00090	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	2991-50-6	
NMeFOSAA	**0.0019U**	ug/L	0.00077	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	2355-31-9	
PFBS	**0.0017U**	ug/L	0.00078	0.0017	0.0037	1	05/07/24 09:45	05/08/24 02:29	375-73-5	
PFDA	**0.0019U**	ug/L	0.00073	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	335-76-2	
PFHxA	**0.0019U**	ug/L	0.00065	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	307-24-4	
PFDoA	**0.0019U**	ug/L	0.00081	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	307-55-1	
PFHpA	**0.0019U**	ug/L	0.00093	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	375-85-9	
PFHxS	**0.0017U**	ug/L	0.00083	0.0017	0.0037	1	05/07/24 09:45	05/08/24 02:29	355-46-4	
PFNA	**0.0019U**	ug/L	0.00059	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	375-95-1	
PFOS	**0.0018U**	ug/L	0.00070	0.0018	0.0037	1	05/07/24 09:45	05/08/24 02:29	1763-23-1	
PFOA	**0.0019U**	ug/L	0.00057	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	335-67-1	
PFTeDA	**0.0019U**	ug/L	0.00083	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	376-06-7	
PFTrDA	**0.0019U**	ug/L	0.00083	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	72629-94-8	
PFUnA	**0.0019U**	ug/L	0.00070	0.0019	0.0037	1	05/07/24 09:45	05/08/24 02:29	2058-94-8	
Surrogates										
13C2-PFDA (S)	103	%		70-130		1	05/07/24 09:45	05/08/24 02:29		
13C2-PFHxA (S)	106	%		70-130		1	05/07/24 09:45	05/08/24 02:29		
NEtFOSAA-d5 (S)	100	%		70-130		1	05/07/24 09:45	05/08/24 02:29		
HFPO-DAS (S)	98	%		70-130		1	05/07/24 09:45	05/08/24 02:29		

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: DoD_PFAS 537.1
Pace Project No.: 35876724

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 LOD.

J - The reported result is an estimated value.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

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 - Analyte was not detected and is reported as less than the LOD or as defined by the customer.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

PFAS Results Reporting and Notification

What are per- and poly-fluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industrial and consumer products around the globe, including in the U.S., for decades. Due to their widespread use and environmental persistence, most people in the U.S. have been exposed to certain PFAS. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) used for fighting petroleum fires.

Is there a federal or North Dakota regulation for PFAS in drinking water?

In May 2016, the U.S. Environmental Protection Agency (EPA) established a lifetime drinking water health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both chemicals are types of PFAS. In North Dakota, there is not a PFAS drinking water regulation.

The Department of Defense (DoD) issued a policy in 2023 to monitor drinking water for PFAS at all DoD owned and operated water systems at a minimum of every two years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA HA level of 70 ppt, water systems would 1) take immediate action to reduce exposure to PFOS or PFOA by providing alternative drinking water; and 2) evaluate and implement corrective actions to reduce levels below 70 ppt, or determine if the system should be permanently removed from use.

A final Drinking water regulation was just issued in early 2024 (https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas). North Dakota will follow all Federal regulations as soon as they are enforceable.

What about the EPA's 2022 interim Health Advisories or proposed regulations?

EPA issued interim Health Advisories for PFOS and PFOA in 2022. However, these newer levels are below quantifiable limits (i.e., below detection levels). In March 2023, EPA announced a proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS including PFOA, PFOS, PFNA, HFPO-DA (GenX Chemicals), PFHxS, and PFBS. The EPA finalized new regulations on April 10, 2024, after the public comment period and water systems will have five years to comply with the new regulations.

In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD continues to evaluate its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and collecting additional sampling where necessary. DoD remains committed to communicating and engaging with our communities throughout this process.

NDARNG efforts to ensure our Soldiers are consuming safe drinking water

At ARNG facilities where the ARNG is not the drinking water purveyor (i.e. a drinking water system that supplies water to an Army National Guard facility, but is not owned by the Army National Guard), will request the most recent finished drinking water sampling data for PFAS from the purveyor. If PFAS sampling data is not received from the purveyor within 90 days of the request, the Army National Guard facility will conduct sampling of its finished water. Upon review of this requirement, NDARNG found that five systems required sampling.

NDARNG contacted those systems and received 1) information that sampling had not been conducted or that sampling data exceeded their useful timeline and 2) permission to sample water from those systems. That sampling was accomplished on April 30 through May 1, 2024. Samples were submitted to a contract laboratory for analysis, and the results received. A copy of the results is attached to this notice.

Below MRL

The NDARNG is pleased to report that drinking water testing results were below the Minimum Reporting Level (MRL) for all 18 PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in the water system. Results are summarized below. In accordance with DoD policy, the water system will be resampled every two years for continued protection.

Analyte	Result	Status
11Cl-PF3OUdS	< 0.0018 µg/L	Does not exceed MRL
9Cl-PF3ONS	< 0.0018 µg/L	Does not exceed MRL
ADONA	< 0.0018 µg/L	Does not exceed MRL
HFPO-DA	< 0.0019 µg/L	Does not exceed MRL
NEtFOSAA	< 0.0019 µg/L	Does not exceed MRL
NMeFOSAA	< 0.0019 µg/L	Does not exceed MRL
PFBS	< 0.0017 µg/L	Does not exceed MRL
PFDA	< 0.0019 µg/L	Does not exceed MRL
PFHxA	< 0.0019 µg/L	Does not exceed MRL
PFDoA	< 0.0019 µg/L	Does not exceed MRL
PFHpA	< 0.0019 µg/L	Does not exceed MRL
PFHxS	< 0.0017 µg/L	Does not exceed MRL
PFNA	< 0.0019 µg/L	Does not exceed MRL
PFOS	< 0.0018 µg/L	Does not exceed MRL
PFOA	< 0.0019 µg/L	Does not exceed MRL
PFTeDA	< 0.0019 µg/L	Does not exceed MRL
PFTrDA	< 0.0019 µg/L	Does not exceed MRL
PFUnA	< 0.0019 µg/L	Does not exceed MRL

NDDEQ PFAS Fact Sheet
NDDEQ PFAS Information Webpage
EPA PFAS Information Website