

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.

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ANALYTICAL REPORT

Project: FEE-RANDOLPHHOLBROOK-24-000013

Report Date: 12/9/2024

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
300632202	Raw	11/21/2024 1200	11/22/24
300632203	Field Blank - Raw	11/21/2024 1200	11/22/24
300632204	Finished	11/21/2024 1200	11/22/24
300632205	Field Blank - Finished	11/21/2024 1200	11/22/24

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.

B= Field Sample results with > 1/3 MRL detection of the same analyte in the associated field blank are invalid.

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	CAS#	PFAS Analyte (Acronym)
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 (PFTrDA)
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-chloroeicosafluoro-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# 300632202 for EPA 537.1: Sample needed to be filtered due to high particulates clogging the cartridge. Fails high for 13C-PFHxA and 13C3-HFPO-DA surrogate recovery; the associated analytes HFPO-DA, PFOA, PFHxA, PFHpA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, PFTA, PFOS, PFBS, PFHxS, ADONA, 11C1-PF3OUdS, 9C1-PF3ONS are suspect.

Sample# 300632205 Field Blank (FB) for EPA 537.1: fails FB criteria of < 1/3 RL for PFHxA, PFHxS, and PFOS. Sample will be reported and commented with Field Sample reporting code B: Field Sample results with > 1/3 MRL detection of the same analyte in the associated field blank are invalid. Field Blank criteria is not met for analytes PFHxA, PFHxS, PFOS, results are high bias for these analytes. All data for these compounds in this FB and the associated sample 300632204 are suspect/invalid.

Sample ID: 300632202

Customer ID: Raw

Collection Date: 11/21/2024 12:00

PWS ID# / LOC ID#: RAW

Project: FEE-RANDOLPHHOLBROOK-24-000013

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	3.46	0.93	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFHxA	307-24-4	4.85	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
HFPO-DA	13252-13-6	ND	1.12	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFHpA	375-85-9	2.79	0.69	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFHxS	355-46-4	3.75	0.81	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
ADONA	919005-14-4	ND	0.62	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFOA	335-67-1	5.79	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFOS	1763-23-1	9.62	0.99	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFNA	375-95-1	1.22	0.71	1.96	ng/L	0.98	J	EPA537.1	12/3/24 0859	CSS
9CI-PF3ONS	756426-58-1	ND	0.82	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFDA	335-76-2	ND	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFUnA	2058-94-8	ND	0.92	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
11CI-PF3OUdS	763051-92-9	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
NMeFOSAA	2355-31-9	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
NEtFOSAA	2991-50-6	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFDoA	307-55-1	ND	0.88	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFTrDA	72629-94-8	ND	0.91	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFTA	376-06-7	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0859	CSS
PFAS6 (MassDEP)		21.95	1.96	1.96	ng/L	0.98				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		130.50	70 - 130		Fail					
13C3-HFPO-DA (SUR) % Recovery		143.70	70 - 130		Fail					
13C-PFDA (SUR) % Recovery		103.40	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		107.10	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300632202	PFAS_537	537_EXT-241126-1	256	11/26/2024

Sample ID: 300632203

Customer ID: Field Blank - Raw

Collection Date: 11/21/2024 12:00

PWS ID# / LOC ID#: Field Blank - Raw

Project: FEE-RANDOLPHHOLBROOK-24-000013

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.93	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFHxA	307-24-4	ND	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
HFPO-DA	13252-13-6	ND	1.12	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFHpA	375-85-9	ND	0.69	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFHxS	355-46-4	ND	0.81	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
ADONA	919005-14-4	ND	0.62	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFOA	335-67-1	ND	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFOS	1763-23-1	ND	0.99	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFNA	375-95-1	ND	0.71	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
9CI-PF3ONS	756426-58-1	ND	0.82	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFDA	335-76-2	ND	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFUnA	2058-94-8	ND	0.92	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
11CI-PF3OUdS	763051-92-9	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
NMeFOSAA	2355-31-9	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
NEtFOSAA	2991-50-6	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFDoA	307-55-1	ND	0.88	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFTrDA	72629-94-8	ND	0.91	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFTA	376-06-7	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0223	CSS
PFAS6 (MassDEP)		ND	1.96	1.96	ng/L	0.98				
Surrogates			Results	Recovery Limits	Pass/Fail					
13C-PFHxA (SUR) % Recovery			94.10	70 - 130	Pass					
13C3-HFPO-DA (SUR) % Recovery			94.60	70 - 130	Pass					
13C-PFDA (SUR) % Recovery			95.30	70 - 130	Pass					
d5-NEtFOSAA (SUR) % Recovery			87.30	70 - 130	Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300632203	PFAS_537	537_EXT-241125-1	254	11/25/2024

Sample ID: 300632204

Customer ID: Finished

Collection Date: 11/21/2024 12:00

PWS ID# / LOC ID#: 4244001/10296

Project: FEE-RANDOLPHHOLBROOK-24-000013

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.44	0.93	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFHxA	307-24-4	3.38	0.74	1.96	ng/L	0.98	B	EPA537.1	12/3/24 0152	CSS
HFPO-DA	13252-13-6	ND	1.12	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFHpA	375-85-9	2.07	0.69	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFHxS	355-46-4	2.69	0.81	1.96	ng/L	0.98	B	EPA537.1	12/3/24 0152	CSS
ADONA	919005-14-4	ND	0.62	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFOA	335-67-1	5.36	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFOS	1763-23-1	9.36	0.99	1.96	ng/L	0.98	B	EPA537.1	12/3/24 0152	CSS
PFNA	375-95-1	0.94	0.71	1.96	ng/L	0.98	J	EPA537.1	12/3/24 0152	CSS
9CI-PF3ONS	756426-58-1	ND	0.82	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFDA	335-76-2	ND	0.74	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFUnA	2058-94-8	ND	0.92	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
11CI-PF3OUdS	763051-92-9	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
NMeFOSAA	2355-31-9	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
NEtFOSAA	2991-50-6	ND	1.13	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFDoA	307-55-1	ND	0.88	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFTrDA	72629-94-8	ND	0.91	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFTA	376-06-7	ND	1.02	1.96	ng/L	0.98		EPA537.1	12/3/24 0152	CSS
PFAS6 (MassDEP)		19.48	1.96	1.96	ng/L	0.98				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		97.60	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		98.30	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		84.80	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		91.80	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300632204	PFAS_537	537_EXT-241125-1	254	11/25/2024

Sample ID: 300632205

Customer ID: Field Blank - Finished

Collection Date: 11/21/2024 12:00

PWS ID# / LOC ID#: Field Blank

Project: FEE-RANDOLPHHOLBROOK-24-000013

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	ND	0.95	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFHxA	307-24-4	0.76	0.75	2.0	ng/L	1.0	J	EPA537.1	12/3/24 0208	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFHxS	355-46-4	1.63	0.83	2.0	ng/L	1.0	J	EPA537.1	12/3/24 0208	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFOS	1763-23-1	13.80	1.01	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/3/24 0208	CSS
PFAS6 (MassDEP)		13.80	2.0	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		108.70	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		104.00	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		95.10	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		98.30	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300632205	PFAS_537	537_EXT-241125-1	250	11/25/2024

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: 11/25/2024

Sample ID for LFSM/LFSMD: 300631578

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	104.3	103.8	0.5	ND	[Y]	110.5
PFHxA	89.2	108.8	19.8	ND	[Y]	105.4
HFPO-DA	83.8	107.4	24.7	ND	[Y]	101.0
PFHpA	85.2	94.7	10.6	ND	[Y]	91.1
PFHxS	91.0	108.0	17.1	ND	[Y]	102.8
ADONA	78.3	97.8	22.2	ND	[Y]	93.4
PFOA	91.3	104.7	13.7	ND	[Y]	98.7
PFOS	95.7	100.7	5.1	ND	[Y]	101.7
PFNA	83.8	104.4	21.8	ND	[Y]	100.2
9Cl-PF3ONS	98.9	106.8	7.7	ND	[Y]	103.3
PFDA	91.9	98.1	6.6	ND	[Y]	99.1
PFUnA	83.9	101.1	18.6	ND	[Y]	89.4
11Cl-PF3OUdS	85.6	90.2	5.2	ND	[Y]	92.4
NMeFOSAA	87.8	99.4	12.3	ND	[Y]	98.1
NEtFOSAA	96.1	107.3	11.0	ND	[Y]	96.4
PFDoA	83.3	98.6	16.9	ND	[Y]	95.9
PFTTrDA	79.5	98.3	21.1	ND	[Y]	90.6
PFTA	76.4	86.1	11.9	ND	[Y]	89.9

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₃ -HFPO-DA	¹³ C ₂ -PFDA	^d ₅ -NEtFOSAA	
90.90	86.90	89.20	87.80	LFSM
115.00	116.10	101.10	104.00	LFSMD
129.60	117.60	119.70	109.80	LRB
109.50	106.70	99.60	95.80	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.

Sample# 300632205 Field Blank (FB) for EPA 537.1: fails FB criteria of < 1/3 RL for PFHxA, PFHxS, and PFOS. Sample will be reported and commented with Field Sample reporting code B: Field Sample results with >1/3 MRL detection of the same analyte in the associated field blank are invalid. Field Blank criteria is not met for analytes PFHxA, PFHxS, PFOS, results are high bias for these analytes. All data for these compounds in this FB and the associated sample 300632204 are suspect/invalid.

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