

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-24-000005

Report Date: 4/22/2024

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
300509964	1 Raw	4/4/2024 1100	4/5/24
300509965	Field Blank - 1 Raw	4/4/2024 1100	4/5/24
300509966	2 Finished	4/4/2024 1100	4/5/24
300509967	Field Blank - 2 Finished	4/4/2024 1100	4/5/24

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.

Sample# 300509964 for EPA 537.1: fails low for 13C-PFHxA, 13C-PFDA, 13C3-HFPO-DA, and d5-NEtFOSAA surrogate recovery; the associated analytes PFOA, PFHxA, PFHpA, PFNA, PFDA, PFUnA, PFDoA, PFTTrDA, PFTA, PFOS, PFBS, PFHxS, ADONA, 11C1-PF3OUdS, 9C1-PF3ONS, HFPO-DA, NMeFOSAA, and NEtFOSAA are suspect bias low.

Sample ID: 300509964

Customer ID: 1 Raw

Collection Date: 04/04/2024 11:00

PWS ID# / LOC ID#: RAW

Project: FEE-RANDOLPHHOLBROOK-24-000005

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	1.06	0.95	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0010	CSS
PFHxA	307-24-4	1.52	0.75	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0010	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFHpA	375-85-9	0.83	0.70	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0010	CSS
PFHxS	355-46-4	1.45	0.83	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0010	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFOA	335-67-1	2.44	0.76	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFOS	1763-23-1	4.33	1.01	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFDaA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0010	CSS
PFAS6 (MassDEP)		6.77	2.00	2.0	ng/L	1.0				
Surrogates					Results	Recovery Limits	Pass/Fail			
13C-PFHxA (SUR) % Recovery					47.80	70 - 130	Fail			
13C3-HFPO-DA (SUR) % Recovery					49.30	70 - 130	Fail			
13C-PFDA (SUR) % Recovery					50.20	70 - 130	Fail			
d5-NEtFOSAA (SUR) % Recovery					49.90	70 - 130	Fail			

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300509964	PFAS_537	537_EXT-240410-1	250	04/10/2024

Sample ID: 300509965

Customer ID: Field Blank - 1 Raw

Collection Date: 04/04/2024 11:00

PWS ID# / LOC ID#: FIELD BLANK-RAW

Project: FEE-RANDOLPHHOLBROOK-24-000005

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	4/17/24 0025	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0025	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		98.20	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		100.80	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		97.90	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		93.60	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300509965	PFAS_537	537_EXT-240410-1	250	04/10/2024

Sample ID: 300509966

Customer ID: 2 Finished

Collection Date: 04/04/2024 11:00

PWS ID# / LOC ID#: 4244001/10296

Project: FEE-RANDOLPHHOLBROOK-24-000005

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	1.78	0.95	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0041	CSS
PFHxA	307-24-4	2.55	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFHpA	375-85-9	1.65	0.70	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0041	CSS
PFHxS	355-46-4	1.49	0.83	2.0	ng/L	1.0	J	EPA537.1	4/17/24 0041	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFOA	335-67-1	4.11	0.76	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFOS	1763-23-1	6.58	1.01	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0041	CSS
PFAS6 (MassDEP)		10.69	2.00	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		91.70	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		100.20	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		93.70	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		78.60	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300509966	PFAS_537	537_EXT-240410-1	250	04/10/2024

Sample ID: 300509967

Customer ID: Field Blank - 2 Finished

Collection Date: 04/04/2024 11:00

PWS ID# / LOC ID#: FIELD BLANK-FINISHED

Project: FEE-RANDOLPHHOLBROOK-24-000005

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	4/17/24 0057	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	4/17/24 0057	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				
Surrogates		Results	Recovery Limits		Pass/Fail					
13C-PFHxA (SUR) % Recovery		88.60	70 - 130		Pass					
13C3-HFPO-DA (SUR) % Recovery		94.10	70 - 130		Pass					
13C-PFDA (SUR) % Recovery		82.10	70 - 130		Pass					
d5-NEtFOSAA (SUR) % Recovery		79.80	70 - 130		Pass					

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300509967	PFAS_537	537_EXT-240410-1	250	04/10/2024

Regional Water Authority

90 Sargent Dr, New Haven, CT 06511
 Phone: 203-401-2700
 Fax: 203-401-6799

Chain of Custody Form

Company Name
 RANDOLPH/HOUBROOK
 JOINT WATER

Company Address
 275 POND ST.
 RANDOLPH, MA
 02368

Sampler
 PAUL HENNESSY

PO Number

RWA LIMS Number	Date Collected	Time Collected	Sample ID / Sample Location	Number of Bottles
300509964	4/4/24	11AM	① RAW	5
966	4/4/24	11AM	② FINISHED	5

Relinquished By (Signature):
 [Signature] PAUL HENNESSY

Date & Time: 4/4/24 11:30 AM

Received By (Signature):
 [Signature]

Date & Time: 4/5/24 1500

Test Requested, Container, & Preservative

Test Requested	Container	Preservative
250mL Plastic w/Tris Hydrochloride & Tris (Hydroxymethyl) Aminomethane	PFAS Poured Field Blank	Field Blank #
250mL Plastic w/Tris Hydrochloride & Tris (Hydroxymethyl) Aminomethane	PFAS Poured Field Blank	300509965
		967

Comments:
 PFAS 14
 PFAS 14
 PFAS Poured Field Blank
 300509965
 967
 NOT FOR COMPLIANCE
 MA DEP COMPLIANCE

State Sample Collected:
 CT NY Other(specify)

Evidence of Cooling (Circle): D or N

Cooler Temp °C: 1.5

Container & Preservative Meet Criteria (Circle): Yes No

LOT # SLCN1650

LOT # SLCN1665

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: 4/10/2024

Sample ID for LFSM/LFSMD: 300510135

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	86.4	94.7	8.6	ND	[Y]	86.1
PFHxA	84.5	86.8	2.4	ND	[Y]	85.3
HFPO-DA	84.1	87.5	4.0	ND	[Y]	86.4
PFHpA	85.3	94.8	10.0	ND	[Y]	85.8
PFHxS	84.6	93.9	9.8	ND	[Y]	85.7
ADONA	89.8	96.4	7.1	ND	[Y]	86.4
PFOA	95.2	97.9	2.4	ND	[Y]	84.9
PFOS	77.6	92.4	15.0	ND	[Y]	81.2
PFNA	78.6	87.0	9.7	ND	[Y]	77.1
9Cl-PF3ONS	78.1	84.3	7.7	ND	[Y]	81.8
PFDA	81.6	88.8	8.3	ND	[Y]	80.8
PFUnA	75.5	81.8	8.0	ND	[Y]	75.2
11Cl-PF3OUdS	79.6	83.2	4.5	ND	[Y]	83.1
NMeFOSAA	86.6	87.0	0.4	ND	[Y]	88.9
NEtFOSAA	70.3	82.6	15.8	ND	[Y]	71.9
PFDoA	74.2	77.0	3.6	ND	[Y]	74.3
PFTTrDA	73.9	77.0	4.2	ND	[Y]	76.2
PFTA	71.7	75.6	5.3	ND	[Y]	73.1

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₃ -HFPO-DA	¹³ C ₂ -PFDA	^d ₅ -NEtFOSAA	
86.70	90.50	83.30	76.60	LFSM
87.20	91.50	88.30	80.00	LFSMD
92.20	85.20	92.90	88.80	LRB
86.60	86.60	80.20	76.10	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.

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