



AGRICULTURE & PRIORITY POLLUTANTS LABORATORIES

A METIRI GROUP COMPANY

908 N. Temperance Ave., Clovis, CA 93611 - Phone 559-275-2175 - www.applinc.com

NELAP Certification Number: CA00046

DoD-ELAP Certification Number 4064.01

State Certification Number:

March 16, 2023

Watson Tanji
AECOM Honolulu
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

RE: Red Hill AFFF Assessment Sampling
23C0062

Enclosed are the results of analyses for samples received by our laboratory on 3/9/2023. If you have any questions concerning this report, please feel free to contact me.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC and DoD QSM. Release of the hard copy has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Sincerely,

Karen Volpendesta
Project Manager

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AECOM Honolulu
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Project: Red Hill AFFF Assessment Sampling
Project Number: Red Hill AFFF Assessment Sampling
Project Manager: Watson Tanji

Reported: 03/16/2023 17:56

Analysis Case Narrative

EPA 1633: Manual integrations were performed for this method in accordance with APPL's SOP. Chromatograms after manual integration are enclosed for specific samples and analytes. Abbreviated flags for technical justification are listed on the chromatogram.

The extracted internal standard 13C2-4:2FTS recovered above the upper control limit in sample 01 - AF-RHMW225401-WGN01B-2303W1.

The extracted internal standard 13C2-4:2FTS, recovered above the upper control limit in the BCC0223-BLK1 and the BCC0223-MRL1.

The analytes PFHpA, NEtFOSAA, and 11-CI-PF3OUDS recovered above the upper control limit in the SC01019-LCV1.

The analyte 5:3FTCA recovered below the lower control limit in the SC01019-CCV2.

Samples in this Report

Lab ID	Sample	Matrix	Date Sampled	Date Received
23C0062-01	AF-RHMW225401-WGN01B-2303W1	Water	03/08/2023 11:25	03/09/2023

AECOM Honolulu
1001 Bishop Street, Suite 1600
Honolulu, HI 96813

Project: Red Hill AFFF Assessment Sampling
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Project Manager: Watson Tanji

Reported: 03/16/2023 17:56

Sample Results

Sample: AF-RHMW225401-WGN01B-2303W1
23C0062-01 (Water)

Per- and Polyfluoroalkyl Substances

Analyte	Result /Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
PFBA	0.76 J	1.4	0.72	0.19	ng/L	03/14/23	1	EPA 1633	BCC0223
PFPEA	1.5	0.72	0.36	0.059	ng/L	03/14/23	1	EPA 1633	BCC0223
PFHXA	1.2	0.36	0.18	0.050	ng/L	03/14/23	1	EPA 1633	BCC0223
PFHPA	0.93	0.36	0.18	0.037	ng/L	03/14/23	1	EPA 1633	BCC0223
PFOA	1.1	0.36	0.18	0.14	ng/L	03/14/23	1	EPA 1633	BCC0223
PFNA	0.19 J	0.36	0.18	0.074	ng/L	03/14/23	1	EPA 1633	BCC0223
PFDA	0.18 U	0.36	0.18	0.092	ng/L	03/14/23	1	EPA 1633	BCC0223
PFUnA	0.27 U	0.36	0.27	0.14	ng/L	03/14/23	1	EPA 1633	BCC0223
PFDOA	0.18 U	0.36	0.18	0.10	ng/L	03/14/23	1	EPA 1633	BCC0223
PFTRDA	0.27 U	0.36	0.27	0.18	ng/L	03/14/23	1	EPA 1633	BCC0223
PFTEDA	0.18 U	0.36	0.18	0.18	ng/L	03/14/23	1	EPA 1633	BCC0223
PFBS	0.76	0.36	0.18	0.033	ng/L	03/14/23	1	EPA 1633	BCC0223
PFPEs	0.18 U	0.36	0.18	0.057	ng/L	03/14/23	1	EPA 1633	BCC0223
PFHXS	1.2	0.36	0.18	0.029	ng/L	03/14/23	1	EPA 1633	BCC0223
PFHPS	0.18 U	0.36	0.18	0.046	ng/L	03/14/23	1	EPA 1633	BCC0223
PFOS	1.0	0.36	0.18	0.057	ng/L	03/14/23	1	EPA 1633	BCC0223
PFNS	0.18 U	0.36	0.18	0.11	ng/L	03/14/23	1	EPA 1633	BCC0223
PFDS	0.18 U	0.36	0.18	0.14	ng/L	03/14/23	1	EPA 1633	BCC0223
PFDOS	0.18 U	0.36	0.18	0.11	ng/L	03/14/23	1	EPA 1633	BCC0223
4:2FTS	0.72 U	1.4	0.72	0.26	ng/L	03/14/23	1	EPA 1633	BCC0223
6:2FTS	0.37 J	1.4	0.72	0.28	ng/L	03/14/23	1	EPA 1633	BCC0223
8:2FTS	0.72 U	1.4	0.72	0.074	ng/L	03/14/23	1	EPA 1633	BCC0223
PFOSA	0.18 U	0.36	0.18	0.094	ng/L	03/14/23	1	EPA 1633	BCC0223
NMeFOSA	0.72 U	1.4	0.72	0.43	ng/L	03/14/23	1	EPA 1633	BCC0223
NEtFOSA	0.72 U	1.4	0.72	0.37	ng/L	03/14/23	1	EPA 1633	BCC0223
NMeFOSAA	0.18 U	0.36	0.18	0.096	ng/L	03/14/23	1	EPA 1633	BCC0223
NEtFOSAA	0.18 U	0.36	0.18	0.10	ng/L	03/14/23	1	EPA 1633	BCC0223
NMeFOSE	1.1 U	1.4	1.1	0.91	ng/L	03/14/23	1	EPA 1633	BCC0223
NEtFOSE	1.1 U	1.4	1.1	0.95	ng/L	03/14/23	1	EPA 1633	BCC0223
HFPO-DA	0.36 U	0.72	0.36	0.16	ng/L	03/14/23	1	EPA 1633	BCC0223
ADONA	0.36 U	0.72	0.36	0.11	ng/L	03/14/23	1	EPA 1633	BCC0223
PFEESA	0.36 U	0.72	0.36	0.098	ng/L	03/14/23	1	EPA 1633	BCC0223
PFMPA	0.36 U	0.72	0.36	0.049	ng/L	03/14/23	1	EPA 1633	BCC0223
PFMBA	0.36 U	0.72	0.36	0.082	ng/L	03/14/23	1	EPA 1633	BCC0223
NFDHA	0.36 U	0.72	0.36	0.27	ng/L	03/14/23	1	EPA 1633	BCC0223
9CL-PF3ONS	0.36 U	0.72	0.36	0.19	ng/L	03/14/23	1	EPA 1633	BCC0223
11CL-PF3OUDS	0.36 U	0.72	0.36	0.19	ng/L	03/14/23	1	EPA 1633	BCC0223
3:3FTCA	0.72 U	1.4	0.72	0.52	ng/L	03/14/23	1	EPA 1633	BCC0223
5:3FTCA	0.72 U	1.4	0.72	0.40	ng/L	03/14/23	1	EPA 1633	BCC0223
7:3FTCA	0.72 U	1.4	0.72	0.50	ng/L	03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C4-PFBA	87.3%		10-130			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C5-PFPEA	95.1%		35-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C5-PFHXA	95.8%		55-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C4-PFHPA	84.1%		55-150			03/14/23	1	EPA 1633	BCC0223

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Reported: 03/16/2023 17:56

Sample Results (Continued)

Sample: AF-RHMW225401-WGN01B-2303W1 (Continued)
23C0062-01 (Water)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result /Qual	LOQ	LOD	DL	Units	Date Analyzed	DF	Method	Prep Batch
Surrogate: 13C8-PFOA	90.4%		60-140			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C9-PFNA	84.4%		55-140			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C6-PFDA	93.4%		50-140			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C7-PFUnA	85.9%		30-140			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C2-PFDOA	86.9%		10-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C2-PFTEDA	67.6%		10-130			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C3-PFBS	104%		55-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C3-PFHXS	89.2%		55-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C8-PFOS	90.0%		45-140			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C2-4:2FTS	223% S2		60-200			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C2-6:2FTS	107%		60-200			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C2-8:2FTS	182%		50-200			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C8-PFOA	63.8%		30-130			03/14/23	1	EPA 1633	BCC0223
Surrogate: D3-NMEFOA	38.6%		15-130			03/14/23	1	EPA 1633	BCC0223
Surrogate: D5-NETFOA	38.8%		10-130			03/14/23	1	EPA 1633	BCC0223
Surrogate: D3-NMEFOSAA	116%		45-200			03/14/23	1	EPA 1633	BCC0223
Surrogate: D5-NETFOSAA	106%		10-200			03/14/23	1	EPA 1633	BCC0223
Surrogate: D7-NMEFOSE	43.6%		10-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: D9-NETFOSE	54.2%		10-150			03/14/23	1	EPA 1633	BCC0223
Surrogate: 13C3-HFPO-DA	90.2%		25-160			03/14/23	1	EPA 1633	BCC0223

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Reported: 03/16/2023 17:56

PREPARATION BATCH SUMMARY

EPA 1633

Laboratory: APPL, LLC

Client: AECOM

Batch: BCC0223 Batch Matrix: Water Preparation: EPA 1633

SAMPLE NAME	LAB SAMPLE ID	DATE PREPARED	INITIAL VOL./WEIGHT mL	FINAL VOL. mL
AF-RHMW225401-WGN01B-2303W1	23C0062-01	03/13/23 12:58	553.45	2.00
Blank	BCC0223-BLK1	03/13/23 12:58	500.00	2.00
LCS	BCC0223-BS1	03/13/23 12:58	500.00	2.00
MRL Check	BCC0223-MRL1	03/13/23 12:58	500.00	2.00

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Quality Control

Per- and Polyfluoroalkyl Substances

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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Method: EPA 1633

Batch: BCC0223 - EPA 1633

	ng/L								
Blank (BCC0223-BLK1)									
PFBA	0.80 U	1.6	0.80	0.21					
PFPEA	0.40 U	0.80	0.40	0.065					
PFHXA	0.20 U	0.40	0.20	0.055					
PFHPA	0.20 U	0.40	0.20	0.041					
PFOA	0.20 U	0.40	0.20	0.15					
PFNA	0.20 U	0.40	0.20	0.082					
PFDA	0.20 U	0.40	0.20	0.10					
PFUnA	0.30 U	0.40	0.30	0.16					
PFDOA	0.20 U	0.40	0.20	0.11					
PFTRDA	0.30 U	0.40	0.30	0.20					
PFTEDA	0.20 U	0.40	0.20	0.20					
PFBS	0.20 U	0.40	0.20	0.037					
PFPEs	0.20 U	0.40	0.20	0.063					
PFHXS	0.20 U	0.40	0.20	0.032					
PFHPS	0.20 U	0.40	0.20	0.051					
PFOS	0.20 U	0.40	0.20	0.064					
PFNS	0.20 U	0.40	0.20	0.12					
PFDS	0.20 U	0.40	0.20	0.15					
PFDOS	0.20 U	0.40	0.20	0.12					
4:2FTS	0.80 U	1.6	0.80	0.29					
6:2FTS	0.80 U	1.6	0.80	0.31					
8:2FTS	0.80 U	1.6	0.80	0.082					
PFOSA	0.20 U	0.40	0.20	0.10					
NMeFOSA	0.80 U	1.6	0.80	0.47					
NEtFOSA	0.80 U	1.6	0.80	0.41					
NMeFOSAA	0.20 U	0.40	0.20	0.11					
NEtFOSAA	0.20 U	0.40	0.20	0.11					
NMeFOSE	1.2 U	1.6	1.2	1.0					
NEtFOSE	1.2 U	1.6	1.2	1.0					
HFPO-DA	0.40 U	0.80	0.40	0.17					
ADONA	0.40 U	0.80	0.40	0.12					
PFEESA	0.40 U	0.80	0.40	0.11					
PFMPA	0.40 U	0.80	0.40	0.054					
PFMBA	0.40 U	0.80	0.40	0.091					
NFDHA	0.40 U	0.80	0.40	0.30					
9CL-PF3ONS	0.40 U	0.80	0.40	0.21					
11CL-PF3OUDS	0.40 U	0.80	0.40	0.21					
3:3FTCA	0.80 U	1.6	0.80	0.57					
5:3FTCA	0.80 U	1.6	0.80	0.44					
7:3FTCA	0.80 U	1.6	0.80	0.55					

Prepared: 03/13/23 12:58 Analyzed: 03/14/23 16:09

Surrogates

13C4-PFBA	27.8	32.0	86.9	10-130
13C5-PFPEA	16.0	16.0	99.9	35-150
13C5-PFHXA	7.61	8.00	95.1	55-150

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Quality Control (Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Blank (BCC0223-BLK1)		Prepared: 03/13/23 12:58 Analyzed: 03/14/23 16:09								
<i>Surrogates</i>										
13C4-PFHPA	7.66				8.00		95.8	55-150		
13C8-PFOA	6.97				8.00		87.1	60-140		
13C9-PFNA	3.54				4.00		88.5	55-140		
13C6-PFDA	3.25				4.00		81.3	50-140		
13C7-PFUnA	2.92				4.00		72.9	30-140		
13C2-PFDOA	3.24				4.00		81.1	10-150		
13C2-PFTEDA	2.55				4.00		63.7	10-130		
13C3-PFBS	8.03				8.00		100	55-150		
13C3-PFHXS	7.45				8.00		93.1	55-150		
13C8-PFOS	7.31				8.00		91.4	45-140		
13C2-4:2FTS	33.9 S2				16.0		212	60-200		
13C2-6:2FTS	16.0				16.0		99.8	60-200		
13C2-8:2FTS	17.0				16.0		106	50-200		
13C8-PFOA	5.38				8.00		67.3	30-130		
D3-NMEFOSA	2.20				8.00		27.5	15-130		
D5-NETFOA	2.44				8.00		30.5	10-130		
D3-NMEFOSAA	13.6				16.0		84.7	45-200		
D5-NETFOSAA	11.9				16.0		74.1	10-200		
D7-NMEFOSE	31.0				80.0		38.8	10-150		
D9-NETFOSE	41.2				80.0		51.6	10-150		
13C3-HFPO-DA	30.7				32.0		96.1	25-160		

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
LCS (BCC0223-BS1)		Prepared: 03/13/23 12:58 Analyzed: 03/14/23 16:22								
PFBA	17.8				16.0		111	58-148		
PFPEA	9.03				8.00		113	54-152		
PFHXA	4.49				4.00		112	55-152		
PFHPA	4.59				4.00		115	54-154		
PFOA	4.51				4.00		113	52-161		
PFNA	4.27				4.00		107	59-149		
PFDA	4.49				4.00		112	52-147		
PFUnA	5.21				4.00		130	48-159		
PFDOA	5.21				4.00		130	64-142		
PFTRDA	4.39				4.00		110	49-148		
PFTEDA	4.47				4.00		112	47-161		
PFBS	4.22				3.54		119	62-144		
PFPEA	5.16				3.76		137	59-151		
PFHXS	4.35				3.66		119	57-146		
PFHPS	3.85				3.82		101	55-152		
PFOS	4.10				3.72		110	58-149		
PFNS	4.57				3.84		119	52-148		
PFDS	4.18				3.86		108	51-147		
PFDOS	3.45				3.88		88.8	36-145		
4:2FTS	18.2				15.0		121	67-146		
6:2FTS	18.5				15.2		122	61-151		
8:2FTS	16.5				15.4		107	63-152		
PFOSA	4.77				4.00		119	61-148		

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Quality Control (Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
ng/L										
LCS (BCC0223-BS1)					Prepared: 03/13/23 12:58 Analyzed: 03/14/23 16:22					
NMeFOSA	18.6				16.0		116	63-145		
NETFOSA	18.3				16.0		114	65-139		
NMeFOSAA	3.84				4.00		96.1	58-144		
NETFOSAA	4.46				4.00		111	59-146		
NMeFOSE	18.6				16.0		116	71-136		
NETFOSE	17.0				16.0		106	69-137		
HFPO-DA	10.3				8.00		129	63-144		
ADONA	8.26				7.56		109	68-146		
PFEESA	8.57				7.12		120	56-151		
PFMPA	8.17				8.00		102	51-145		
PFMBA	7.96				8.00		99.5	55-148		
NFDHA	8.75				8.00		109	48-161		
9CL-PF3ONS	9.47				7.48		127	56-156		
11CL-PF3OUDS	8.64				7.56		114	46-156		
3:3FTCA	16.7				16.0		104	62-129		
5:3FTCA	16.5				16.0		103	63-134		
7:3FTCA	14.4				16.0		90.1	50-138		
Surrogates										
13C4-PFBA	27.7				32.0		86.5	10-130		
13C5-PFPEA	16.2				16.0		102	35-150		
13C5-PFHXA	7.49				8.00		93.6	55-150		
13C4-PFHFA	7.50				8.00		93.8	55-150		
13C8-PFOA	7.30				8.00		91.2	60-140		
13C9-PFNA	3.37				4.00		84.3	55-140		
13C6-PFDA	3.53				4.00		88.4	50-140		
13C7-PFUnA	2.98				4.00		74.6	30-140		
13C2-PFDOA	3.14				4.00		78.6	10-150		
13C2-PFTEDA	2.68				4.00		67.1	10-130		
13C3-PFBS	7.36				8.00		92.0	55-150		
13C3-PFHXS	6.86				8.00		85.7	55-150		
13C8-PFOS	6.63				8.00		82.9	45-140		
13C2-4:2FTS	31.3				16.0		196	60-200		
13C2-6:2FTS	14.2				16.0		89.0	60-200		
13C2-8:2FTS	17.7				16.0		111	50-200		
13C8-PFOSA	5.05				8.00		63.1	30-130		
D3-NMEFOSA	2.74				8.00		34.2	15-130		
D5-NETFOSA	2.86				8.00		35.8	10-130		
D3-NMEFOSAA	14.1				16.0		88.3	45-200		
D5-NETFOSAA	12.0				16.0		75.2	10-200		
D7-NMEFOSE	33.7				80.0		42.1	10-150		
D9-NETFOSE	46.3				80.0		57.9	10-150		
13C3-HFPO-DA	31.4				32.0		98.2	25-160		

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Quality Control (Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
MRL Check (BCC0223-MRL1)		ng/L		Prepared: 03/13/23 12:58 Analyzed: 03/14/23 16:35						
PFBA	1.88				1.60		117	44-157		
PFPEA	0.940				0.800		117	57-148		
PFHXA	0.562				0.400		141	62-149		
PFHPA	0.504				0.400		126	56-150		
PFOA	0.522				0.400		131	57-161		
PFNA	0.464				0.400		116	53-157		
PFDA	0.443				0.400		111	43-158		
PFUnA	0.414				0.400		104	50-155		
PFDOA	0.488				0.400		122	60-141		
PFTRDA	0.485				0.400		121	52-140		
PFTEDA	0.426				0.400		107	52-156		
PFBS	0.409				0.354		116	63-145		
PFPEs	0.476				0.376		127	58-144		
PFHXS	0.428				0.366		117	44-158		
PFHPS	0.373 J				0.382		97.7	51-150		
PFOS	0.475				0.372		128	43-162		
PFNS	0.408				0.384		106	46-151		
PFDS	0.375 J				0.386		97.1	50-144		
PFDOS	0.369 J				0.388		95.0	30-138		
4:2FTS	1.71				1.50		114	52-158		
6:2FTS	2.25				1.52		148	48-158		
8:2FTS	1.67				1.54		109	46-165		
PFOSA	0.487				0.400		122	47-163		
NMeFOSA	1.77				1.60		111	54-155		
NETFOSA	1.62				1.60		101	49-156		
NMeFOSAA	0.403				0.400		101	32-160		
NETFOSAA	0.495				0.400		124	51-154		
NMeFOSE	1.90				1.60		119	56-151		
NETFOSE	1.61				1.60		101	60-147		
HFPO-DA	1.09				0.800		137	58-154		
ADONA	0.863				0.756		114	61-148		
PFEESA	0.853				0.712		120	56-144		
PFMPA	0.796 J				0.800		99.5	48-150		
PFMBA	0.807				0.800		101	49-154		
NFDHA	0.839				0.800		105	47-160		
9CL-PF3ONS	0.957				0.748		128	44-167		
11CL-PF3OUDS	0.984				0.756		130	36-158		
3:3FTCA	1.50 J				1.60		93.5	32-161		
5:3FTCA	1.56 J				1.60		97.8	39-156		
7:3FTCA	1.48 J				1.60		92.5	36-149		
Surrogates										
13C4-PFBA	27.9				32.0		87.1	10-130		
13C5-PFPEA	14.9				16.0		93.3	35-150		
13C5-PFHXA	6.95				8.00		86.9	55-150		
13C4-PFHPA	7.37				8.00		92.1	55-150		
13C8-PFOA	7.34				8.00		91.8	60-140		
13C9-PFNA	3.24				4.00		81.1	55-140		

AECOM Honolulu
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Project: Red Hill AFFF Assessment Sampling
Project Number: Red Hill AFFF Assessment Sampling
Project Manager: Watson Tanji

Reported: 03/16/2023 17:56

Quality Control (Continued)

Per- and Polyfluoroalkyl Substances (Continued)

Analyte	Result/Qual	LOQ	LOD	MDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
ng/L										
MRL Check (BCC0223-MRL1)							Prepared: 03/13/23 12:58	Analyzed: 03/14/23 16:35		
Surrogates										
13C6-PFDA	3.62				4.00		90.5	50-140		
13C7-PFUnA	3.21				4.00		80.3	30-140		
13C2-PFDOA	3.14				4.00		78.6	10-150		
13C2-PFTEDA	2.78				4.00		69.6	10-130		
13C3-PFBS	7.71				8.00		96.4	55-150		
13C3-PFHXS	7.01				8.00		87.7	55-150		
13C8-PFOS	6.59				8.00		82.3	45-140		
13C2-4:2FTS	32.9 S2				16.0		205	60-200		
13C2-6:2FTS	14.7				16.0		92.0	60-200		
13C2-8:2FTS	17.0				16.0		106	50-200		
13C8-PFOA	5.07				8.00		63.4	30-130		
D3-NMEFOA	2.25				8.00		28.1	15-130		
D5-NETFOA	2.35				8.00		29.4	10-130		
D3-NMEFOA	13.0				16.0		81.2	45-200		
D5-NETFOA	11.4				16.0		71.1	10-200		
D7-NMEFOE	28.5				80.0		35.6	10-150		
D9-NETFOE	38.6				80.0		48.2	10-150		
13C3-HFPO-DA	28.6				32.0		89.4	25-160		

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Notes and Definitions

Item	Definition
CV1	Calibration verification recovered below the lower control limit
CV2	Calibration verification recovered above the upper control limit
IR1	Ion ratio below the lower control limit
IR2	Ion ratio above the upper control limit
J	Estimated value
S2	Surrogate recovered above the upper control limit
U	Not detected
Dry	Sample results reported on a dry weight basis.
DF	Dilution Factor
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated.
LOQ, Limit of Quantitation = Method Reporting Limit (MRL).	

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Project: Red Hill AFFF Assessment Sampling
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WORK ORDER

23C0062

Printed: 03/16/2023 5:56 pm

Project: Red Hill AFFF Assessment Sampling
Project Number: Red Hill AFFF Assessment Sampling
Project Manager: Karen Volpendesta
PO Number: 60697810

Report To:

AECOM Honolulu
 Watson Tanji
 1001 Bishop Street, Suite 1600
 Honolulu, HI 96813
 Phone: (808) 954-4512
 Fax: (808) 523-8950

Invoice To:

AECOM Honolulu
 Watson Tanji
 1001 Bishop Street, Suite 1600
 Honolulu, HI 96813
 Phone: (808) 954-4512
 Fax: (808) 523-8950

Date Received: 03/09/2023 02:26 PM
 Date Due: 03/16/2023 (5.00 day TAT)

Logged In By: Megan Salata
 Received By: Megan Salata

Analysis	Comments
23C0062-01 AF-RHMW225401-WGN01B-2303W1 [Water] Sampled 3/8/2023 11:25:00AM 1633 NONE	"Report relevant surrogates"

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Project: Red Hill AFFF Assessment Sampling
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Reported: 03/16/2023 17:56

23C0062

Sample Receipt Log

Default Cooler

Samples Received at: **-1.3°C**

Custody Seals	Yes	Were all containers sealed in separate bags?	Yes
Containers Intact	Yes	Did all containers arrive in good condition?	Yes
COC/Labels Agree	Yes	Correct containers/preserv. for tests indicated?	Yes
Preservation Confirmed	No	Sufficient volume sent for tests requested?	Yes
Received On Ice	Yes	Were bubbles absent in volatile samples?	No
Was a chain of custody received?	Yes	Sufficient remaining holding time for analyses?	Yes
COCs complete/signed in the appropriate places?	Yes	pH of non-VOA preserved containers documented?	No
Sample labels complete? Sample ID, date/time, etc.	Yes	Unpreserved vials received for VOA analysis?	No
Did all container labels agree with COCs?	Yes	If "yes", are unpreserved VOA vials noted on ARF?	No

CUSTODY SEAL

AECOM (808) 521-3051

Initials MP Date 3/8/23

1495