PREPARED FOR

Attn: Terri Choy AECOM 1001 Bishop Street Honolulu, Hawaii 96813

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JOB DESCRIPTION

Red Hill - AFFF Assessment Sampling

ANALYTICAL REPORT

JOB NUMBER

580-121534-1

Eurofins Seattle 5755 8th Street East Tacoma WA 98424

Eurofins Seattle

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northwest, LLC Project Manager.

Authorization

M. Elaine Walker

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Authorized for release by Marie Walker, Senior Project Manager M.Elaine.Walker@et.eurofinsus.com (253)248-4972 ď

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Client: AECOM

Laboratory Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

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Case Narrative

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Job ID: 580-121534-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE Client: AECOM

Project: Red Hill - AFFF Assessment Sampling Report Number: 580-121534-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

One sample was received on 12/22/2022 2:15 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.6° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

GLYCOLS - 2-(2-BUTOXYETHOXY)ETHANOL

Sample AF-HDMW225303-WGN01LF-2212W3 (580-121534-1) was analyzed for glycols in accordance with EPA SW-846 Method 8015B - DAI. The sample was analyzed on 12/31/2022.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Definitions/Glossary

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Qualifiers

GC Semi VOA

Qualifier Qualifier Description

Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery

CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins Seattle

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Client Sample Results

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-HDMW225303-WGN01LF-2212W3 Lab Sample ID: 580-121534-1

Date Collected: 12/20/22 10:55 Matrix: Water

Date Received: 12/22/22 14:15

Method: SW846 8015C GLY - 0	Slycols- Direct Injection	n (GC/FID)					
Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 U	5.0	1.1 mg/L			12/31/22 21:54	1

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QC Sample Results

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Method: 8015C GLY - Glycols- Direct Injection (GC/FID)

Lab Sample ID: MB 680-757531/16 **Client Sample ID: Method Blank Prep Type: Total/NA**

Matrix: Water

Analysis Batch: 757531

	IVID IVID						
Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 U	5.0	1.1 mg/L			12/31/22 18:08	1

Lab Sample ID: LCS 680-757531/12 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 757531

•	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
2-(2-Butoxyethoxy)ethanol	20.0	20.7		mg/L		104	50 - 150	

Lab Sample ID: LCSD 680-757531/13 **Client Sample ID: Lab Control Sample Dup** Prep Type: Total/NA

Matrix: Water

Analysis Ratch: 757531

Alialysis balcii. 191991									
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
2-(2-Butoxyethoxy)ethanol	20.0	21.6		mg/L		108	50 - 150	4	50

1/5/2023

Lab Chronicle

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Client Sample ID: AF-HDMW225303-WGN01LF-2212W3

Lab Sample ID: 580-121534-1 Date Collected: 12/20/22 10:55 **Matrix: Water**

Date Received: 12/22/22 14:15

		Batch	Batch		Dilution	Batch			Prepared
	Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
l	Total/NA	Analysis	8015C GLY		1	757531	JCK	EET SAV	12/31/22 21:54

Laboratory References:

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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Accreditation/Certification Summary

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Laboratory: Eurofins Savannah

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority		Program	Identification Number	Expiration Date
ANAB		Dept. of Defense ELAP	L2463	09-22-24
The following analyte the agency does not		port, but the laboratory is not	certified by the governing authority.	This list may include analytes for which
Analysis Method	Prep Method	Matrix	Analyte	
8015C GLY		Water	2-(2-Butoxyethoxy)ethanol	

Eurofins Seattle

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Sample Summary

Client: AECOM Job ID: 580-121534-1

Project/Site: Red Hill - AFFF Assessment Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-121534-1	AF-HDMW225303-WGN01LF-2212W3	Water	12/20/22 10:55	12/22/22 14:15

5755 8th Street East Tacoma, WA 98424

Chain of Custody Record

eurofins
Environment Testing
America

Client Information	Sampler: (NY)	s Wom	w.X		ь Рм: aine V	Vaike	r						Carrier FedE	Trackii (ng No(s):			COC No: 01-221220-23F(0104-EUSav
Client Contact:	Phone: (A)(U) -	7109-0	1323		Mail: Elaine	- Wall	ker@	Eurofi	insET	com			State o	Origin i	1:				Page: Page 1 of 1	
Company:	1	. 63 1	PWSID:	1::-	T	371101	101.5				sis F								Job #:	
AECOM Address:	Due Date Reques		<u> </u>		+		Т	1	T A	aly	313 F	1CQI	Jesu	-	1	T	Τ		Preservation Co	des:
1001 Bishop St. Suite 1600	see subcontrac TAT Requested (c				-														A - HCL B - NaOH	M · Hexane N · None
Honolulu		Rush - A	NSAP				, l						l				1		C - Zn Acetate D - Nitric Acid	O - AsNaO2 P - Na2O4S
State, Zip: Hawaii 96813	Compliance Proje	ct: A Yes	Δ No		- 1		Tan									1			E - NaHSO4	Q - Na2SO3
Phone: 808-954-4512 / 808-356-5311	PO #:				Ş Ş	1	(Å							/	1				F - MeOH G - Amchior	R - Na2S2O3 S - H2SO4
Email: Watson Tanji (watson.tanji@aecom.com)/ Brant Landers (brant.landers@aecom.com)	WO #:					SD (Yes or No)	Dayenn				l,	24	\forall					91.8	H - Ascorbic Acid I - Ice J - Di Water	T - TSP Dodecahydrate U - Acetone V - MCAA
Project Name: CTO N6274223F0104	Project #: 60697810					(Yes or	-(e-on			J.	S							ntaine	K - EDTA L - EDA	W - pH 4-5 Z - other (specify)
Site: RHSF	SSOW#;				Sam	200	y jen			?/								ofc	Other:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=A	Field Fill	Perform MS/M	2		2									Total Number	Special In	structions/Note:
		$\geq \leq$		tion Code:		Χ,				25.5	_	ada b				9/85		Ц		
AF-HDMW225303-WGN01LF-2212W3	12/20/22	1055	G	W	N	N X	4			_	_	_			1	<u> </u>		3		
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Possible Hazard Identification					115	Sampl	le Di	sposa	I ( A	fee m	ay b	e ass	sesse	d if s	amp	les a	re ret	laine	ed longer than 1	month)
Non-Hazard Flammable Skin Irritant Poison B	Unknown	Hadiol					Retu	rn To t	Client			] _{Dis}	posa	By L	ab		_ ∠	Archi	ive For	Months
Deliverable Requested: I, II, III, IV, Other (specify)	Prelim data (Lev 4 report standar				ige S	Specia	il inst	ructio	ns/QC	Rec	uiren	nents	s: DC	D QS	SM pr	oject.	•			
Empty Kit Relinquished by:		Date:	ZOW COMIC		Tim	e:							Me	hod of	Shipn	ent:				
Relinguished by: CHRIS WOMACK	Date/Time: 、2 20 12	142	30 I	Company AECOM		Red	ceived VV \ \	by: õv	\da		Dr.	ba	CEAN	D		Time:	122	_	1430	Company AECOn
Relinquished by: Muranda Delharymo	Date/Time: 12/21/22			Company ME(Co	m i	Red	eyed	110	111	1	/				Date/	Tinge:	خام	2)	1415	Company
	Date/Time:			Company		Red	ceived	by:	باسمار						Date/	Time:	7/0	<u> </u>	17/2	Company
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Δ Yes Δ No							R	mperati 10		2.4	e/1	2,5	<u> </u>							Var. 01/16/2010

Client: AECOM Job Number: 580-121534-1

Login Number: 121534 List Source: Eurofins Seattle

List Number: 1

Creator: Vallelunga, Diana L

oreator. Valleturiga, Diaria L		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Client: AECOM Job Number: 580-121534-1

List Source: Eurofins Savannah
List Number: 2
List Creation: 12/29/22 11:43 AM

Creator: Harley, Tynisha

HTs)

MS/MSDs

<6mm (1/4").

Sample containers have legible labels.

Sample collection date/times are provided.

Appropriate sample containers are used.

Containers are not broken or leaking.

Sample bottles are completely filled.

Multiphasic samples are not present.

Samples do not require splitting or compositing.

Sample Preservation Verified.

Residual Chlorine Checked.

Samples are received within Holding Time (excluding tests with immediate

There is sufficient vol. for all requested analyses, incl. any requested

Containers requiring zero headspace have no headspace or bubble is

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	

True

True

True

True

True

True

N/A

True

N/A

True

True

N/A