

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
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ANALYTICAL REPORT

Project: FEE-RANDOLPHHOLBROOK-24-000008

Report Date: 7/31/2024

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.



Richard Sibley
Laboratory Manager
Technical Representative

SAMPLE SUMMARY

Sample ID	Customer ID	Collection Date/Time	Receipt Date
300555794	RAW	7/1/2024 1300	7/2/24
300555795	Field Blank - RAW	7/1/2024 1300	7/2/24
300555796	FINISHED	7/1/2024 1300	7/2/24
300555797	Field Blank - FINISHED	7/1/2024 1300	7/2/24

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 or EPA537.1.

Method EPA537 or EPA537.1 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, 537.1	1763-23-1	Perfluorooctanesulfonic acid (PFOS)
537, 537.1	335-67-1	Perfluorooctanoic acid (PFOA)
537, 537.1	355-46-4	Perfluorohexanesulfonic acid (PFHxS)
537, 537.1	375-95-1	Perfluorononanoic acid (PFNA)
537, 537.1	375-85-9	Perfluorohepatanoic acid (PFHpA)
537, 537.1	335-76-2	Perfluorodecanoic acid (PFDA)
537, 537.1	375-73-5	Perfluorobutanesulfonic acid (PFBS)
537, 537.1	307-55-1	Perfluorododecanoic acid (PFDoA)
537, 537.1	307-24-4	Perfluorohexanoic acid (PFHxA)
537, 537.1	376-06-7	Perfluorotetradecanoic acid (PFTA)
537, 537.1	72629-94-8	Perfluorotridecanoic acid (PFTTrDA)
537, 537.1	2058-94-8	Perfluoroundecanoic acid (PFUnA)
537, 537.1	2991-50-6	N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537, 537.1	2355-31-9	N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537.1	763051-92-9	11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)
537.1	919005-14-4	4,8-dioxa-3H-perfluorononanoic acid (ADONA)
537.1	13252-13-6	Hexafluoropropylene oxide dimer acid (HFPO-DA)

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 EPA537.1 Analyte Results and RL are adjusted to reflect the actual sample Final (mL) volume used.

Sample ID: 300555794

Customer ID: RAW

Collection Date: 07/01/2024 13:00

PWS ID# / LOC ID#: RAW

Project: FEE-RANDOLPHHOLBROOK-24-000008

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.13	0.97	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFHxA	307-24-4	2.72	0.77	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
HFPO-DA	13252-13-6	ND	1.16	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFHpA	375-85-9	1.68	0.71	2.04	ng/L	1.02	J	EPA537.1	7/10/24 2243	CSS
PFHxS	355-46-4	2.35	0.85	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
ADONA	919005-14-4	ND	0.64	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFOA	335-67-1	4.73	0.78	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFOS	1763-23-1	9.84	1.03	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFNA	375-95-1	1.00	0.73	2.04	ng/L	1.02	J	EPA537.1	7/10/24 2243	CSS
9CI-PF3ONS	756426-58-1	ND	0.86	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFDA	335-76-2	ND	0.77	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFUnA	2058-94-8	ND	0.96	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
11CI-PF3OUdS	763051-92-9	ND	1.06	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
NMeFOSAA	2355-31-9	ND	1.17	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
NEtFOSAA	2991-50-6	ND	1.17	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFDaA	307-55-1	ND	0.92	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFTTrDA	72629-94-8	ND	0.95	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS
PFTA	376-06-7	ND	1.06	2.04	ng/L	1.02		EPA537.1	7/10/24 2243	CSS

PFAS6 (MassDEP) 16.92 2.04 2.04 ng/L 1.02

Surrogates	Results	Recovery Limits	Pass/Fail
13C-PFHxA (SUR) % Recovery	88.90	70 - 130	Pass
13C3-HFPO-DA (SUR) % Recovery	100.30	70 - 130	Pass
13C-PFDA (SUR) % Recovery	92.10	70 - 130	Pass
d5-NEtFOSAA (SUR) % Recovery	79.30	70 - 130	Pass

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300555794	PFAS_537	537_EXT-240705-1	244	07/05/2024

Sample ID: 300555795

Customer ID: Field Blank - RAW

Collection Date: 07/01/2024 13:00

PWS ID# / LOC ID#: FB

Project: FEE-RANDOLPHHOLBROOK-24-000008

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.96	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFHxA	307-24-4	ND	0.76	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
HFPO-DA	13252-13-6	ND	1.15	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFHpA	375-85-9	ND	0.71	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFHxS	355-46-4	ND	0.84	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
ADONA	919005-14-4	ND	0.64	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFOA	335-67-1	ND	0.77	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFOS	1763-23-1	ND	1.02	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFNA	375-95-1	ND	0.73	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
9CI-PF3ONS	756426-58-1	ND	0.85	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFDA	335-76-2	ND	0.76	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFUnA	2058-94-8	ND	0.95	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
11CI-PF3OUdS	763051-92-9	ND	1.05	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
NMeFOSAA	2355-31-9	ND	1.16	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
NEtFOSAA	2991-50-6	ND	1.16	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFDaA	307-55-1	ND	0.91	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFTTrDA	72629-94-8	ND	0.94	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFTA	376-06-7	ND	1.05	2.02	ng/L	1.01		EPA537.1	7/10/24 2259	CSS
PFAS6 (MassDEP)		ND	2.02	2.02	ng/L	1.01				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		92.80	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		96.70	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		91.00	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		85.00	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300555795	PFAS_537	537_EXT-240705-1	248	07/05/2024

Sample ID: 300555796

Customer ID: FINISHED

Collection Date: 07/01/2024 13:00

PWS ID# / LOC ID#: 4244001/10296

Project: FEE-RANDOLPHHOLBROOK-24-000008

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.45	0.97	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFHxA	307-24-4	3.08	0.77	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
HFPO-DA	13252-13-6	ND	1.16	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFHpA	375-85-9	2.00	0.71	2.04	ng/L	1.02	J	EPA537.1	7/10/24 2315	CSS
PFHxS	355-46-4	2.28	0.85	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
ADONA	919005-14-4	ND	0.64	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFOA	335-67-1	5.04	0.78	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFOS	1763-23-1	9.26	1.03	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFNA	375-95-1	1.02	0.73	2.04	ng/L	1.02	J	EPA537.1	7/10/24 2315	CSS
9CI-PF3ONS	756426-58-1	ND	0.86	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFDA	335-76-2	ND	0.77	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFUnA	2058-94-8	ND	0.96	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
11CI-PF3OUdS	763051-92-9	ND	1.06	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
NMeFOSAA	2355-31-9	ND	1.17	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
NEtFOSAA	2991-50-6	ND	1.17	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFDoA	307-55-1	ND	0.92	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFTTrDA	72629-94-8	ND	0.95	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFTA	376-06-7	ND	1.06	2.04	ng/L	1.02		EPA537.1	7/10/24 2315	CSS
PFAS6 (MassDEP)		18.58	2.04	2.04	ng/L	1.02				
Surrogates		Results		Recovery Limits		Pass/Fail				
13C-PFHxA (SUR) % Recovery		97.10		70 - 130		Pass				
13C3-HFPO-DA (SUR) % Recovery		115.50		70 - 130		Pass				
13C-PFDA (SUR) % Recovery		108.10		70 - 130		Pass				
d5-NEtFOSAA (SUR) % Recovery		89.40		70 - 130		Pass				

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300555796	PFAS_537	537_EXT-240705-1	244	07/05/2024

Sample ID: 300555797

Customer ID: Field Blank - FINISHED

Collection Date: 07/01/2024 13:00

PWS ID# / LOC ID#: FB

Project: FEE-RANDOLPHHOLBROOK-24-000008

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.96	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFHxA	307-24-4	ND	0.76	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
HFPO-DA	13252-13-6	ND	1.15	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFHpA	375-85-9	ND	0.71	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFHxS	355-46-4	ND	0.84	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
ADONA	919005-14-4	ND	0.64	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFOA	335-67-1	ND	0.77	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFOS	1763-23-1	ND	1.02	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFNA	375-95-1	ND	0.73	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
9CI-PF3ONS	756426-58-1	ND	0.85	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFDA	335-76-2	ND	0.76	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFUnA	2058-94-8	ND	0.95	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
11CI-PF3OUdS	763051-92-9	ND	1.05	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
NMeFOSAA	2355-31-9	ND	1.16	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
NEtFOSAA	2991-50-6	ND	1.16	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFDoA	307-55-1	ND	0.91	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFTTrDA	72629-94-8	ND	0.94	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFTA	376-06-7	ND	1.05	2.02	ng/L	1.01		EPA537.1	7/10/24 2331	CSS
PFAS6 (MassDEP)		ND	2.02	2.02	ng/L	1.01				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		100.40	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		98.10	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		93.80	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		94.40	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300555797	PFAS_537	537_EXT-240705-1	248	07/05/2024

South Central Connecticut Regional Water Authority PFAS QA/QC Summary

Extraction Batch QC for: EPA 537.1

MA Lab Cert.#: M-CT004

Extraction Batch Date: 7/5/2024

Sample ID for LFSM/LFSMD: 300553998

Analyte	LFSM %Recovery	LFSMD %Recovery	RPD of LFSM/LFSMD	LRB (MRL is 2)		LFB 20 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	97.1	97.3	0.2	ND	[Y]	99.2
PFHxA	94.3	87.8	6.5	ND	[Y]	92.0
HFPO-DA	101.7	97.0	4.7	ND	[Y]	92.3
PFHpA	91.5	85.4	6.6	ND	[Y]	90.8
PFHxS	100.8	92.0	9.0	ND	[Y]	98.6
ADONA	89.1	85.0	4.7	ND	[Y]	89.6
PFOA	96.9	98.7	1.6	ND	[Y]	97.1
PFOS	92.7	96.5	3.8	ND	[Y]	100.1
PFNA	93.2	92.8	0.4	ND	[Y]	93.9
9CL-PF3ONS	82.5	86.6	4.8	ND	[Y]	96.9
PFDA	95.3	94.5	0.8	ND	[Y]	96.6
PFUnA	82.3	87.9	6.6	ND	[Y]	93.6
11Cl-PF3OUdS	61.9	76.3	20.7	ND	[Y]	95.9
NMeFOSAA	82.8	94.7	13.3	ND	[Y]	94.0
NEtFOSAA	80.1	84.3	5.0	ND	[Y]	93.7
PFDoA	78.0	80.8	3.5	ND	[Y]	91.7
PFTTrDA	75.3	72.8	3.3	ND	[Y]	88.1
PFTA	75.3	73.0	3.0	ND	[Y]	88.6

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₃ -HFPO-DA	¹³ C ₂ -PFDA	d ₅ -NEtFOSAA	
92.10	95.70	90.30	72.60	LFSM
95.90	103.60	99.10	90.60	LFSMD
87.70	87.20	87.70	79.40	LRB
94.10	100.80	96.60	91.60	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 **NOT** from a sample in this upload batch. The LFSM percent recovery fails low for compound 11Cl. The LFSMD passes percent recovery criteria and the RPD passes criteria. The other client's sample results were commented as suspect.

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