Regional Water Authority

90 Sargent Drive ● New Haven, Connecticut 06511-5966
203-401-6743 or 877-894-5773 (Telephone) ● Website: www.rwater.com

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-23-000015

Report Date: 12/18/2023

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

Regional Water Authority
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SAMPLE SUMMARY

Sample ID	Customer ID	Collection Date/Time	Receipt Date
300456640	Raw	12/6/2023 1400	12/7/23
300456641	Field Blank - Raw	12/6/2023 1400	12/7/23
300456642	Finished	12/6/2023 1400	12/7/23
300456643	Field Blank - Finished	12/6/2023 1400	12/7/23

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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 (Acronymn)
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.

Regional Water Authority

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203-401-6743 or 877-894-5773 (Telephone) • Website: www.rwater.com

Sample ID: 300456640

Collection Date: 12/06/2023 14:00

Customer ID: Raw

PWS ID# / LOC ID#: Raw

Project: FEE-RANDOLPHHOLBROOK-23-000015

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.24	0.95	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFHxA	307-24-4	3.07	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFHpA	375-85-9	1.96	0.70	2.0	ng/L	1.0	J	EPA537.1	12/13/23 2253	CSS
PFHxS	355-46-4	1.90	0.83	2.0	ng/L	1.0	J	EPA537.1	12/13/23 2253	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFOA	335-67-1	4.83	0.76	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFOS	1763-23-1	8.26	1.01	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFNA	375-95-1	1.21	0.72	2.0	ng/L	1.0	J	EPA537.1	12/13/23 2253	CSS
9Cl-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2253	CSS
PFAS6 (MassDEP)		13.09	2.00	2.0	ng/L	1.0				

Surrogates	Results	Recovery Limits	Pass/Fail
13C-PFHxA (SUR) % Recovery	89.40	70 - 130	Pass
13C3-HFPO-DA (SUR) % Recovery	87.30	70 - 130	Pass
13C-PFDA (SUR) % Recovery	92.80	70 - 130	Pass
d5-NEtFOSAA (SUR) % Recovery	85.10	70 - 130	Pass

Sample Extraction Data:

Lab Number (Field ID)	Prep Method	Batch	Final (mL)	Date
300456640	PFAS_537	537_EXT-231211-1	250	12/11/2023

Regional Water Authority

90 Sargent Drive • New Haven, Connecticut 06511-5966

203-401-6743 or 877-894-5773 (Telephone) • Website: www.rwater.com

Sample ID: 300456641

Collection Date: 12/06/2023 14:00

Customer ID: Field Blank - Raw

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

Project: FEE-RANDOLPHHOLBROOK-23-000015

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	12/13/23 2308	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
9Cl-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2308	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				

Surrogates	Results	Recovery Limits	Pass/Fail
13C-PFHxA (SUR) % Recovery	98.90	70 - 130	Pass
13C3-HFPO-DA (SUR) % Recovery	98.70	70 - 130	Pass
13C-PFDA (SUR) % Recovery	88.80	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
300456641	PFAS_537	537_EXT-231211-1	250	12/11/2023

Regional Water Authority

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203-401-6743 or 877-894-5773 (Telephone) • Website: www.rwater.com

Sample ID: 300456642

Collection Date: 12/06/2023 14:00

Customer ID: Finished

PWS ID# / LOC ID#: 4244001/10296

Project: FEE-RANDOLPHHOLBROOK-23-000015

Analyte	CAS#	Results	MDL	RL	Units	Dilution	Qualifier	Method	Date Time/ Analyzed	Analyst
PFBS	375-73-5	2.23	0.95	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFHxA	307-24-4	3.09	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFHpA	375-85-9	1.94	0.70	2.0	ng/L	1.0	J	EPA537.1	12/13/23 2322	CSS
PFHxS	355-46-4	2.38	0.83	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFOA	335-67-1	4.52	0.76	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFOS	1763-23-1	7.69	1.01	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFNA	375-95-1	1.00	0.72	2.0	ng/L	1.0	J	EPA537.1	12/13/23 2322	CSS
9Cl-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2322	CSS
PFAS6 (MassDEP)		14.59	2.00	2.0	ng/L	1.0				

Surrogates	Results	Recovery Limits	Pass/Fail
13C-PFHxA (SUR) % Recovery	89.00	70 - 130	Pass
13C3-HFPO-DA (SUR) % Recovery	87.50	70 - 130	Pass
13C-PFDA (SUR) % Recovery	86.90	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
300456642	PFAS_537	537_EXT-231211-1	250	12/11/2023

Regional Water Authority

90 Sargent Drive • New Haven, Connecticut 06511-5966

203-401-6743 or 877-894-5773 (Telephone) • Website: www.rwater.com

Sample ID: 300456643

Collection Date: 12/06/2023 14:00

Customer ID: Field Blank - Finished

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

Project: FEE-RANDOLPHHOLBROOK-23-000015

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	12/13/23 2337	CSS
PFHxA	307-24-4	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
HFPO-DA	13252-13-6	ND	1.14	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFHpA	375-85-9	ND	0.70	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFHxS	355-46-4	ND	0.83	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
ADONA	919005-14-4	ND	0.63	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFOA	335-67-1	ND	0.76	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFOS	1763-23-1	ND	1.01	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFNA	375-95-1	ND	0.72	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
9Cl-PF3ONS	756426-58-1	ND	0.84	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFDA	335-76-2	ND	0.75	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFUnA	2058-94-8	ND	0.94	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
NMeFOSAA	2355-31-9	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
NEtFOSAA	2991-50-6	ND	1.15	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFDoA	307-55-1	ND	0.90	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFTrDA	72629-94-8	ND	0.93	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFTA	376-06-7	ND	1.04	2.0	ng/L	1.0		EPA537.1	12/13/23 2337	CSS
PFAS6 (MassDEP)		ND	2.00	2.0	ng/L	1.0				

Surrogates	Results	Recovery Limits	Pass/Fail
13C-PFHxA (SUR) % Recovery	93.80	70 - 130	Pass
13C3-HFPO-DA (SUR) % Recovery	92.70	70 - 130	Pass
13C-PFDA (SUR) % Recovery	82.90	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
300456643	PFAS_537	537_EXT-231211-1	250	12/11/2023

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

Chain of Custody Form

Company Name	Company Address
RANDOLPH/HOLBROOK JOINT WATER	275 POND ST. RANDOLPH, MA 02368
Sampler	**PO Number**
PAUL HENNESSY	

Test Requested, Container, & Preservative

State Sample Collected: CT__ NY___ Other(specify)__

Evidence of Cooling (Circle): Y or N
Cooler Temp °C: 0.5
Container & Preservative Meet Criteria (Circle): Yes No
LOT # ~~SLGN1650~~ SLCP5873
LOT # ~~SLGN1665~~ SLCQ3831

RWA LIMS Number	Date Collected	Time Collected	Sample ID / Sample Location	Number of Bottles	PFAS 250mL Plastic w/Tris HydroChloride & Tris (Hydroxymethyl) Aminomethane	PFAS Poured Field Blank 250mL Plastic w/Tris HydroChloride & Tris (Hydroxymethyl) Aminomethane	Field Blank #				
30045664O	12/6/23	2PM	① RAW	5	4	1	30045664I				NOT FOR COMPLIANCE
642	12/6/23	2PM	② FINISHED	5	4	1			643		MA DEP COMPLIANCE

Relinquished By (Signature):	Relinquished by (Signature):	Comments:
PAUL HENNESSY	Fed Ex	PFAS 14
Date & Time: 12/6/23 2:15PM	Date & Time:	
Received By (Signature):	Received By (Signature):	
Date & Time:	Date & Time: 12/7/23 1050	Fee-Randolfholbrook-23-000015

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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: 12/11/2023 **Sample ID for LFSM/LFSMD:** 300456657

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	85.8	101.9	16.9	ND	[Y]	98.5
PFHxA	56.6	152.6	18.4	ND	[Y]	92.2
HFPO-DA	90.5	92.2	1.8	ND	[Y]	106.1
PFHpA	82.7	105.8	18.4	ND	[Y]	91.8
PFHxS	90.7	108.3	17.6	ND	[Y]	103.8
ADONA	84.1	101.7	19.0	ND	[Y]	90.5
PFOA	81.0	95.7	16.5	ND	[Y]	91.9
PFOS	81.1	104.2	24.9	ND	[Y]	96.5
PFNA	84.2	102.5	19.6	ND	[Y]	95.1
9Cl-PF3ONS	83.3	98.5	16.7	ND	[Y]	96.0
PFDA	81.1	94.7	15.2	ND	[Y]	93.3
PFUnA	77.0	91.4	17.1	ND	[Y]	87.7
11Cl-PF3OUdS	75.2	94.1	22.3	ND	[Y]	91.6
NMeFOSAA	73.5	86.2	15.8	ND	[Y]	87.5
NEtFOSAA	75.8	79.3	4.5	ND	[Y]	84.1
PFDoA	73.5	86.5	16.2	ND	[Y]	82.4
PFTrDA	72.9	85.2	15.5	ND	[Y]	82.5
PFTA	79.6	90.8	13.0	ND	[Y]	85.0

Surrogate %Recovery

$^{13}C_2$-PFHxA	$^{13}C_3$-HFPO-DA	$^{13}C_2$-PFDA	$^{d}_5$-NEtFOSAA	
81.20	79.40	73.50	72.00	LFSM
94.50	93.60	85.80	80.90	LFSMD
107.90	106.10	98.60	96.80	LRB
90.20	87.10	84.40	76.00	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 the compound PFHxA, while the LFSMD percent recovery fails high for this compound. The RPD passes criteria. Both LFSM and LFSMD pass all IS and SUR criteria. The other client's sample results were commented as suspect/matrix for PFHxA.

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