PREPARED FOR

ANALYTICAL REPORT

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

Generated 2/7/2023 5:36:50 PM

JOB DESCRIPTION

RH AFFF Assessment Sampling CTO N6274223F0104

JOB NUMBER

580-122820-1

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

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Client: AECOM

Laboratory Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO N6274223F0104

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Case Narrative

Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO N6274223F010

Job ID: 580-122820-1

Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE Client: AECOM

Project: RH AFFF Assessment Sampling CTO N6274223F0104 Report Number: 580-122820-1

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

Five samples were received on 1/30/2023 9:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6° 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

Samples AF-RHMW12A-WGN01LF-2301W4 (580-122820-1), AF-RHMW12A-WGFD01LF-2301W4 (580-122820-2), AF-HDMW225303-WGN01LF-2301W4 (580-122820-3), AF-RHMW16-WGN01LF-2301W4 (580-122820-4) and AF-RHMW10-WGN01LF-2301W4 (580-122820-5) were analyzed for glycols in accordance with EPA SW-846 Method 8015B - DAI. The samples were analyzed on 02/06/2023.

The continuing calibration verification (CCV) associated with batch 680-762138 recovered above the upper control limit for 2-(2-Butoxyethoxy)ethanol. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data has been reported. The associated sample is impacted: (CCV 680-762138/23).

2-(2-Butoxyethoxy)ethanol exceeded the RPD limit for the MSD of sample AF-RHMW12A-WGN01LF-2301W4MSD (580-122820-1) in batch 680-762138. The MS and MSD recoveries and the associated LCS/LCSD were in control.

No additional 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: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Qualifiers

Qualifier

GC Semi VOA

J1 Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

Μ Manual integrated compound.

Q One or more quality control criteria failed. U Undetected at the Limit of Detection.

Qualifier Description

Glossary

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

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery Contains Free Liquid CFL **CFU** Colony Forming Unit CNF Contains No Free Liquid

Duplicate Error Ratio (normalized absolute difference) DER

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" Minimum Detectable Activity (Radiochemistry) MDA Minimum Detectable Concentration (Radiochemistry) MDC

MDL Method Detection Limit Minimum Level (Dioxin) MI 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 0C**Quality Control**

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Client Sample ID: AF-RHMW12A-WGN01LF-2301W4 Lab Sample ID: 580-122820-1

Date Collected: 01/25/23 10:00 Matrix: Water

Date Received: 01/30/23 09:00

Method: SW846 8015C GLY - Glycols- Direct Injection (GC/FID)

Analyte	Result Qualifier	LOQ	DL Unit	D Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 UMQJ1	5.0	1.1 mg/L		02/06/23 17:20	1

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Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Client Sample ID: AF-RHMW12A-WGFD01LF-2301W4 Lab Sample ID: 580-122820-2

Date Collected: 01/25/23 10:00 **Matrix: Water**

Date Received: 01/30/23 09:00

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0	UMQ	5.0	1.1	mg/L			02/06/23 18:30	1

Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Client Sample ID: AF-HDMW225303-WGN01LF-2301W4 Lab Sample ID: 580-122820-3

Date Collected: 01/24/23 10:20 Matrix: Water

Date Received: 01/30/23 09:00

Method: SW846 8015C GLY - Glycols- Direct Injection (GC/FID)

Analyte	Result Qualifier	LOQ	DL Unit	D Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 U M Q	5.0	1.1 mg/L		02/06/23 18:53	1

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Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Client Sample ID: AF-RHMW16-WGN01LF-2301W4 Lab Sample ID: 580-122820-4

Date Collected: 01/25/23 12:45 Matrix: Water

Date Received: 01/30/23 09:00

Analyte	Result Q	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 U	JMQ	5.0	1.1	mg/L			02/06/23 19:16	1

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Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Client Sample ID: AF-RHMW10-WGN01LF-2301W4 Lab Sample ID: 580-122820-5

Date Collected: 01/24/23 12:30 Matrix: Water

Date Received: 01/30/23 09:00

Analyte	Result Qualifier	LOQ	DL Unit	D	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	3.0 U Q	5.0	1.1 mg/L			02/06/23 19:39	1

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QC Sample Results

Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

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

Lab Sample ID: MB 680-762138/10 Client Sample ID: Method Blank Prep Type: Total/NA

Matrix: Water

Analysis Batch: 762138

MB MB

Analyte Result Qualifier LOQ DL Unit Prepared Analyzed Dil Fac 2-(2-Butoxyethoxy)ethanol 3.0 U M 5.0 1.1 mg/L 02/06/23 16:57

Lab Sample ID: LCS 680-762138/1006 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 762138

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit %Rec Limits 2-(2-Butoxyethoxy)ethanol 20.0 18.5 mg/L 92 50 - 150

Lab Sample ID: LCSD 680-762138/7

Matrix: Water

Analysis Batch: 762138

LCSD LCSD RPD Spike %Rec Added Result Qualifier Analyte Unit %Rec Limits **RPD** Limit 2-(2-Butoxyethoxy)ethanol 20.0 22.2 mg/L 50 - 150

Lab Sample ID: 580-122820-1 MS

Matrix: Water

Analysis Batch: 762138

Sample Sample Spike MS MS %Rec Result Qualifier Result Qualifier Added Analyte Unit D %Rec I imits 3.0 UMQJ1 2-(2-Butoxyethoxy)ethanol 20.0 29.3 147 50 - 150

Lab Sample ID: 580-122820-1 MSD

Matrix: Water

Analysis Batch: 762138

Sample Sample Spike MSD MSD %Rec **RPD** Result Qualifier Added Result Qualifier D %Rec Limits **RPD** Limit Analyte Unit 20.0 2-(2-Butoxyethoxy)ethanol 3.0 UMQJ1 16.3 J1 mg/L 81 50 - 150 57

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Client Sample ID: AF-RHMW12A-WGN01LF-2301W4 Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Client Sample ID: Lab Control Sample Dup

Client Sample ID: AF-RHMW12A-WGN01LF-2301W4

Lab Chronicle

Client: AECOM Job ID: 580-122820-1

762138 JCK

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Total/NA

Client Sample ID: AF-RHMW12A-WGN01LF-2301W4

Date Collected: 01/25/23 10:00

Date Received: 01/30/23 09:00

Batch Batch Dilution Batch Prepared
Prep Type Type Method Run Factor Number Analyst Lab or Analyzed

Client Sample ID: AF-RHMW12A-WGFD01LF-2301W4

8015C GLY

Date Collected: 01/25/23 10:00

Analysis

Date Received: 01/30/23 09:00

Batch Dilution Batch Prepared **Prep Type** Method **Number Analyst** or Analyzed Type Run **Factor** Lab 02/06/23 18:30 Total/NA Analysis 8015C GLY 762138 JCK **EET SAV**

Client Sample ID: AF-HDMW225303-WGN01LF-2301W4

Date Collected: 01/24/23 10:20

Date Received: 01/30/23 09:00

Dilution Batch Prepared Batch **Batch** Method Factor **Number Analyst** or Analyzed **Prep Type** Type Run Lab 02/06/23 18:53 Total/NA 8015C GLY 762138 JCK EET SAV Analysis

Client Sample ID: AF-RHMW16-WGN01LF-2301W4

Date Collected: 01/25/23 12:45

Date Received: 01/30/23 09:00

Batch Batch Dilution Batch Prepared Method Factor Number Analyst or Analyzed **Prep Type** Type Run Lab 02/06/23 19:16 8015C GLY 762138 JCK **EET SAV** Total/NA Analysis

Client Sample ID: AF-RHMW10-WGN01LF-2301W4

Date Collected: 01/24/23 12:30

Date Received: 01/30/23 09:00

Dilution Batch Batch Batch Prepared **Prep Type** Type Method Run Factor **Number Analyst** Lab or Analyzed 02/06/23 19:39 Total/NA Analysis 8015C GLY 762138 JCK EET SAV

Laboratory References:

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

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Matrix: Water

Matrix: Water

Matrix: Water

Lab Sample ID: 580-122820-1

Lab Sample ID: 580-122820-2

Lab Sample ID: 580-122820-3

Lab Sample ID: 580-122820-4

Lab Sample ID: 580-122820-5

02/06/23 17:20

EET SAV

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Matrix: Water

Matrix: Water

Eurofins Seattle

Accreditation/Certification Summary

Client: AECOM Job ID: 580-122820-1

Project/Site: RH AFFF Assessment Sampling CTO

N6274223F0104

Laboratory: Eurofins Savannah

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

Authority	Р	Program	Identification Number	Expiration Date
ANAB		Pept. of Defense ELAP	L2463	09-22-24
The following analytes the agency does not o		port, but the laboratory is no	t 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	

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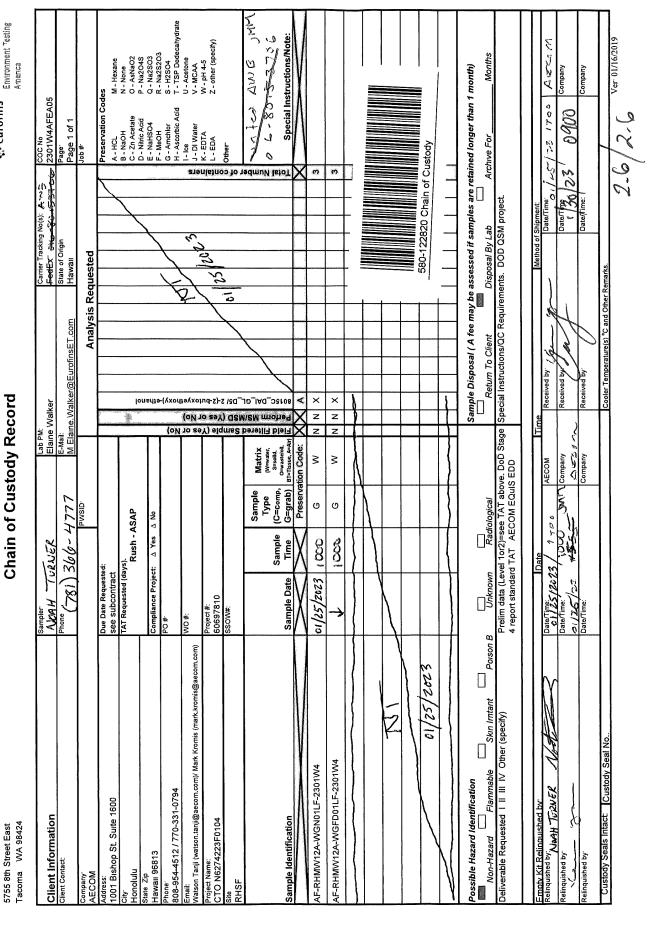
Sample Summary

Job ID: 580-122820-1 Client: AECOM

Project/Site: RH AFFF Assessment Sampling CTO N6274223F0104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-122820-1	AF-RHMW12A-WGN01LF-2301W4	Water	01/25/23 10:00	01/30/23 09:00
580-122820-2	AF-RHMW12A-WGFD01LF-2301W4	Water	01/25/23 10:00	01/30/23 09:00
580-122820-3	AF-HDMW225303-WGN01LF-2301W4	Water	01/24/23 10:20	01/30/23 09:00
580-122820-4	AF-RHMW16-WGN01LF-2301W4	Water	01/25/23 12:45	01/30/23 09:00
580-122820-5	AF-RHMW10-WGN01LF-2301W4	Water	01/24/23 12:30	01/30/23 09:00

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M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - PH 4-6
Z - other (specify) Special Instructions/Note: AECOM Ver 01/16/2019 Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mont Special Instructions/QC Requirements DOD QSM project. reservation Codes. COC No. 2301W4AFEA04 1345 A A - HCL
B - NaOH
C - Zn Acetate
C - Zn Acetate
D - Nitric Acid
E - NaENA
F - MeOH
H - Ascorbic Acid
I - Ice
I - Ice
L - D - Di Water
K - EDTA
L - EDA 0000 Page[.] Page 1 of 1 2.6/2 Date/Time: (/24/2o23 Total Mumber of containers Carrier Tracking Nots) AWS
FedEx ALC SOSTOD
State of Origin
Hawaii Date/Ime: 723 1 / 36/23 Date/Time: (Method of Shipment: Analysis Requested Cooler Temperature(s) °C and Other Remarks: James/ Taso Lab PM Elarne Walker E-Mait: M.Elarne.Walker@EurofinsET com Received by: Received by 8012C_DALGL_DS/ 2-(2-butoxyethoxy)-ethanol z Perform MS/MSD (Yes or No) Time Company
AECOM
Company
AECOM Field Filtered Sample (Yes or No) Unknown Radiological
Prelim data (Level 10r2)=see TAT above DoD Stage
4 report standard TAT. AECOM FOulS EDD. (W=water S=solid, O=waste/oil, BT=TIssue, A=Air) Preservation Code: ≥ (C=comp, G=grab) 1345 7777 Jas (187) Sample Type in The თ TAT Requested (days)
Rush - ASAP Compliance Project: Δ Yes Δ No PO#: NOAH TURNER Sample Time 1020 Due Date Requested see subcontract Date/Time **cf/2**4/2c23 Umkhown Sample Date os/24/2013 Project #: 60697810 WO# Poison B Natson Tanji (watson.tanji@aecom.com)/ Mark Kromis (mark.kromis@aecom.com C124/2223 Skin Imtant eliverable Requested | II III IV Other (specify) James Mason Custody Seal No AF-HDMW225303-WGN01LF-2301W4 Non-Hazard Flammable ossible Hazard Identification 808-954-4512 / 770-331-0794 1001 Bishop St. Surte 1600 Empty Kit Relinquished by Custody Seals Intact: △ Yes △ No Client Information Sample Identification Project Name CTO N6274223F0104 NCAH TORNER
Relinquished by Hawaii 96813 inquished by Company: AECOM Honolulu

Environment Testing

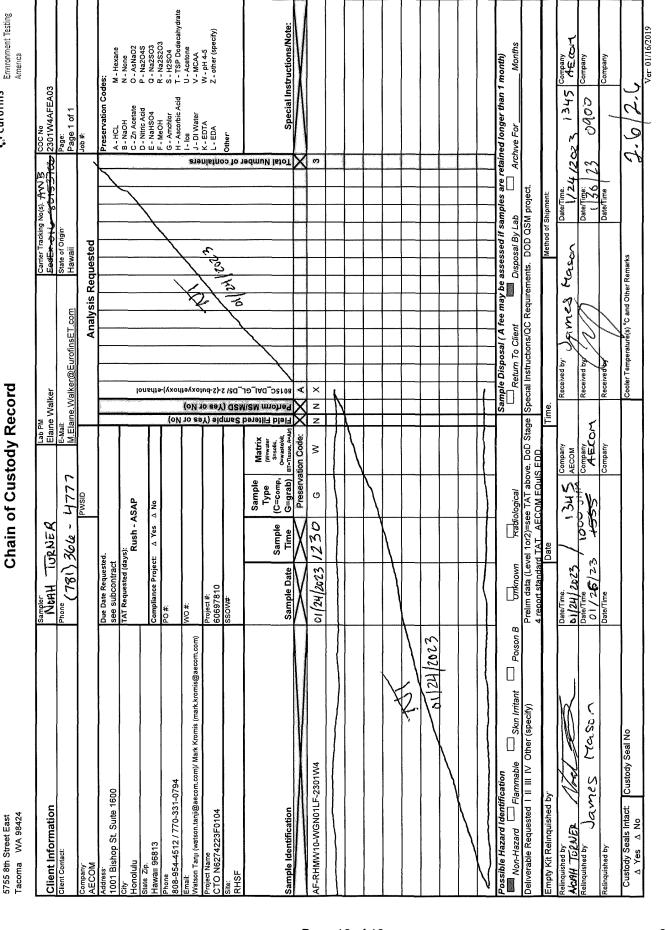
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Chain of Custody Record

Eurofins FGS, Seattle

5755 8th Street East Tacoma WA 98424

5755 8th Street East Tacoma. WA 98424	Chain	Chain of Custody Record	dy Red	ord			💸 eurofins	Envirorment Testing America
Client Information	Sampler Nin		Lab PM Elaine Walker	/alker		Carrier Tracking No(s) かいま FedEx シュュータのでするうの	COC No. 2301W4AFEA06	9
Client Contact:	Phone Rop-349-44	438	E-Mail: M.Elaine	E-Mail: M.Elaine Walker@EurofinsET.com	State of Origin Hawaii	rigin	Page: Page 1 of 1	
Company AECOM		<u>a</u>			sis Rec		7ob #:	
nop St. Suite 1600	Due Date Requested see subcontract						Preservation Codes A - HCL	des. M - Hexane
City: Honolulu	TAT Requested (days): Rush - ASAP	ASAP					B - NaOH C - Zn Acetate	N - None O - AsNaO2
State Zip Hawaii 96813	Compliance Project: A Yes	Δ No		շսբկյ		7	D - Nitric Acid E - NaHSO4	P - Na204S Q - Na2SO3
Phone 808-954-4512 / 770-331-0794			(0)	10×λ)- c	•		F - MeOH G - Amchlor H - Ascorbic Acid	R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate
gaecom.com)/ Mark Kromis (mark.kromis@aecom.com)	WO#:				7	ers		U - Acetone V - MCAA
	Project # 60697810				22	nisin	K-EDTA L-EDA	W - pH 4-5 Z - other (specify)
	:#MOSS				72	00 10	Other	
	Sample	Sample Type (C=comp,	ld Filtered	ASM mroh Je_lAg_ɔa		(/	O'S ST	SAZOE
Sample Identification	Sample Date Time	G=grab)	티			O.L.		Special Instructions/Note:
	X	Preservation Code:	code: 🗶	_ X		<u> </u>		
AF-RHMW16-WGN01LF-2301W4	2421 82/22/1	უ	N	×		8		
								d company
	-	737	2.3					
		1						
Identification				Sample Disposa	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month	if samples are retai	ined longer than	1 month)
Non-Hazard Hammable Skin Imtant Poison B Deliverable Requested IV Other (specify)	Ortknown Radiological Prelim data (Level 1or2)=see TAT above. DoD Stage	Tadiological 2)=see TAT above.	DoD Stage	Special Instruction	Special Instructions/QC Requirements DOD QSM project.	ıl	Archive For	Months
	4 report standard TAT A	AECOM FOUIS EDD	GO		TANK.	Mothed of Chiesesott		
, Ka p	Date	Con	Company	e. Received by:		Date/Time		Company
rat in hat you	con' [21)22/1		AECOM	. '	7,2	01/25/23	2241 5	A670 m
Relinquished by	0ate/Time /23 (50)	いま	Company 人どてったい	Received by:	th	Date/Time 23	0000	Company
Relinquished by			Company	Received by:		Date/Time:/	,	Company
Custody Seals Intact: Custody Seal No.				Cooler Temperat	Cooler Temperature(s) °C and Other Remarks.	તં	6/2/6	
								Ver 01/16/2019



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Eurofins FGS, Seattle

Client: AECOM Job Number: 580-122820-1

Login Number: 122820 List Source: Eurofins Savannah List Number: 2 List Creation: 01/30/23 03:56 PM

Creator: Johnson, Corey M

ordator. Comison, Corcy in		
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	
s the Field Sampler's name present on COC?	N/A	
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.	N/A	
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	