

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

275 Pond St
Randolph, MA 02368

781-964-9292
phennessy@holbrookmassachusetts.us

ANALYTICAL REPORT

Project: FEE-RANDOLPHHOLBROOK-24-000011

Report Date: 10/1/2024

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
300597849	RAW	9/17/2024 1100	9/18/24
300597850	FIELD BLANK - RAW	9/17/2024 1100	9/18/24
300597851	FINISHED	9/17/2024 1100	9/18/24
300597852	FIELD BLANK- FINISHED	9/17/2024 1100	9/18/24

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 (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.

Sample ID: 300597849

Customer ID: RAW

Collection Date: 09/17/2024 11:00

PWS ID# / LOC ID#: RAW

Project: FEE-RANDOLPHHOLBROOK-24-000011

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	3.55	0.95	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFHxA	307-24-4	4.19	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFHpA	375-85-9	2.27	0.70	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFHxS	355-46-4	2.60	0.83	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFOA	335-67-1	6.51	0.76	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFOS	1763-23-1	11.66	1.01	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFNA	375-95-1	1.34	0.72	2.0	ng/L	1.0	J	EPA537.1	9/24/24 0256	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0256	CSS
PFAS6 (MassDEP)		23.04	2.00	2.0	ng/L	1.0				
Surrogates		Results		Recovery Limits		Pass/Fail				
13C-PFHxA (SUR) % Recovery		106.98		70 - 130		Pass				
13C3-HFPO-DA (SUR) % Recovery		109.21		70 - 130		Pass				
13C-PFDA (SUR) % Recovery		101.09		70 - 130		Pass				
d5-NEtFOSAA (SUR) % Recovery		88.58		70 - 130		Pass				

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300597849	PFAS_537	537_EXT-240919-1	250	09/19/2024

Sample ID: 300597850

Customer ID: FIELD BLANK - RAW

Collection Date: 09/17/2024 11:00

PWS ID# / LOC ID#: FB

Project: FEE-RANDOLPHHOLBROOK-24-000011

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	9/24/24 0309	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0309	CSS
PFAS6 (MassDEP)		ND	2.0	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		101.00	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		90.98	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		98.08	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		93.12	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300597850	PFAS_537	537_EXT-240919-1	250	09/19/2024

Sample ID: 300597851

Customer ID: FINISHED

Collection Date: 09/17/2024 11:00

PWS ID# / LOC ID#: 4244001/10296

Project: FEE-RANDOLPHHOLBROOK-24-000011

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.14	0.95	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFHxA	307-24-4	4.51	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFHpA	375-85-9	2.18	0.70	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFHxS	355-46-4	2.61	0.83	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFOA	335-67-1	5.43	0.76	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFOS	1763-23-1	8.08	1.01	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFNA	375-95-1	1.32	0.72	2.0	ng/L	1.0	J	EPA537.1	9/24/24 0323	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0323	CSS
PFAS6 (MassDEP)		18.30	2.00	2.0	ng/L	1.0				
Surrogates		Results		Recovery Limits		Pass/Fail				
13C-PFHxA (SUR) % Recovery		96.31		70 - 130		Pass				
13C3-HFPO-DA (SUR) % Recovery		95.60		70 - 130		Pass				
13C-PFDA (SUR) % Recovery		86.53		70 - 130		Pass				
d5-NEtFOSAA (SUR) % Recovery		78.02		70 - 130		Pass				

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300597851	PFAS_537	537_EXT-240919-1	250	09/19/2024

Sample ID: 300597852

Customer ID: FIELD BLANK- FINISHED

Collection Date: 09/17/2024 11:00

PWS ID# / LOC ID#: FB

Project: FEE-RANDOLPHHOLBROOK-24-000011

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	9/24/24 0336	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	9/24/24 0336	CSS
PFAS6 (MassDEP)		ND	2.0	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		94.74	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		96.41	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		91.59	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		97.44	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300597852	PFAS_537	537_EXT-240919-1	250	09/19/2024

Regional Water Authority

90 Sargent Dr, New Haven, CT 06511
 Lab Billing: 203-401-2709
 Lab Manager Phone: 203-401-2700
 Client Services Phone: 203-401-6743

Chain of Custody Form

Contact Address (please include email address)
**RANDOLPH/HOLBROOK
 JOINT WATER**

Sampling Address (if different from contact information)
**275 POND ST,
 RANDOLPH, MA
 02368**

Sampler

PAUL HENNESSY

Additional Information

LIMS Number (For RWA USE ONLY) Date Collected Time Collected Sample ID / Sample Location

300597849	9/17/24	11AM	① RAW
850			① Poured Field Blank
851			② FINISHED
852			③ Poured Field Blank

Number of Bottles

4
1
4
1

PFAS (SEE COMMENT) PFAS14
 250mL Plastic w/Tris Hydrochloride & Tris (Hydroxymethyl) Aminomethane

PFAS - Poured Field Blank
 250mL Plastic w/Tris Hydrochloride & Tris (Hydroxymethyl) Aminomethane

Relinquished By (Signature):
[Signature]

Date & Time: 9/17/24 1130 AM

Received By (Signature):
[Signature]

Date & Time: 9/18/24 1134

Relinquished by (Signature):
 Fed Ex

Date & Time:

Received By (Signature):
[Signature]

Date & Time: 9/18/24 1134

Lot # SLCR 2107

Lot # SLCR 2107

PFAS14

Sample bottle and Preservative Lot Numbers

See - Randolph/Holbrook - 24 - 022011

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: 9/19/2024

Sample ID for LFSM/LFSMD: 300594906

Analyte	LFSM %Recovery	LFSMD %Recovery	RPD of LFSM/LFSMD	LRB (MRL is 2)		LFB 10 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	138.3	122.8	11.1	ND	[Y]	92.4
PFHxA	127.8	138.4	7.3	ND	[Y]	94.9
HFPO-DA	124.3	124.2	0.1	ND	[Y]	82.5
PFHpA	124.1	121.7	1.8	ND	[Y]	91.9
PFHxS	128.0	121.8	4.8	ND	[Y]	85.9
ADONA	129.5	124.7	3.8	ND	[Y]	90.4
PFOA	127.9	122.4	3.9	ND	[Y]	94.1
PFOS	123.0	113.4	7.7	ND	[Y]	94.0
PFNA	127.0	123.3	2.9	ND	[Y]	95.6
9Cl-PF3ONS	120.1	105.9	12.6	ND	[Y]	83.5
PFDA	124.3	122.2	1.7	ND	[Y]	94.6
PFUnA	123.9	121.3	2.1	ND	[Y]	90.3
11Cl-PF3OUdS	111.3	105.3	5.6	ND	[Y]	88.9
NMeFOSAA	110.3	106.6	3.5	ND	[Y]	77.0
NEtFOSAA	110.8	108.9	1.8	ND	[Y]	89.2
PFDoA	108.6	110.0	1.3	ND	[Y]	92.3
PFTTrDA	112.0	115.1	2.7	ND	[Y]	88.1
PFTA	112.8	116.3	3.0	ND	[Y]	93.9

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₃ -HFPO-DA	¹³ C ₂ -PFDA	^d ₅ -NEtFOSAA	
94.41	99.27	91.32	79.85	LFSM
103.21	101.66	92.39	80.17	LFSMD
90.26	91.14	88.09	94.32	LRB
89.77	75.50	88.04	84.48	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 high for compound PFBS, and the LFSMD percent recovery fails high for compound PFHxA. All RPDs pass 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