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*Automated Report*

## Technical Report for

**AECOM, INC.**

**N6274223F0104 RH Fire Suppression System**

**60697810**

**SGS Job Number: FC11062**

**Sampling Date: 11/07/23**



### Report to:

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**Denver, CO 80237**  
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**Total number of pages in report: 47**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

**Norm Farmer**  
**Technical Director**

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Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001)  
DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177),  
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Test results relate only to samples analyzed.

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### Sample Summary

AECOM, INC.

Job No: FC11062

N6274223F0104 RH Fire Suppression System  
Project No: 60697810

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FC11062-1	11/07/23	10:00 CL	11/08/23	AQ	Ground Water	AF-HDMW225303-WGN01LF-2311
FC11062-2	11/07/23	10:00 MD	11/08/23	AQ	Ground Water	AF-RHMW04-WGN01LF-2311
FC11062-3	11/07/23	12:40 MD	11/08/23	AQ	Ground Water	AF-RHMW06-WGN01LF-2311
FC11062-4	11/07/23	11:40 CL	11/08/23	AQ	Ground Water	AF-RHMW225401-WGN01B-2311
FC11062-5	11/07/23	11:50 MYJV	11/08/23	AQ	Ground Water	AF-RHMW02-WGN01LF-2311
FC11062-6	11/07/23	11:50 MYJV	11/08/23	AQ	Ground Water	AF-RHMW02-WGFD01LF-2311

# SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FC11062

**Site:** N6274223F0104 RH Fire Suppression System

**Report Date:** 11/14/2023 4:43:12

On 11/08/2023, 6 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 5.2 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC11062 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

## MS Semi-volatiles By Method EPA DRAFT 1633

**Matrix:** AQ

**Batch ID:** OP99997

Sample(s) FC11062-2MS, FC11062-3DUP were used as the QC samples indicated.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

\_\_\_\_\_  
Kim Benham, Client Services (*Signature on File*)

## Summary of Hits

**Job Number:** FC11062  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 11/07/23



Lab Sample ID	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
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FC11062-1 AF-HDMW225303-WGN01LF-2311

No hits reported in this sample.

FC11062-2 AF-RHMW04-WGN01LF-2311

No hits reported in this sample.

FC11062-3 AF-RHMW06-WGN01LF-2311

No hits reported in this sample.

FC11062-4 AF-RHMW225401-WGN01B-2311

Perfluoropentanoic acid	0.94 J	8.0	2.0	ng/l	EPA DRAFT 1633
Perfluorohexanoic acid	0.83 J	4.0	2.0	ng/l	EPA DRAFT 1633
Perfluoroheptanoic acid	0.61 J	4.0	2.0	ng/l	EPA DRAFT 1633
Perfluorooctanoic acid	1.2 J	4.0	1.0	ng/l	EPA DRAFT 1633
Perfluorobutanesulfonic acid	0.59 J	4.0	2.0	ng/l	EPA DRAFT 1633
Perfluorohexanesulfonic acid	0.81 J	4.0	2.0	ng/l	EPA DRAFT 1633
Perfluorooctanesulfonic acid	1.1 J	4.0	2.0	ng/l	EPA DRAFT 1633

FC11062-5 AF-RHMW02-WGN01LF-2311

No hits reported in this sample.

FC11062-6 AF-RHMW02-WGFD01LF-2311

Perfluorooctanesulfonic acid	1.1 J	3.6	1.8	ng/l	EPA DRAFT 1633
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**Sample Results**

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**Report of Analysis**

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# Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2311		
Lab Sample ID:	FC11062-1	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53748.D	1	11/13/23 20:10	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.1  
4

# Report of Analysis

Client Sample ID:	AF-HDMW225303-WGN01LF-2311	
Lab Sample ID:	FC11062-1	Date Sampled: 11/07/23
Matrix:	AQ - Ground Water	Date Received: 11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	113%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	112%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	112%		20-150%
	13C6-PFDA	109%		20-150%
	13C7-PFUnDA	107%		20-150%
	13C2-PFDoDA	95%		20-150%
	13C2-PFTeDA	86%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	111%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



## Report of Analysis

<b>Client Sample ID:</b>	AF-HDMW225303-WGN01LF-2311	
<b>Lab Sample ID:</b>	FC11062-1	<b>Date Sampled:</b> 11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		20-150%
	13C8-FOSA	81%		20-150%
	d3-MeFOSA	82%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	97%		20-150%
	d5-EtFOSAA	92%		20-150%
	d7-MeFOSE	79%		20-150%
	d9-EtFOSE	88%		20-150%
	13C2-4:2FTS	93%		20-180%
	13C2-6:2FTS	91%		20-180%
	13C2-8:2FTS	95%		20-180%
	13C3-HFPO-DA	109%		20-150%

U = Not detected

LOD = Limit of Detection

J = Indicates an estimated value

LOQ = Limit of Quantitation

DL = Detection Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2311		
Lab Sample ID:	FC11062-2	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53749.D	1	11/13/23 20:25	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	520 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.7	1.9	0.90	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
335-67-1	Perfluorooctanoic acid	0.96 U	3.8	0.96	0.48	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.59	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.81	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.48	ng/l	

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.8	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.67	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.48	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.52	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.55	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.62	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.8	3.8	1.1	ng/l	

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.1	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.7 U	19	7.7	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.7 U	19	7.7	4.0	ng/l	

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	1.9 U	3.8	1.9	0.64	ng/l	
31506-32-8	MeFOSA	3.8 U	7.7	3.8	0.96	ng/l	
4151-50-2	EtFOSA	3.8 U	7.7	3.8	0.96	ng/l	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.2  
4

# Report of Analysis

Client Sample ID:	AF-RHMW04-WGN01LF-2311	
Lab Sample ID:	FC11062-2	Date Sampled: 11/07/23
Matrix:	AQ - Ground Water	Date Received: 11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.8 U	4.8	3.8	0.96	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.8	3.8	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	19 U	38	19	4.2	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.1	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.96	ng/l	
919005-14-4	ADONA	3.8 U	7.7	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.7	1.9	0.96	ng/l	
863090-89-5	PFMBA	3.8 U	7.7	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.7	3.8	1.2	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.7	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.7	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.7	1.9	0.75	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.6 U	19	9.6	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	96	19	8.4	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	96	19	7.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	106%		20-150%
	13C5-PFPeA	115%		20-150%
	13C5-PFHxA	113%		20-150%
	13C4-PFHpA	115%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	111%		20-150%
	13C6-PFDA	114%		20-150%
	13C7-PFUnDA	116%		20-150%
	13C2-PFDoDA	105%		20-150%
	13C2-PFTeDA	92%		20-150%
	13C3-PFBS	113%		20-150%
	13C3-PFHxS	110%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW04-WGN01LF-2311	
<b>Lab Sample ID:</b>	FC11062-2	<b>Date Sampled:</b> 11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	87%		20-150%
	d3-MeFOSA	80%		20-150%
	d5-EtFOSA	95%		20-150%
	d3-MeFOSAA	100%		20-150%
	d5-EtFOSAA	93%		20-150%
	d7-MeFOSE	80%		20-150%
	d9-EtFOSE	86%		20-150%
	13C2-4:2FTS	86%		20-180%
	13C2-6:2FTS	87%		20-180%
	13C2-8:2FTS	92%		20-180%
	13C3-HFPO-DA	113%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2311	
Lab Sample ID:	FC11062-3	Date Sampled: 11/07/23
Matrix:	AQ - Ground Water	Date Received: 11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53751.D	1	11/13/23 20:54	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	530 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	3.8 U	15	3.8	1.8	ng/l	
2706-90-3	Perfluoropentanoic acid	1.9 U	7.5	1.9	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
375-85-9	Perfluoroheptanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
335-67-1	Perfluorooctanoic acid	0.94 U	3.8	0.94	0.47	ng/l	
375-95-1	Perfluorononanoic acid	1.9 U	3.8	1.9	0.58	ng/l	
335-76-2	Perfluorodecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
307-55-1	Perfluorododecanoic acid	1.9 U	3.8	1.9	0.57	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.8	1.9	0.79	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.8	1.9	0.47	ng/l	

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.8 U	4.7	3.8	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.8	1.9	0.66	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.8	1.9	0.47	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.8	1.9	0.51	ng/l	
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.8	1.9	0.54	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.8	1.9	0.60	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.8 U	4.7	3.8	1.1	ng/l	

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.0	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.3	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.5 U	19	7.5	3.9	ng/l	

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	1.9 U	3.8	1.9	0.63	ng/l	
31506-32-8	MeFOSA	3.8 U	7.5	3.8	0.94	ng/l	
4151-50-2	EtFOSA	3.8 U	7.5	3.8	0.94	ng/l	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.3  
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# Report of Analysis

Client Sample ID:	AF-RHMW06-WGN01LF-2311	
Lab Sample ID:	FC11062-3	Date Sampled: 11/07/23
Matrix:	AQ - Ground Water	Date Received: 11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.8 U	4.7	3.8	0.94	ng/l	
2991-50-6	EtFOSAA	3.8 U	4.7	3.8	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	19 U	38	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	38	19	7.0	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.9 U	3.8	1.9	0.94	ng/l	
919005-14-4	ADONA	3.8 U	7.5	3.8	1.8	ng/l	
377-73-1	PFMPA	1.9 U	7.5	1.9	0.94	ng/l	
863090-89-5	PFMBA	3.8 U	7.5	3.8	1.1	ng/l	
151772-58-6	NFDHA	3.8 U	7.5	3.8	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.8 U	7.5	3.8	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.8 U	7.5	3.8	1.7	ng/l	
113507-82-7	PFEESA	1.9 U	7.5	1.9	0.74	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.4 U	19	9.4	4.3	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	94	19	8.2	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	94	19	7.4	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	108%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	109%		20-150%
	13C4-PFHpA	111%		20-150%
	13C8-PFOA	113%		20-150%
	13C9-PFNA	116%		20-150%
	13C6-PFDA	102%		20-150%
	13C7-PFUnDA	107%		20-150%
	13C2-PFDoDA	92%		20-150%
	13C2-PFTeDA	80%		20-150%
	13C3-PFBS	112%		20-150%
	13C3-PFHxS	105%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW06-WGN01LF-2311	
<b>Lab Sample ID:</b>	FC11062-3	<b>Date Sampled:</b> 11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		20-150%
	13C8-FOSA	83%		20-150%
	d3-MeFOSA	80%		20-150%
	d5-EtFOSA	90%		20-150%
	d3-MeFOSAA	94%		20-150%
	d5-EtFOSAA	87%		20-150%
	d7-MeFOSE	75%		20-150%
	d9-EtFOSE	83%		20-150%
	13C2-4:2FTS	85%		20-180%
	13C2-6:2FTS	93%		20-180%
	13C2-8:2FTS	89%		20-180%
	13C3-HFPO-DA	109%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2311		
Lab Sample ID:	FC11062-4	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53753.D	1	11/13/23 21:24	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	500 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	4.0 U	16	4.0	1.9	ng/l	
2706-90-3	Perfluoropentanoic acid	0.94	8.0	2.0	0.94	ng/l	J
307-24-4	Perfluorohexanoic acid	0.83	4.0	2.0	0.50	ng/l	J
375-85-9	Perfluoroheptanoic acid	0.61	4.0	2.0	0.50	ng/l	J
335-67-1	Perfluorooctanoic acid	1.2	4.0	1.0	0.50	ng/l	J
375-95-1	Perfluorononanoic acid	2.0 U	4.0	2.0	0.61	ng/l	
335-76-2	Perfluorodecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	
2058-94-8	Perfluoroundecanoic acid	2.0 U	4.0	2.0	0.60	ng/l	
307-55-1	Perfluorododecanoic acid	2.0 U	4.0	2.0	0.60	ng/l	
72629-94-8	Perfluorotridecanoic acid	2.0 U	4.0	2.0	0.84	ng/l	
376-06-7	Perfluorotetradecanoic acid	2.0 U	4.0	2.0	0.50	ng/l	

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	0.59	4.0	2.0	0.50	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	4.0 U	5.0	4.0	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	0.81	4.0	2.0	0.70	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	2.0 U	4.0	2.0	0.50	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.1	4.0	2.0	0.54	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	2.0 U	4.0	2.0	0.57	ng/l	
335-77-3	Perfluorodecanesulfonic acid	2.0 U	4.0	2.0	0.64	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	4.0 U	5.0	4.0	1.1	ng/l	

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	8.0 U	20	8.0	3.2	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	8.0 U	20	8.0	3.5	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	8.0 U	20	8.0	4.1	ng/l	

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	2.0 U	4.0	2.0	0.67	ng/l	
31506-32-8	MeFOSA	4.0 U	8.0	4.0	1.0	ng/l	
4151-50-2	EtFOSA	4.0 U	8.0	4.0	1.0	ng/l	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.4  
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# Report of Analysis

Client Sample ID:	AF-RHMW225401-WGN01B-2311		
Lab Sample ID:	FC11062-4	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	4.0 U	5.0	4.0	1.0	ng/l	
2991-50-6	EtFOSAA	4.0 U	5.0	4.0	1.3	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	20 U	40	20	4.4	ng/l	
1691-99-2	EtFOSE	20 U	40	20	7.4	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	2.0 U	4.0	2.0	1.0	ng/l	
919005-14-4	ADONA	4.0 U	8.0	4.0	1.9	ng/l	
377-73-1	PFMPA	2.0 U	8.0	2.0	1.0	ng/l	
863090-89-5	PFMBA	4.0 U	8.0	4.0	1.1	ng/l	
151772-58-6	NFDHA	4.0 U	8.0	4.0	1.2	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	4.0 U	8.0	4.0	1.4	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.0 U	8.0	4.0	1.8	ng/l	
113507-82-7	PFEESA	2.0 U	8.0	2.0	0.78	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	10 U	20	10	4.5	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	20 U	100	20	8.7	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	20 U	100	20	7.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	108%		20-150%
	13C5-PFPeA	110%		20-150%
	13C5-PFHxA	103%		20-150%
	13C4-PFHpA	108%		20-150%
	13C8-PFOA	101%		20-150%
	13C9-PFNA	114%		20-150%
	13C6-PFDA	103%		20-150%
	13C7-PFUnDA	108%		20-150%
	13C2-PFDoDA	91%		20-150%
	13C2-PFTeDA	82%		20-150%
	13C3-PFBS	117%		20-150%
	13C3-PFHxS	117%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW225401-WGN01B-2311	
<b>Lab Sample ID:</b>	FC11062-4	<b>Date Sampled:</b> 11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	104%		20-150%
	13C8-FOSA	98%		20-150%
	d3-MeFOSA	91%		20-150%
	d5-EtFOSA	99%		20-150%
	d3-MeFOSAA	114%		20-150%
	d5-EtFOSAA	95%		20-150%
	d7-MeFOSE	93%		20-150%
	d9-EtFOSE	96%		20-150%
	13C2-4:2FTS	100%		20-180%
	13C2-6:2FTS	104%		20-180%
	13C2-8:2FTS	97%		20-180%
	13C3-HFPO-DA	108%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2311		
Lab Sample ID:	FC11062-5	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53756.D	1	11/13/23 22:08	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	540 ml	5.0 ml
Run #2		

CAS No. Compound Result LOQ LOD DL Units Q

**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	3.7 U	15	3.7	1.8	ng/l
2706-90-3	Perfluoropentanoic acid	1.9 U	7.4	1.9	0.87	ng/l
307-24-4	Perfluorohexanoic acid	1.9 U	3.7	1.9	0.46	ng/l
375-85-9	Perfluoroheptanoic acid	1.9 U	3.7	1.9	0.46	ng/l
335-67-1	Perfluorooctanoic acid	0.93 U	3.7	0.93	0.46	ng/l
375-95-1	Perfluorononanoic acid	1.9 U	3.7	1.9	0.56	ng/l
335-76-2	Perfluorodecanoic acid	1.9 U	3.7	1.9	0.46	ng/l
2058-94-8	Perfluoroundecanoic acid	1.9 U	3.7	1.9	0.56	ng/l
307-55-1	Perfluorododecanoic acid	1.9 U	3.7	1.9	0.56	ng/l
72629-94-8	Perfluorotridecanoic acid	1.9 U	3.7	1.9	0.78	ng/l
376-06-7	Perfluorotetradecanoic acid	1.9 U	3.7	1.9	0.46	ng/l

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l
2706-91-4	Perfluoropentanesulfonic acid	3.7 U	4.6	3.7	1.0	ng/l
355-46-4	Perfluorohexanesulfonic acid	1.9 U	3.7	1.9	0.65	ng/l
375-92-8	Perfluoroheptanesulfonic acid	1.9 U	3.7	1.9	0.46	ng/l
1763-23-1	Perfluorooctanesulfonic acid	1.9 U	3.7	1.9	0.50	ng/l
68259-12-1	Perfluorononanesulfonic acid	1.9 U	3.7	1.9	0.53	ng/l
335-77-3	Perfluorodecanesulfonic acid	1.9 U	3.7	1.9	0.59	ng/l
79780-39-5	Perfluorododecanesulfonic aci	3.7 U	4.6	3.7	1.1	ng/l

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.0	ng/l
27619-97-2	6:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.2	ng/l
39108-34-4	8:2 Fluorotelomer sulfonate	7.4 U	19	7.4	3.8	ng/l

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	1.9 U	3.7	1.9	0.62	ng/l
31506-32-8	MeFOSA	3.7 U	7.4	3.7	0.93	ng/l
4151-50-2	EtFOSA	3.7 U	7.4	3.7	0.93	ng/l

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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# Report of Analysis

Client Sample ID:	AF-RHMW02-WGN01LF-2311	
Lab Sample ID:	FC11062-5	Date Sampled: 11/07/23
Matrix:	AQ - Ground Water	Date Received: 11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids: n/a
Project:	N6274223F0104 RH Fire Suppression System	

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.7 U	4.6	3.7	0.93	ng/l	
2991-50-6	EtFOSAA	3.7 U	4.6	3.7	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	19 U	37	19	4.1	ng/l	
1691-99-2	EtFOSE	19 U	37	19	6.9	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.9 U	3.7	1.9	0.93	ng/l	
919005-14-4	ADONA	3.7 U	7.4	3.7	1.7	ng/l	
377-73-1	PFMPA	1.9 U	7.4	1.9	0.93	ng/l	
863090-89-5	PFMBA	3.7 U	7.4	3.7	1.1	ng/l	
151772-58-6	NFDHA	3.7 U	7.4	3.7	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.7 U	7.4	3.7	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.7 U	7.4	3.7	1.6	ng/l	
113507-82-7	PFEESA	1.9 U	7.4	1.9	0.72	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.3 U	19	9.3	4.2	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	19 U	93	19	8.1	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	19 U	93	19	7.3	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	72%		20-150%
	13C5-PFPeA	93%		20-150%
	13C5-PFHxA	97%		20-150%
	13C4-PFHpA	102%		20-150%
	13C8-PFOA	99%		20-150%
	13C9-PFNA	99%		20-150%
	13C6-PFDA	93%		20-150%
	13C7-PFUnDA	98%		20-150%
	13C2-PFDoDA	80%		20-150%
	13C2-PFTeDA	71%		20-150%
	13C3-PFBS	101%		20-150%
	13C3-PFHxS	97%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

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## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW02-WGN01LF-2311	
<b>Lab Sample ID:</b>	FC11062-5	<b>Date Sampled:</b> 11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b> 11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b> n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	91%		20-150%
	13C8-FOSA	89%		20-150%
	d3-MeFOSA	72%		20-150%
	d5-EtFOSA	84%		20-150%
	d3-MeFOSAA	92%		20-150%
	d5-EtFOSAA	88%		20-150%
	d7-MeFOSE	79%		20-150%
	d9-EtFOSE	82%		20-150%
	13C2-4:2FTS	110%		20-180%
	13C2-6:2FTS	87%		20-180%
	13C2-8:2FTS	80%		20-180%
	13C3-HFPO-DA	84%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

# Report of Analysis

Client Sample ID:	AF-RHMW02-WGFD01LF-2311		
Lab Sample ID:	FC11062-6	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q53757.D	1	11/13/23 22:23	AL	11/09/23 08:40	OP99997	S4Q785
Run #2							

Run #	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROALKYL CARBOXYLIC ACIDS**

375-22-4	Perfluorobutanoic acid	3.6 U	15	3.6	1.7	ng/l	
2706-90-3	Perfluoropentanoic acid	1.8 U	7.3	1.8	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	0.91 U	3.6	0.91	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
335-76-2	Perfluorodecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	1.8 U	3.6	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.8 U	3.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	1.8 U	3.6	1.8	0.45	ng/l	

**PERFLUOROALKYL SULFONIC ACIDS**

375-73-5	Perfluorobutanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	3.6 U	4.5	3.6	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1.8 U	3.6	1.8	0.64	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	1.8 U	3.6	1.8	0.45	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	1.1	3.6	1.8	0.49	ng/l	J
68259-12-1	Perfluorononanesulfonic acid	1.8 U	3.6	1.8	0.52	ng/l	
335-77-3	Perfluorodecanesulfonic acid	1.8 U	3.6	1.8	0.58	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	3.6 U	4.5	3.6	1.0	ng/l	

**FLUOROTELOMER SULFONIC ACIDS**

757124-72-4	4:2 Fluorotelomer sulfonate	7.3 U	18	7.3	2.9	ng/l	
27619-97-2	6:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.2	ng/l	
39108-34-4	8:2 Fluorotelomer sulfonate	7.3 U	18	7.3	3.7	ng/l	

**PERFLUOROOCCTANE SULFONAMIDES**

754-91-6	PFOSA	1.8 U	3.6	1.8	0.61	ng/l	
31506-32-8	MeFOSA	3.6 U	7.3	3.6	0.91	ng/l	
4151-50-2	EtFOSA	3.6 U	7.3	3.6	0.91	ng/l	

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

4.6  
4

# Report of Analysis

Client Sample ID:	AF-RHMW02-WGFD01LF-2311		
Lab Sample ID:	FC11062-6	Date Sampled:	11/07/23
Matrix:	AQ - Ground Water	Date Received:	11/08/23
Method:	EPA DRAFT 1633 EPA 1633 DRAFT	Percent Solids:	n/a
Project:	N6274223F0104 RH Fire Suppression System		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
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**PERFLUOROOCCTANE SULFONAMIDOACETIC ACIDS**

2355-31-9	MeFOSAA	3.6 U	4.5	3.6	0.91	ng/l	
2991-50-6	EtFOSAA	3.6 U	4.5	3.6	1.2	ng/l	

**PERFLUOROOCCTANE SULFONAMIDO ETHANOLS**

24448-09-7	MeFOSE	18 U	36	18	4.0	ng/l	
1691-99-2	EtFOSE	18 U	36	18	6.7	ng/l	

**PER and POLYFLUOROETHER CARBOXYLIC ACIDS**

13252-13-6	HFPO-DA (GenX)	1.8 U	3.6	1.8	0.91	ng/l	
919005-14-4	ADONA	3.6 U	7.3	3.6	1.7	ng/l	
377-73-1	PFMPA	1.8 U	7.3	1.8	0.91	ng/l	
863090-89-5	PFMBA	3.6 U	7.3	3.6	1.0	ng/l	
151772-58-6	NFDHA	3.6 U	7.3	3.6	1.1	ng/l	

**PER and POLYFLUOROETHER SULFONIC ACIDS**

756426-58-1	9Cl-PF3ONS (F-53B Major)	3.6 U	7.3	3.6	1.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	3.6 U	7.3	3.6	1.6	ng/l	
113507-82-7	PFEESA	1.8 U	7.3	1.8	0.71	ng/l	

**FLUOROTELOMER CARBOXYLIC ACIDS**

356-02-5	3:3 Fluorotelomer carboxylate	9.1 U	18	9.1	4.1	ng/l	
914637-49-3	5:3 Fluorotelomer carboxylate	18 U	91	18	7.9	ng/l	
812-70-4	7:3 Fluorotelomer carboxylate	18 U	91	18	7.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
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	13C4-PFBA	81%		20-150%
	13C5-PFPeA	104%		20-150%
	13C5-PFHxA	108%		20-150%
	13C4-PFHpA	115%		20-150%
	13C8-PFOA	109%		20-150%
	13C9-PFNA	113%		20-150%
	13C6-PFDA	95%		20-150%
	13C7-PFUnDA	96%		20-150%
	13C2-PFDoDA	84%		20-150%
	13C2-PFTeDA	69%		20-150%
	13C3-PFBS	112%		20-150%
	13C3-PFHxS	115%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b>	AF-RHMW02-WGFD01LF-2311		
<b>Lab Sample ID:</b>	FC11062-6	<b>Date Sampled:</b>	11/07/23
<b>Matrix:</b>	AQ - Ground Water	<b>Date Received:</b>	11/08/23
<b>Method:</b>	EPA DRAFT 1633 EPA 1633 DRAFT	<b>Percent Solids:</b>	n/a
<b>Project:</b>	N6274223F0104 RH Fire Suppression System		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	111%		20-150%
	13C8-FOSA	99%		20-150%
	d3-MeFOSA	85%		20-150%
	d5-EtFOSA	92%		20-150%
	d3-MeFOSAA	109%		20-150%
	d5-EtFOSAA	96%		20-150%
	d7-MeFOSE	87%		20-150%
	d9-EtFOSE	91%		20-150%
	13C2-4:2FTS	129%		20-180%
	13C2-6:2FTS	94%		20-180%
	13C2-8:2FTS	96%		20-180%
	13C3-HFPO-DA	95%		20-150%

U = Not detected      LOD = Limit of Detection      J = Indicates an estimated value  
 LOQ = Limit of Quantitation      DL = Detection Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound



**Misc. Forms**

**Custody Documents and Other Forms**

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**Includes the following where applicable:**

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits



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Client / Reporting Information			Project Information			Analytical Information					Matrix Codes					
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System								DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe					
Address: 1001 Bishop St. ste 1600			Street													
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii													
Project Contact: Katie Abbott Email: katie.abbott@aecom.com Project Manager: Watson Tanji Email: watson.tanji@aecom.com Phone #: 303-796-4624 / 808-954-4512			Project # 23F0104 - 60697810 Fax #													
Sampler(s) Name(s) (Printed) Sampler 1: <i>Jorge V. Valdes</i> Sampler 2: <i>Claralyn Max Galtin</i>			Client Purchase Order # 151253													
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION								PFAS EPA Draft: 1633	LAB USE ONLY		
		DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HIGH	MECH	HNO3	HSO4			NaOH-ZnAc	DI WATER
1	AF-HDMW225303-WGN01LF-2311	11/07/23	1000	JV	GW	3		X								
Turnaround Time ( Business days)			Data Deliverable Information					Comments / Remarks								
10 Day (Business) Approved By: / Date: 7 Day <b>5 Day</b> 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S					EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW  <i>United AWB: D10-18547530</i>								
Rush T/A Data Available VIA Email or Lablink			Sample Custody must be documented below each time samples change possession, including courier delivery.													
Relinquished by Sampler/Affiliation 1 <i>Claralyn AECOM</i>	Date Time: <i>11/07/23 1200</i>	Received By/Affiliation 2 <i>Elie Shimatsu AECOM</i>	Relinquished By/Affiliation 3 <i>Elie Shimatsu AECOM</i>	Date Time: <i>11/12/23 1600</i>	Received By/Affiliation 4 <i>UC</i>											
Relinquished by/Affiliation 5 <i>UC</i>	Date Time:	Received By/Affiliation 6 <i>[Signature]</i>	Relinquished By/Affiliation 7 <i>[Signature]</i>	Date Time: <i>11/08/23 1430</i>	Received By/Affiliation 8											

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**FC11062**

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Staff #

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes		
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="position: relative; height: 100px;"> <span style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-size: 2em; opacity: 0.5;">WAD 11/7/23</span> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe		
Address: 1001 Bishop St. ste 1600			Street															
City: Honolulu		State: HI	Zip: 96813		City Honolulu												State Hawaii	
Project Contact: Katie Abbott		Email: katie.abbott@aecom.com		Project # 23F0104 - 60697810														
Project Manager: Watson Tanji		Email: watson.tanji@aecom.com		Fax #														
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order # 151253			PFAS EPA Draft: 1633												
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NOISE	HCl	PH	HNO3	H2SO4	NaOH-ZnAc	DIL WATER	MESH	LAB USE ONLY		
2	AF-RHMMW04-WGN01LF-2311	11/7/23	1000	WAD NAFS	GW	3		X										
Turnaround Time ( Business days)			Data Deliverable Information			Comments / Remarks												
10 Day (Business) _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink			Approved By: / Date: _____ <input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S			EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United ANB: 010-98547536												
Sample Custody must be documented below each time samples change possession, including courier delivery.																		
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation						
1 Miranda DeCarro/AECOM		11/7/23 1200		[Signature] AECOM		11/7/23 1400		3 [Signature] AECOM		11/7/23 1400		4 [Signature] UC						
5 [Signature] UC				6 [Signature] UC 11/08/23 1430				7 [Signature] UC				8 [Signature] UC						

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**FC11062**

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Client / Reporting Information			Project Information										Analytical Information										Matrix Codes																																														
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System										<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold;">PFAS EPA Draft: 1633</div> <div style="border: 1px solid black; padding: 20px; margin: 0 10px;"> <i>MD 11/7/23</i> </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe																																														
Address: 1001 Bishop St. ste 1600			Street																																																																		
City: Honolulu State: HI Zip: 96813			City Honolulu State Hawaii																																																																		
Project Contact: Katie Abbott Email: katie.abbott@aecom.com			Project # 23F0104 - 60697810																																																																		
Project Manager: Watson Tanji Email: watson.tanji@aecom.com			Fax #																																																																		
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order # 151253																																																																		
Sampler(s) Name(s) (Printed) Sampler 1: <i>MD, AL, FS</i> Sampler 2:																																																																					
SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION			CONTAINER INFORMATION										LAB USE ONLY																																																						
		DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NI(OH)	HI(OH)	HE(OH)	NI(OH)-ZINAC	DI WATER		MESH																																																					
3	AF-RHMW06-WGN01LF-2311	11/7/23	1240	MD,AL,FS	GW	3		X																																																													
		<i>MD 11/7/23</i>																																																																			
Turnaround Time ( Business days)										Data Deliverable Information										Comments / Remarks																																																	
10 Day (Business) _____ Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink										<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW  <i>United AWB: DLW-98547536</i>																																																	
Relinquished by Sampler/Affiliation										Sample Custody must be documented below each time samples change possession, including courier delivery.										Received By/Affiliation																																																	
1 <i>Miranda DeGarmo/AECOM</i>										Date Time: <i>11/7/23 1440</i>										2 <i>Ellie Shimatsu AECOM</i>										Date Time: <i>11/7/23 1600</i>										3 <i>Ellie Shimatsu AECOM</i>										Date Time: <i>11/7/23 1600</i>										4 <i>UC</i>									
5 <i>UC</i>										Date Time: _____										6 <i>UC</i>										Date Time: <i>11/08/23</i>										7 _____										Date Time: _____										8 _____									

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Client / Reporting Information			Project Information			Analytical Information										Matrix Codes		
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: small;">PFAS EPA Draft 1633</div> <div style="flex-grow: 1; border: 1px solid black; position: relative;"> <span style="position: absolute; top: 0; right: 0; font-size: 2em; font-weight: bold; color: blue;">FC11062</span> </div> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe		
Address: 1001 Bishop St. ste 1600			Street															
City: Honolulu		State: HI	Zip: 96813		City Honolulu												State Hawaii	
Project Contact: Katie Abbott		Email: katie.abbott@aecom.com	Project # 23FO104 - 60697810		Fax #													
Project Manager: Watson Tanji		Email: watson.tanji@aecom.com	Client Purchase Order # 151253		Sampler(s) Name(s) (Printed)													
Phone #: 303-796-4624 / 808-954-4512			Sampler 1: Clara Lim			Sampler 2: Jorge Villalobos												
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	CONTAINER INFORMATION										LAB USE ONLY				
				SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NOH	HNO3	H2SO4	NaOH-ZnAc		DI WATER	MESH		
4	AF-RHMW225401-WGN01B-2311	11/07/23	1140	CL	GW	3	X											
Turnaround Time ( Business days)			Data Deliverable Information										Comments / Remarks					
10 Day (Business) Approved By: / Date: _____ 7 Day _____ <input checked="" type="checkbox"/> 5 Day _____ 3 Day RUSH _____ 2 Day RUSH _____ 1 Day RUSH _____ Other _____ Rush T/A Data Available VIA Email or Lablink			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United AWB: 010-98547530					
Sample Custody must be documented below each time samples change possession, including courier delivery.																		
Relinquished by/Sampler/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		Relinquished By/Affiliation		Date Time:		Received By/Affiliation		
1 Clara Lim AECOM		11/07/23 1245		2 Ellie Shimatsu AECOM		3 Ellie Shimatsu AECOM		11/03/23 1400		4 UC		5 UC		6 11/08/23 1430		7		
5 UC				6		7		8		8								

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STAFF

Client / Reporting Information			Project Information			Analytical Information										Matrix Codes			
Company Name: AECOM			Project Name: N6274223F0104 RH Fire Suppression System			<div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Mx 11/7/23</p> </div>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address: 1001 Bishop St, ste 1600			Street																
City: Honolulu		State: HI	Zip: 96813		City: Honolulu												State: Hawaii		
Project Contact: Katie Abbott		Email: katie.abbott@aecom.com	Project # 23F0104 - 60697810																
Project Manager: Watson Tanji		Email: watson.tanji@aecom.com	Fax #																
Phone #: 303-796-4624 / 808-954-4512			Client Purchase Order # 151253			PFAS EPA Draft: 1633										LAB USE ONLY			
SGS Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCL	HNH3	HNO3	H2SO4	NH4OH-ZNAC	DI WATER	MESH				
5	AF-RHMW02-WGN01LF-2311	11/7/23	1150	MY/JV	GW	3		X								X			
6	AF-RHMW02-WGFD011 F-2311	11/7/23	1150	MY/JV	GW	3		X								X			
Mx 11/7/23																			
Turnaround Time ( Business days)			Data Deliverable Information										Comments / Remarks						
10 Day (Business) 7 Day <input checked="" type="checkbox"/> 5 Day 3 Day RUSH 2 Day RUSH 1 Day RUSH Other			Approved By: / Date:			<input type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) <input checked="" type="checkbox"/> FULLT1 (EPA LEVEL 4) <input checked="" type="checkbox"/> EDD'S										EDMS upload database: JBPHE EDMS Coverage: AFFF Assessment Sampling GW United ANB: D10 - 98547530			
Rush T/A Data Available VIA Email or Lablink																			
Sample Custody must be documented below each time samples change possession, including courier delivery.																			
Relinquished by Sampler/Affiliation		Date Time:		Received By/Affiliation		Date Time:		Relinquished By/Affiliation		Date Time:		Received By/Affiliation							
1 <i>Watson Tanji</i> / AECOM		11/7/23 1400		2 <i>[Signature]</i> / AECOM		11/7/23 1400		3 <i>[Signature]</i> / AECOM		11/7/23 1400		4 <i>[Signature]</i> / AECOM							
5 <i>[Signature]</i> / AECOM		Date Time:		6 <i>[Signature]</i> / AECOM		11/09/23 1430		7 <i>[Signature]</i> / AECOM		Date Time:		8 <i>[Signature]</i> / AECOM							

PFAS\_COCs\_ALL\_10022023.xls Rev 031318

FC11062: Chain of Custody

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**SGS Sample Receipt Summary**

**Job Number:** fc11062

**Client:** AECOM

**Project:** N6274223F0104 RH Fire Suppression Syst

**Date / Time Received:** 11/8/2023 2:30:00 PM

**Delivery Method:** United Cargo/Airspace

**Airbill #'s:** United Cargo AWB #: 016-98547536

**Cooler Temps (Raw Measured) °C:** Cooler 1: (4.8);

**Cooler Temps (Corrected) °C:** Cooler 1: (5.2);

**Cooler Informatio**

Y or N

- 1. Custody Seals Present:
- 2. Custody Seals Intact:
- 3. Temp criteria achieved:
- 4. Cooler temp verification: IR Gun
- 5. Cooler media: Ice (Bag)

**Trip Blank Information**

Y or N N/A

- 1. Trip Blank present / cooler:
- 2. Trip Blank listed on COC:

W or S N/A

- 3. Type of TB Received:

**Sample Information**

Y or N N/A

- 1. Sample labels present on bottles:
- 2. Samples presented properly:
- 3. Sufficient volume/containers recv'd for analysi:
- 4. Condition of sample: Intact
- 5. Sample recv'd within HT:
- 6. Dates/Times/IDs on COC match sample labe:
- 7. VOCs have headspace:
- 8. Bottles received for unspecified tests:
- 9. Compositing instructions clear:
- 10. Voa Soil Kits/Jars received past 48hrs?:
- 11. % Solids Jar Received?:
- 12. Residual Chlorine Present?:

**Misc Information**

Number of Encores: 25 Gram 5 Gram Number of Lab Filtered Metals  
 Test Strip Lot #: pH 0-3: 226422 pH 10-12: \_\_\_\_\_ Other: (Specify) pH 1.0 - 12.0 222221  
 Residual Chlorine Test Strip Lot: \_\_\_\_\_

Comments

SM001

Rev. Date 05/04/17

Technician: SHAYLAP

Date: 11/8/2023 2:30:00 PM

Reviewer: TW

Date: 11/08/2023

5.1  
5

# QC Evaluation: DOD QSM5.x Limits

**Job Number:** FC11062  
**Account:** AECOM, INC.  
**Project:** N6274223F0104 RH Fire Suppression System  
**Collected:** 11/07/23

QC Sample ID	CAS#	Analyte	Sample Result Type	Result Type	Units	Limits
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No DOD QSM5.x Limits found for methods in this job.

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\* Sample used for QC is not from job FC11062

5.2  
5



## MS Semi-volatiles

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### QC Data Summaries

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#### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

# Instrument Blank

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q785-IBLK	4Q53739.D	1	11/13/23	AL	n/a	n/a	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	0.0015	0.0080	0.0010	ug/l	J
4151-50-2	EtFOSA	0.0029	0.0080	0.0010	ug/l	J
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Instrument Blank

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q785-IBLK	4Q53739.D	1	11/13/23	AL	n/a	n/a	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	101% 20-150%
	13C5-PFPeA	101% 20-150%
	13C5-PFHxA	97% 20-150%
	13C4-PFHpA	102% 20-150%
	13C8-PFOA	102% 20-150%
	13C9-PFNA	92% 20-150%
	13C6-PFDA	102% 20-150%
	13C7-PFUnDA	106% 20-150%
	13C2-PFDoDA	101% 20-150%
	13C2-PFTeDA	96% 20-150%
	13C3-PFBS	108% 20-150%
	13C3-PFHxS	107% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	98% 20-150%
	d3-MeFOSAA	104% 20-150%
	d5-EtFOSAA	100% 20-150%
	13C2-4:2FTS	128% 20-180%
	13C2-6:2FTS	112% 20-180%
	13C2-8:2FTS	113% 20-180%

6.1.1  
6

# Continuing Calibration Blank

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q785-ICCB	4Q53755.D	1	11/13/23	AL	n/a	n/a	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Continuing Calibration Blank

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q785-ICCB	4Q53755.D	1	11/13/23	AL	n/a	n/a	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	100% 20-150%
	13C5-PFPeA	100% 20-150%
	13C5-PFHxA	99% 20-150%
	13C4-PFHpA	100% 20-150%
	13C8-PFOA	107% 20-150%
	13C9-PFNA	103% 20-150%
	13C6-PFDA	99% 20-150%
	13C7-PFUnDA	105% 20-150%
	13C2-PFDoDA	94% 20-150%
	13C2-PFTeDA	95% 20-150%
	13C3-PFBS	98% 20-150%
	13C3-PFHxS	101% 20-150%
	13C8-PFOS	105% 20-150%
	13C8-FOSA	100% 20-150%
	d3-MeFOSAA	108% 20-150%
	d5-EtFOSAA	101% 20-150%
	13C2-4:2FTS	87% 20-180%
	13C2-6:2FTS	90% 20-180%
	13C2-8:2FTS	84% 20-180%

# Method Blank Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-MB	4Q53746.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-44:2	Fluorotelomer sulfonate	ND	0.020	0.0032	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.020	0.0035	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-19	Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-91	Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

# Method Blank Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-MB	4Q53746.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3 Fluorotelomer carboxylate	ND	0.020	0.0045	ug/l	
914637-49-35:3	Fluorotelomer carboxylate	ND	0.10	0.0087	ug/l	
812-70-4	7:3 Fluorotelomer carboxylate	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries	Limits
	13C4-PFBA	109% 20-150%
	13C5-PFPeA	108% 20-150%
	13C5-PFHxA	106% 20-150%
	13C4-PFHpA	106% 20-150%
	13C8-PFOA	112% 20-150%
	13C9-PFNA	114% 20-150%
	13C6-PFDA	103% 20-150%
	13C7-PFUnDA	116% 20-150%
	13C2-PFDoDA	102% 20-150%
	13C2-PFTeDA	91% 20-150%
	13C3-PFBS	103% 20-150%
	13C3-PFHxS	106% 20-150%
	13C8-PFOS	104% 20-150%
	13C8-FOSA	61% 20-150%
	d3-MeFOSA	67% 20-150%
	d5-EtFOSA	77% 20-150%
	d3-MeFOSAA	105% 20-150%
	d5-EtFOSAA	93% 20-150%
	d7-MeFOSE	57% 20-150%
	d9-EtFOSE	68% 20-150%
	13C2-4:2FTS	92% 20-180%
	13C2-6:2FTS	97% 20-180%
	13C2-8:2FTS	101% 20-180%
	13C3-HFPO-DA	106% 20-150%

# Blank Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-LLBS	4Q53745.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.03	0.0296	99	40-150
2706-90-3	Perfluoropentanoic acid	0.015	0.0147	98	40-150
307-24-4	Perfluorohexanoic acid	0.0075	0.0073	97	40-150
375-85-9	Perfluoroheptanoic acid	0.0075	0.0075	100	40-150
335-67-1	Perfluorooctanoic acid	0.0075	0.0070	93	40-150
375-95-1	Perfluorononanoic acid	0.0075	0.0078	104	40-150
335-76-2	Perfluorodecanoic acid	0.0075	0.0070	93	40-150
2058-94-8	Perfluoroundecanoic acid	0.0075	0.0077	103	40-150
307-55-1	Perfluorododecanoic acid	0.0075	0.0077	103	40-150
72629-94-8	Perfluorotridecanoic acid	0.0075	0.0076	101	40-150
376-06-7	Perfluorotetradecanoic acid	0.0075	0.0066	88	40-150
375-73-5	Perfluorobutanesulfonic acid	0.00665	0.0068	102	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.00706	0.0071	101	40-150
355-46-4	Perfluorohexanesulfonic acid	0.00686	0.0066	96	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.00715	0.0066	92	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.00696	0.0071	102	40-150
68259-12-1	Perfluorononanesulfonic acid	0.00722	0.0077	107	40-150
335-77-3	Perfluorodecanesulfonic acid	0.00724	0.0071	98	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.00728	0.0069	95	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0281	0.0249	89	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.0285	0.0280	98	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.0288	0.0325	113	40-150
754-91-6	PFOSA	0.0075	0.0077	103	40-150
31506-32-8	MeFOSA	0.015	0.0192	128	40-150
4151-50-2	EtFOSA	0.015	0.0147	98	40-150
2355-31-9	MeFOSAA	0.0075	0.0079	105	40-150
2991-50-6	EtFOSAA	0.0075	0.0085	113	40-150
24448-09-7	MeFOSE	0.0375	0.0381	102	40-150
1691-99-2	EtFOSE	0.0375	0.0381	102	40-150
13252-13-6	HFPO-DA (GenX)	0.015	0.0154	103	40-150
919005-14-4	ADONA	0.0142	0.0168	119	40-150
377-73-1	PFMPA	0.015	0.0173	115	40-150
863090-89-5	PFMBA	0.015	0.0165	110	40-150
151772-58-6	NFDHA	0.015	0.0189	126	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.014	0.0143	102	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0142	0.0139	98	40-150

\* = Outside of Control Limits.



# Blank Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-LLBS	4Q53745.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0134	0.0157	118	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.0375	0.0266	71	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.188	0.175	93	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.188	0.174	93	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	113%	20-150%
	13C5-PFPeA	113%	20-150%
	13C5-PFHxA	111%	20-150%
	13C4-PFHpA	112%	20-150%
	13C8-PFOA	113%	20-150%
	13C9-PFNA	106%	20-150%
	13C6-PFDA	113%	20-150%
	13C7-PFUnDA	116%	20-150%
	13C2-PFDoDA	103%	20-150%
	13C2-PFTeDA	93%	20-150%
	13C3-PFBS	110%	20-150%
	13C3-PFHxS	115%	20-150%
	13C8-PFOS	110%	20-150%
	13C8-FOSA	85%	20-150%
	d3-MeFOSA	67%	20-150%
	d5-EtFOSA	82%	20-150%
	d3-MeFOSAA	112%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	70%	20-150%
	d9-EtFOSE	80%	20-150%
	13C2-4:2FTS	119%	20-180%
	13C2-6:2FTS	116%	20-180%
	13C2-8:2FTS	103%	20-180%
	13C3-HFPO-DA	112%	20-150%

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-BS	4Q53744.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0882	88	40-150
2706-90-3	Perfluoropentanoic acid	0.05	0.0452	90	40-150
307-24-4	Perfluorohexanoic acid	0.025	0.0227	91	40-150
375-85-9	Perfluoroheptanoic acid	0.025	0.0227	91	40-150
335-67-1	Perfluorooctanoic acid	0.025	0.0216	86	40-150
375-95-1	Perfluorononanoic acid	0.025	0.0211	84	40-150
335-76-2	Perfluorodecanoic acid	0.025	0.0214	86	40-150
2058-94-8	Perfluoroundecanoic acid	0.025	0.0214	86	40-150
307-55-1	Perfluorododecanoic acid	0.025	0.0222	89	40-150
72629-94-8	Perfluorotridecanoic acid	0.025	0.0220	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.025	0.0228	91	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0204	92	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0221	94	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0213	93	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0241	101	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0218	94	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0263	109	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0231	96	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0230	95	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.0938	0.0769	82	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.095	0.0834	88	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.096	0.0875	91	40-150
754-91-6	PFOSA	0.025	0.0223	89	40-150
31506-32-8	MeFOSA	0.05	0.0464	93	40-150
4151-50-2	EtFOSA	0.05	0.0447	89	40-150
2355-31-9	MeFOSAA	0.025	0.0215	86	40-150
2991-50-6	EtFOSAA	0.025	0.0241	96	40-150
24448-09-7	MeFOSE	0.125	0.109	87	40-150
1691-99-2	EtFOSE	0.125	0.114	91	40-150
13252-13-6	HFPO-DA (GenX)	0.05	0.0470	94	40-150
919005-14-4	ADONA	0.0473	0.0506	107	40-150
377-73-1	PFMPA	0.05	0.0314	63	40-150
863090-89-5	PFMBA	0.05	0.0503	101	40-150
151772-58-6	NFDHA	0.05	0.0548	110	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0468	0.0431	92	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0473	0.0436	92	40-150

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-BS	4Q53744.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0460	103	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.125	0.132	106	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.625	0.508	81	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.625	0.551	88	40-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	38%	20-150%
	13C5-PFPeA	109%	20-150%
	13C5-PFHxA	109%	20-150%
	13C4-PFHpA	110%	20-150%
	13C8-PFOA	114%	20-150%
	13C9-PFNA	118%	20-150%
	13C6-PFDA	105%	20-150%
	13C7-PFUnDA	117%	20-150%
	13C2-PFDoDA	107%	20-150%
	13C2-PFTeDA	96%	20-150%
	13C3-PFBS	111%	20-150%
	13C3-PFHxS	113%	20-150%
	13C8-PFOS	99%	20-150%
	13C8-FOSA	82%	20-150%
	d3-MeFOSA	79%	20-150%
	d5-EtFOSA	90%	20-150%
	d3-MeFOSAA	115%	20-150%
	d5-EtFOSAA	105%	20-150%
	d7-MeFOSE	72%	20-150%
	d9-EtFOSE	87%	20-150%
	13C2-4:2FTS	119%	20-180%
	13C2-6:2FTS	125%	20-180%
	13C2-8:2FTS	123%	20-180%
	13C3-HFPO-DA	109%	20-150%

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-MS	4Q53750.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785
FC11062-2	4Q53749.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	FC11062-2 ug/l	Spike Q	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	0.0962	0.0835	87	40-150
2706-90-3	Perfluoropentanoic acid	0.0077 U	0.0481	0.0413	86	40-150
307-24-4	Perfluorohexanoic acid	0.0038 U	0.024	0.0214	89	40-150
375-85-9	Perfluoroheptanoic acid	0.0038 U	0.024	0.0215	89	40-150
335-67-1	Perfluorooctanoic acid	0.0038 U	0.024	0.0212	88	40-150
375-95-1	Perfluorononanoic acid	0.0038 U	0.024	0.0204	85	40-150
335-76-2	Perfluorodecanoic acid	0.0038 U	0.024	0.0211	88	40-150
2058-94-8	Perfluoroundecanoic acid	0.0038 U	0.024	0.0197	82	40-150
307-55-1	Perfluorododecanoic acid	0.0038 U	0.024	0.0216	90	40-150
72629-94-8	Perfluorotridecanoic acid	0.0038 U	0.024	0.0212	88	40-150
376-06-7	Perfluorotetradecanoic acid	0.0038 U	0.024	0.0236	98	40-150
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	0.0213	0.0176	83	40-150
2706-91-4	Perfluoropentanesulfonic acid	0.0048 U	0.0226	0.0186	82	40-150
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	0.022	0.0208	95	40-150
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U	0.0229	0.0195	85	40-150
1763-23-1	Perfluorooctanesulfonic acid	0.0038 U	0.0223	0.0197	88	40-150
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	0.0231	0.0209	90	40-150
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	0.0232	0.0186	80	40-150
79780-39-5	Perfluorododecanesulfonic aci	0.0048 U	0.0233	0.0169	72	40-150
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	0.0901	0.0821	91	40-150
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	0.0913	0.0894	98	40-150
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	0.0923	0.0849	92	40-150
754-91-6	PFOSA	0.0038 U	0.024	0.0217	90	40-150
31506-32-8	MeFOSA	0.0077 U	0.0481	0.0454	94	40-150
4151-50-2	EtFOSA	0.0077 U	0.0481	0.0405	84	40-150
2355-31-9	MeFOSAA	0.0048 U	0.024	0.0213	89	40-150
2991-50-6	EtFOSAA	0.0048 U	0.024	0.0222	92	40-150
24448-09-7	MeFOSE	0.038 U	0.12	0.101	84	40-150
1691-99-2	EtFOSE	0.038 U	0.12	0.108	90	40-150
13252-13-6	HFPO-DA (GenX)	0.0038 U	0.0481	0.0428	89	40-150
919005-14-4	ADONA	0.0077 U	0.0454	0.0476	105	40-150
377-73-1	PFMPA	0.0077 U	0.0481	0.0468	97	40-150
863090-89-5	PFMBA	0.0077 U	0.0481	0.0462	96	40-150
151772-58-6	NFDHA	0.0077 U	0.0481	0.0500	104	40-150
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0077 U	0.045	0.0400	89	40-150
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0077 U	0.0454	0.0342	75	40-150

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-MS	4Q53750.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785
FC11062-2	4Q53749.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	FC11062-2 ug/l	Spike Q	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0077 U	0.0428	0.0444	104	40-150
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	0.12	0.0904	75	40-150
914637-49-35:3	Fluorotelomer carboxylate	0.096 U	0.601	0.515	86	40-150
812-70-4	7:3 Fluorotelomer carboxylate	0.096 U	0.601	0.533	89	40-150

CAS No.	ID Standard Recoveries	MS	FC11062-2	Limits
	13C4-PFBA	95%	106%	20-150%
	13C5-PFPeA	114%	115%	20-150%
	13C5-PFHxA	111%	113%	20-150%
	13C4-PFHpA	110%	115%	20-150%
	13C8-PFOA	113%	113%	20-150%
	13C9-PFNA	115%	111%	20-150%
	13C6-PFDA	103%	114%	20-150%
	13C7-PFUnDA	110%	116%	20-150%
	13C2-PFDoDA	96%	105%	20-150%
	13C2-PFTeDA	80%	92%	20-150%
	13C3-PFBS	118%	113%	20-150%
	13C3-PFHxS	120%	110%	20-150%
	13C8-PFOS	106%	96%	20-150%
	13C8-FOSA	90%	87%	20-150%
	d3-MeFOSA	81%	80%	20-150%
	d5-EtFOSA	90%	95%	20-150%
	d3-MeFOSAA	99%	100%	20-150%
	d5-EtFOSAA	95%	93%	20-150%
	d7-MeFOSE	79%	80%	20-150%
	d9-EtFOSE	86%	86%	20-150%
	13C2-4:2FTS	93%	86%	20-180%
	13C2-6:2FTS	100%	87%	20-180%
	13C2-8:2FTS	103%	92%	20-180%
	13C3-HFPO-DA	113%	113%	20-150%

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-DUP	4Q53752.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785
FC11062-3	4Q53751.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	FC11062-3 ug/l	DUP Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.015 U	ND		nc		30
2706-90-3	Perfluoropentanoic acid	0.0075 U	ND		nc		30
307-24-4	Perfluorohexanoic acid	0.0038 U	ND		nc		30
375-85-9	Perfluoroheptanoic acid	0.0038 U	ND		nc		30
335-67-1	Perfluorooctanoic acid	0.0038 U	ND		nc		30
375-95-1	Perfluorononanoic acid	0.0038 U	ND		nc		30
335-76-2	Perfluorodecanoic acid	0.0038 U	ND		nc		30
2058-94-8	Perfluoroundecanoic acid	0.0038 U	ND		nc		30
307-55-1	Perfluorododecanoic acid	0.0038 U	ND		nc		30
72629-94-8	Perfluorotridecanoic acid	0.0038 U	ND		nc		30
376-06-7	Perfluorotetradecanoic acid	0.0038 U	ND		nc		30
375-73-5	Perfluorobutanesulfonic acid	0.0038 U	ND		nc		30
2706-91-4	Perfluoropentanesulfonic acid	0.0047 U	ND		nc		30
355-46-4	Perfluorohexanesulfonic acid	0.0038 U	ND		nc		30
375-92-8	Perfluoroheptanesulfonic acid	0.0038 U	ND		nc		30
1763-23-1	Perfluorooctanesulfonic acid	0.0038 U	ND		nc		30
68259-12-1	Perfluorononanesulfonic acid	0.0038 U	ND		nc		30
335-77-3	Perfluorodecanesulfonic acid	0.0038 U	ND		nc		30
79780-39-5	Perfluorododecanesulfonic aci	0.0047 U	ND		nc		30
757124-72-44:2	Fluorotelomer sulfonate	0.019 U	ND		nc		30
27619-97-2	6:2 Fluorotelomer sulfonate	0.019 U	ND		nc		30
39108-34-4	8:2 Fluorotelomer sulfonate	0.019 U	ND		nc		30
754-91-6	PFOSA	0.0038 U	ND		nc		30
31506-32-8	MeFOSA	0.0075 U	ND		nc		30
4151-50-2	EtFOSA	0.0075 U	ND		nc		30
2355-31-9	MeFOSAA	0.0047 U	ND		nc		30
2991-50-6	EtFOSAA	0.0047 U	ND		nc		30
24448-09-7	MeFOSE	0.038 U	ND		nc		30
1691-99-2	EtFOSE	0.038 U	ND		nc		30
13252-13-6	HFPO-DA (GenX)	0.0038 U	ND		nc		30
919005-14-4	ADONA	0.0075 U	ND		nc		30
377-73-1	PFMPA	0.0075 U	ND		nc		30
863090-89-5	PFMBA	0.0075 U	ND		nc		30
151772-58-6	NFDHA	0.0075 U	ND		nc		30
756426-58-19	Cl-PF3ONS (F-53B Major)	0.0075 U	ND		nc		30
763051-92-91	Cl-PF3OUdS (F-53B Minor)	0.0075 U	ND		nc		30

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: FC11062  
 Account: AECOMCOD AECOM, INC.  
 Project: N6274223F0104 RH Fire Suppression System

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP99997-DUP	4Q53752.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785
FC11062-3	4Q53751.D	1	11/13/23	AL	11/09/23	OP99997	S4Q785

The QC reported here applies to the following samples:

Method: EPA DRAFT 1633

FC11062-1, FC11062-2, FC11062-3, FC11062-4, FC11062-5, FC11062-6

CAS No.	Compound	FC11062-3 ug/l	DUP Q ug/l	Q	RPD	Limits
113507-82-7	PFEESA	0.0075 U	ND		nc	30
356-02-5	3:3 Fluorotelomer carboxylate	0.019 U	ND		nc	30
914637-49-35:3	Fluorotelomer carboxylate	0.094 U	ND		nc	30
812-70-4	7:3 Fluorotelomer carboxylate	0.094 U	ND		nc	30

CAS No.	ID Standard Recoveries	DUP	FC11062-3	Limits
	13C4-PFBA	106%	108%	20-150%
	13C5-PFPeA	110%	110%	20-150%
	13C5-PFHxA	110%	109%	20-150%
	13C4-PFHpA	114%	111%	20-150%
	13C8-PFOA	112%	113%	20-150%
	13C9-PFNA	111%	116%	20-150%
	13C6-PFDA	98%	102%	20-150%
	13C7-PFUnDA	107%	107%	20-150%
	13C2-PFDoDA	88%	92%	20-150%
	13C2-PFTeDA	77%	80%	20-150%
	13C3-PFBS	107%	112%	20-150%
	13C3-PFHxS	100%	105%	20-150%
	13C8-PFOS	97%	96%	20-150%
	13C8-FOSA	84%	83%	20-150%
	d3-MeFOSA	80%	80%	20-150%
	d5-EtFOSA	90%	90%	20-150%
	d3-MeFOSAA	92%	94%	20-150%
	d5-EtFOSAA	82%	87%	20-150%
	d7-MeFOSE	78%	75%	20-150%
	d9-EtFOSE	84%	83%	20-150%
	13C2-4:2FTS	102%	85%	20-180%
	13C2-6:2FTS	103%	93%	20-180%
	13C2-8:2FTS	98%	89%	20-180%
	13C3-HFPO-DA	111%	109%	20-150%

\* = Outside of Control Limits.