

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-23-000012

Report Date: 10/6/2023

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.



Richard Sibley
Laboratory Manager
Technical Representative

SAMPLE SUMMARY

Sample ID	Customer ID	Collection Date/Time	Receipt Date
300421282	RAW	9/26/2023 1000	9/27/23
300421283	FB - RAW	9/26/2023 1000	9/27/23
300421284	FINISHED	9/26/2023 1000	9/27/23
300421285	FB - FINISHED	9/26/2023 1000	9/27/23

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 or EPA537.1.

Method EPA537 or EPA537.1 Analyte Results, MDL and RL are adjusted to reflect the actual Final (mL) volume used.

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-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 ID: 300421282

Customer ID: RAW

Collection Date: 09/26/2023 10:00

PWS ID# / LOC ID#: RAW

Project: FEE-RANDOLPHHOLBROOK-23-000012

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.50	0.95	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFHxA	307-24-4	4.49	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFHpA	375-85-9	2.47	0.70	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFHxS	355-46-4	2.46	0.83	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFOA	335-67-1	5.66	0.76	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFOS	1763-23-1	10.43	1.01	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFNA	375-95-1	1.30	0.72	2.0	ng/L	1.0	J	EPA537.1	10/5/23 0259	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0259	CSS
PFAS6 (MassDEP)		21.02	2.00	2.0	ng/L	1.0				
Surrogates		Results		Recovery Limits		Pass/Fail				
13C-PFHxA (SUR) % Recovery		94.70		70 - 130		Pass				
13C3-HFPO-DA (SUR) % Recovery		107.10		70 - 130		Pass				
13C-PFDA (SUR) % Recovery		99.70		70 - 130		Pass				
d5-NEtFOSAA (SUR) % Recovery		79.00		70 - 130		Pass				

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300421282	PFAS_537	537_EXT-231002-1	250	10/02/2023

Sample ID: 300421283

Customer ID: FB - RAW

Collection Date: 09/26/2023 10:00

PWS ID# / LOC ID#: FB - RAW

Project: FEE-RANDOLPHHOLBROOK-23-000012

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	10/5/23 0313	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0313	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				
Surrogates			Results		Recovery Limits		Pass/Fail			
13C-PFHxA (SUR) % Recovery			94.70		70 - 130		Pass			
13C3-HFPO-DA (SUR) % Recovery			98.30		70 - 130		Pass			
13C-PFDA (SUR) % Recovery			88.90		70 - 130		Pass			
d5-NEtFOSAA (SUR) % Recovery			77.70		70 - 130		Pass			

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300421283	PFAS_537	537_EXT-231002-1	250	10/02/2023

Sample ID: 300421284

Customer ID: FINISHED

Collection Date: 09/26/2023 10:00

PWS ID# / LOC ID#: 4244001 / 10296

Project: FEE-RANDOLPHHOLBROOK-23-000012

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.87	0.95	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFHxA	307-24-4	4.02	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFHpA	375-85-9	2.26	0.70	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFHxS	355-46-4	2.85	0.83	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFOA	335-67-1	5.99	0.76	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFOS	1763-23-1	8.98	1.01	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFNA	375-95-1	1.22	0.72	2.0	ng/L	1.0	J	EPA537.1	10/5/23 0328	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFTTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0328	CSS
PFAS6 (MassDEP)		20.08	2.00	2.0	ng/L	1.0				
Surrogates					Results		Recovery Limits		Pass/Fail	
13C-PFHxA (SUR) % Recovery					94.90		70 - 130		Pass	
13C3-HFPO-DA (SUR) % Recovery					111.70		70 - 130		Pass	
13C-PFDA (SUR) % Recovery					92.90		70 - 130		Pass	
d5-NEtFOSAA (SUR) % Recovery					73.10		70 - 130		Pass	

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300421284	PFAS_537	537_EXT-231002-1	250	10/02/2023

Sample ID: 300421285

Customer ID: FB - FINISHED

Collection Date: 09/26/2023 10:00

PWS ID# / LOC ID#: FB - FINISHED

Project: FEE-RANDOLPHHOLBROOK-23-000012

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	10/5/23 0412	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
9CI-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
11CI-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	10/5/23 0412	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				
Surrogates			Results		Recovery Limits		Pass/Fail			
13C-PFHxA (SUR) % Recovery			94.40		70 - 130		Pass			
13C3-HFPO-DA (SUR) % Recovery			102.00		70 - 130		Pass			
13C-PFDA (SUR) % Recovery			87.10		70 - 130		Pass			
d5-NEtFOSAA (SUR) % Recovery			76.90		70 - 130		Pass			

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300421285	PFAS_537	537_EXT-231002-1	250	10/02/2023

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: 10/2/2023

Sample ID for LFSM/LFSMD: 300421284

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	87.7	103.7	14.3	ND	[Y]	104.5
PFHxA	84.6	99.1	13.0	ND	[Y]	104.8
HFPO-DA	112.7	125.1	10.3	ND	[Y]	110.1
PFHpA	89.1	101.4	11.5	ND	[Y]	105.5
PFHxS	87.7	105.6	15.9	ND	[Y]	103.4
ADONA	92.1	106.4	14.5	ND	[Y]	107.4
PFOA	83.7	98.3	12.1	ND	[Y]	103.7
PFOS	83.4	96.8	9.7	ND	[Y]	101.7
PFNA	87.2	100.5	13.4	ND	[Y]	101.7
9Cl-PF3ONS	84.4	94.5	11.3	ND	[Y]	102.1
PFDA	83.5	96.2	13.9	ND	[Y]	97.9
PFUnA	81.0	93.3	14.1	ND	[Y]	102.5
11Cl-PF3OUdS	83.9	86.4	2.9	ND	[Y]	100.9
NMeFOSAA	77.0	79.5	3.1	ND	[Y]	91.6
NEtFOSAA	75.2	83.0	9.7	ND	[Y]	94.7
PFDoA	83.5	93.5	11.3	ND	[Y]	100.7
PFTTrDA	79.6	89.2	11.3	ND	[Y]	96.8
PFTA	79.3	90.1	12.7	ND	[Y]	98.4

Surrogate %Recovery

¹³ C ₂ -PFHxA	¹³ C ₃ -HFPO-DA	¹³ C ₂ -PFDA	^d ₅ -NEtFOSAA	
85.80	103.00	88.70	71.20	LFSM
93.20	113.60	93.90	75.90	LFSMD
94.90	100.10	88.70	80.90	LRB
99.90	100.30	93.10	85.20	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 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