

Laboratory Certification IDs

CT: PH-0411, NH: 2239, NY: 11867, PA: 68-05519, RI: LAO00339, MA: M-CT004
See website, www.rwalab.com/rwa-lab-certifications, for certified analyte list.

Client: Paul Hennessy
Randolph-Holbrook Joint Water

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Randolph, MA 02368

781-964-9292
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ANALYTICAL REPORT

Project: FEE-RANDOLPHHOLBROOK-23-000004

Report Date: 2/23/2023

This Laboratory is in compliance with the NELAP requirements of procedures used except where indicated. This report contains results for the analysis tested, under the sampling conditions described on the Chain Of Custody (COC), as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

The COC form has been scanned to accompany the analytical report and is an exact copy of the original. If you are the client above and have any questions concerning this testing, please do not hesitate to contact RWA Client Services at (203) 401-6743 or (877) 894-5773. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.



Gary M. Alexander, Team Lead
Technical Representative

SAMPLE SUMMARY

Sample ID	Customer ID	Collection Date/Time	Receipt Date
300305034	RAW	2/2/2023 1115	2/4/23
300305035	FB - RAW	2/2/2023 1115	2/4/23
300305036	FINISHED	2/2/2023 1115	2/4/23
300305037	FB - FINISHED	2/2/2023 1115	2/4/23

Case Narrative and Comments

All QC passes criteria unless noted in a Comment below.

Samples were received at the appropriate temperature and in accordance with the chain of custody unless noted.

E = Exceeds calibration range ND = Non Detect FB = Field Blank

RL = Minimum Reporting Level MDL = Method Detection Limit

J = The reported result is below RL but greater than the MDL. The reported result is an estimate.

Massachusetts samples for required water quality sampling are included.

Samples and FBs were received in bottles with preservatives Trizma HCL & Trizma base per method requirements.

"FB" added at beginning/end designates "Field Blank" (Field Reagent Blank) for associated Customer ID sample. Field Blank analytes (unless noted) were shown to be less than 1/3 of the RL as per EPA537.

Method EPA537 Analyte Results, MDL and RL are adjusted to reflect the actual Final (mL) volume used.

<u>Method</u>	<u>CAS#</u>	<u>PFAS Analyte (Acronym)</u>
537	1763-23-1	Perfluorooctanesulfonic acid (PFOS)
537	335-67-1	Perfluorooctanoic acid (PFOA)
537	355-46-4	Perfluorohexanesulfonic acid (PFHxS)
537	375-95-1	Perfluorononanoic acid (PFNA)
537	375-85-9	Perfluorohepatanoic acid (PFHpA)
537	335-76-2	Perfluorodecanoic acid (PFDA)
537	375-73-5	Perfluorobutanesulfonic acid (PFBS)
537	307-55-1	Perfluorododecanoic acid (PFDoA)
537	307-24-4	Perfluorohexanoic acid (PFHxA)
537	376-06-7	Perfluorotetradecanoic acid (PFTA)
537	72629-94-8	Perfluorotridecanoic acid (PFTTrDA)
537	2058-94-8	Perfluoroundecanoic acid (PFUnA)
537	2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537	2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)

PFAS6 (MassDEP) = sum of PFOS, PFOA, PFHxS, PFNA, PFHpA and PFDA (only include Results at or above the RL)

MassDEP has established a maximum contaminant level (MCL) of 20 ng/L for PFAS6.

Method EPA537 Analyte Results and RL are adjusted to reflect the actual sample Final (mL) volume used.

Regional Water Authority

90 Sargent Drive • New Haven, Connecticut 06511-5966
 203-401-6743 or 877-894-5773 (Telephone) • Website: www.rwater.com

Sample ID: 300305034

Customer ID: RAW

Collection Date: 02/02/2023 11:15

PWS ID# / LOC ID#:

Project: FEE-RANDOLPHHOLBROOK-23-000004

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.15	0.89	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFHxA	307-24-4	3.36	0.68	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFHpA	375-85-9	2.07	0.62	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFHxS	355-46-4	2.56	0.90	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFOA	335-67-1	4.94	0.72	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFOS	1763-23-1	6.87	0.89	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFNA	375-95-1	0.86	0.63	2.0	ng/L	1.0	J	EPA537	2/10/23 2009	CSS
PFDA	335-76-2	ND	0.72	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFUnA	2058-94-8	ND	0.91	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
NMeFOSAA	2355-31-9	ND	1.19	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
NEtFOSAA	2991-50-6	ND	1.03	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFDoA	307-55-1	ND	0.83	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFTTrDA	72629-94-8	ND	0.90	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFTA	376-06-7	ND	0.97	2.0	ng/L	1.0		EPA537	2/10/23 2009	CSS
PFAS6 (MassDEP)		16.44	2.00	2.00	ng/L	1.0				
Surrogates					Results	Recovery Limits			Pass/Fail	
13C-PFHxA (SUR) % Recovery					103.15	70 - 130			Pass	
13C-PFDA (SUR) % Recovery					97.10	70 - 130			Pass	
d5-NEtFOSAA (SUR) % Recovery					92.73	70 - 130			Pass	

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300305034	PFAS_537	537_EXT-230210-1	250	02/09/2023

Regional Water Authority

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Sample ID: 300305035

Customer ID: FB - RAW

Collection Date: 02/02/2023 11:15

PWS ID# / LOC ID#:

Project: FEE-RANDOLPHHOLBROOK-23-000004

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.85	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFHxA	307-24-4	ND	0.65	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFHpA	375-85-9	ND	0.59	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFHxS	355-46-4	ND	0.86	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFOA	335-67-1	ND	0.68	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFOS	1763-23-1	ND	0.85	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFNA	375-95-1	ND	0.60	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFDA	335-76-2	ND	0.68	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFUnA	2058-94-8	ND	0.86	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
NMeFOSAA	2355-31-9	ND	1.13	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
NEtFOSAA	2991-50-6	ND	0.98	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFDoA	307-55-1	ND	0.79	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFTTrDA	72629-94-8	ND	0.86	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFTA	376-06-7	ND	0.92	1.9	ng/L	0.95		EPA537	2/10/23 2021	CSS
PFAS6 (MassDEP)		ND	1.90	1.90	ng/L	0.95				
Surrogates					Results	Recovery Limits		Pass/Fail		
					88.05	70 - 130		Pass		
					96.81	70 - 130		Pass		
					104.43	70 - 130		Pass		

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300305035	PFAS_537	537_EXT-230210-1	264	02/09/2023

Regional Water Authority

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Sample ID: 300305036

Customer ID: FINISHED

Collection Date: 02/02/2023 11:15

PWS ID# / LOC ID#: 4244001 / 10296

Project: FEE-RANDOLPHHOLBROOK-23-000004

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	1.84	0.89	2.0	ng/L	1.0	J	EPA537	2/10/23 2034	CSS
PFHxA	307-24-4	3.17	0.68	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFHpA	375-85-9	1.99	0.62	2.0	ng/L	1.0	J	EPA537	2/10/23 2034	CSS
PFHxS	355-46-4	2.97	0.90	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFOA	335-67-1	4.80	0.72	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFOS	1763-23-1	6.82	0.89	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFNA	375-95-1	0.71	0.63	2.0	ng/L	1.0	J	EPA537	2/10/23 2034	CSS
PFDA	335-76-2	ND	0.72	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFUnA	2058-94-8	ND	0.91	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
NMeFOSAA	2355-31-9	ND	1.19	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
NEtFOSAA	2991-50-6	ND	1.03	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFDoA	307-55-1	ND	0.83	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFTTrDA	72629-94-8	ND	0.90	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFTA	376-06-7	ND	0.97	2.0	ng/L	1.0		EPA537	2/10/23 2034	CSS
PFAS6 (MassDEP)		14.59	2.00	2.00	ng/L	1.0				
	Surrogates				Results			Recovery Limits		Pass/Fail
	13C-PFHxA (SUR) % Recovery				105.27			70 - 130		Pass
	13C-PFDA (SUR) % Recovery				92.52			70 - 130		Pass
	d5-NEtFOSAA (SUR) % Recovery				88.72			70 - 130		Pass

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300305036	PFAS_537	537_EXT-230210-1	250	02/09/2023

Regional Water Authority

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Sample ID: 300305037

Customer ID: FB - FINISHED

Collection Date: 02/02/2023 11:15

PWS ID# / LOC ID#:

Project: FEE-RANDOLPHHOLBROOK-23-000004

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.84	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFHxA	307-24-4	ND	0.64	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFHpA	375-85-9	ND	0.58	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFHxS	355-46-4	ND	0.85	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFOA	335-67-1	ND	0.68	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFOS	1763-23-1	ND	0.84	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFNA	375-95-1	ND	0.59	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFDA	335-76-2	ND	0.68	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFUnA	2058-94-8	ND	0.86	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
NMeFOSAA	2355-31-9	ND	1.12	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
NEtFOSAA	2991-50-6	ND	0.97	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFDoA	307-55-1	ND	0.78	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFTrDA	72629-94-8	ND	0.85	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFTA	376-06-7	ND	0.91	1.88	ng/L	0.94		EPA537	2/10/23 2137	CSS
PFAS6 (MassDEP)		ND	1.88	1.88	ng/L	0.94				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		82.87	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		87.50	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		91.78	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300305037	PFAS_537	537_EXT-230210-1	266	02/09/2023

South Central Connecticut Regional Water Authority PFAS QA/QC Summary

Extraction Batch QC for: EPA 537

MA Lab Cert.#: M-CT004

Extraction Batch Date: 2/9/2023

Sample ID for LFSM/LFSMD: 300305036

Analyte	LFSM %Recovery	LFSMD %Recovery	RPD of LFSM/LFSMD	LRB (MRL is 2)		LFB 60 ng/L %Recovery
	Acceptance Range 70-130%	Acceptance Range 70-130%	Acceptance Limit <30%	Result, ng/L	Meets < 1/3 of MRL criteria?	Acceptance Range 70-130%
PFBS	81.1	86.8	6.0	ND	[Y]	72.9
PFHxA	86.8	105.1	16.4	ND	[Y]	79.6
PFHpA	91.2	99.1	7.6	ND	[Y]	91.7
PFHxS	97.5	111.7	11.8	ND	[Y]	99.5
PFOA	92.5	102.1	7.9	ND	[Y]	97.0
PFOS	103.1	103.1	0.0	ND	[Y]	98.5
PFNA	92.2	95.4	3.2	ND	[Y]	94.7
PFDA	92.3	95.7	3.6	ND	[Y]	87.4
PFUnA	85.7	87.4	2.0	ND	[Y]	89.1
NMeFOSAA	85.9	103.1	18.3	ND	[Y]	95.2
NEtFOSAA	80.3	103.3	25.1	ND	[Y]	99.7
PFDoA	96.7	104.1	7.4	ND	[Y]	87.8
PFTTrDA	87.8	93.8	6.6	ND	[Y]	87.1
PFTA	89.8	102.9	13.5	ND	[Y]	84.4

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₂ -PFDA	d ₅ -NEtFOSAA	
94.77	94.85	90.85	LFSM
105.00	94.44	107.73	LFSMD
104.78	94.11	100.49	LRB
82.38	89.53	100.04	LFB

Note: The Surrogate %Recovery for Samples and Poured Field Blanks is included on Final Reports.

All Batch QC passes method criteria unless noted in "Comments" section below
 Comments: The matrix spike data is from a sample submitted on this Chain of Custody.

LRB = Laboratory Reagent Blank

RPD = relative percent difference

FB = Field Blank

ND = Non-Detect

LFB = Laboratory Fortified Blank

MRL = Method Reporting Level

Results are ng/L (ppt)

LFSM = Laboratory Fortified Sample Matrix

LFSM/LFSMD spike concentration is 20 ng/L, unless noted otherwise

LFSMD = Laboratory Fortified Sample Matrix Duplicate

Surrogate Acceptance Limit is 70 - 130 %Recovery

