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ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-109169-1
Client Project/Site: CV22F0106

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Margie F Pascua

Kristine D. Allen

Authorized for release by:
1/13/2022 9:04:59 PM
Kristine Allen, Client Service Manager
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Designee for

Elaine Walker, Project Manager II
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 580-109169-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-109169-1

Comments
No additional comments.

Receipt
The samples were received on 1/11/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.3º C and 0.7º C.

Receipt Exceptions
One of the three VOA vials for the following sample was received broken: 220109-B1-ZT-03 (580-109169-5).

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

GC Semi VOA
Method 8015D: 220109-C3-ZT-01 (580-109169-1), 20220109-D4-YT-04 (580-109169-2), 20220109-A3-YT-02 (580-109169-3), 20220109-E1-YT-03 (580-109169-4), 220109-B1-ZT-03 (580-109169-5) and (MB 580-378054/1-A) are associated with a method blank which recovers outside control limits, low-biased, for o-Terphenyl surrogate (47%, >53% required). Associated client samples recover within control limits for this surrogate, indicating a successful extraction, and are non-detect for C9-C25 and C24-C40 hydrocarbons, demonstrating that the extraction was free of laboratory contamination; therefore, the data has been reported.

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

Organic Prep
Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-378054. Laboratory control sample/laboratory control sample duplicate were created and substituted for the MS/MSD/DUP.

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

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

Definitions/Glossary

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

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

Client Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 220109-C3-ZT-01

Lab Sample ID: 580-109169-1

Date Collected: 01/09/22 17:20

Matrix: Water

Date Received: 01/11/22 10:00

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 13:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*		*01/12/22 13:48*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	93	U	110	93	ug/L		01/11/22 17:34	01/12/22 04:43	1
C24-C40	190	U	210	190	ug/L		01/11/22 17:34	01/12/22 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*75*		*53 - 120*	*01/11/22 17:34*	*01/12/22 04:43*	*1*

Client Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 20220109-D4-YT-04

Lab Sample ID: 580-109169-2

Date Collected: 01/09/22 18:40

Matrix: Water

Date Received: 01/11/22 10:00

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*78 - 120*		*01/12/22 14:36*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	95	U	120	95	ug/L		01/11/22 17:34	01/12/22 05:03	1
C24-C40	190	U	210	190	ug/L		01/11/22 17:34	01/12/22 05:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*81*		*53 - 120*	*01/11/22 17:34*	*01/12/22 05:03*	*1*

Client Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 20220109-A3-YT-02

Lab Sample ID: 580-109169-3

Date Collected: 01/09/22 13:50

Matrix: Water

Date Received: 01/11/22 10:00

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*78 - 120*		*01/12/22 15:00*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	94	U	120	94	ug/L		01/11/22 17:34	01/12/22 05:23	1
C24-C40	190	U	210	190	ug/L		01/11/22 17:34	01/12/22 05:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*53 - 120*	*01/11/22 17:34*	*01/12/22 05:23*	*1*

Client Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 20220109-E1-YT-03

Lab Sample ID: 580-109169-4

Date Collected: 01/09/22 16:55

Matrix: Water

Date Received: 01/11/22 10:00

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*78 - 120*		*01/12/22 15:24*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	96	U	120	96	ug/L		01/11/22 17:34	01/12/22 05:43	1
C24-C40	190	U	210	190	ug/L		01/11/22 17:34	01/12/22 05:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*72*		*53 - 120*	*01/11/22 17:34*	*01/12/22 05:43*	*1*

Client Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 220109-B1-ZT-03

Lab Sample ID: 580-109169-5

Date Collected: 01/09/22 19:20

Matrix: Water

Date Received: 01/11/22 10:00

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*78 - 120*		*01/12/22 15:48*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	92	U	110	92	ug/L		01/11/22 17:34	01/12/22 06:03	1
C24-C40	180	U	200	180	ug/L		01/11/22 17:34	01/12/22 06:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*53 - 120*	*01/11/22 17:34*	*01/12/22 06:03*	*1*

QC Sample Results

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378172/5
Matrix: Water
Analysis Batch: 378172

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/12/22 10:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*78 - 120*		*01/12/22 10:14*	*1*

Lab Sample ID: LCS 580-378172/8
Matrix: Water
Analysis Batch: 378172

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	1000	1010		ug/L		101	75 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*78 - 120*

Lab Sample ID: LCSD 580-378172/9
Matrix: Water
Analysis Batch: 378172

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	1000	1040		ug/L		104	75 - 127	2	13

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 580-378054/1-A
Matrix: Water
Analysis Batch: 378039

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/11/22 17:34	01/12/22 03:42	1
C24-C40	180	U	200	180	ug/L		01/11/22 17:34	01/12/22 03:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*47*	*S1-*	*53 - 120*	*01/11/22 17:34*	*01/12/22 03:42*	*1*

Lab Sample ID: LCS 580-378054/2-A
Matrix: Water
Analysis Batch: 378039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C9-C25	1000	707		ug/L		71	55 - 134
C24-C40	1000	913		ug/L		91	36 - 143

Method: 8015D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 580-378054/2-A
Matrix: Water
Analysis Batch: 378039

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378054

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*73*		*53 - 120*

Lab Sample ID: LCSD 580-378054/3-A
Matrix: Water
Analysis Batch: 378039

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 378054

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C9-C25			1000	615		ug/L		62	55 - 134	14	26
C24-C40			1000	839		ug/L		84	36 - 143	8	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*72*		*53 - 120*

Lab Chronicle

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Client Sample ID: 220109-C3-ZT-01 — Lab Sample ID: 580-109169-1

Date Collected: 01/09/22 17:20 — **Matrix: Water**
Date Received: 01/11/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378172	01/12/22 13:48	JSM	FGS SEA
Total/NA	Prep	3510C			378054	01/11/22 17:34	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/12/22 04:43	JAE	FGS SEA

Client Sample ID: 20220109-D4-YT-04 — Lab Sample ID: 580-109169-2

Date Collected: 01/09/22 18:40 — **Matrix: Water**
Date Received: 01/11/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378172	01/12/22 14:36	JSM	FGS SEA
Total/NA	Prep	3510C			378054	01/11/22 17:34	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/12/22 05:03	JAE	FGS SEA

Client Sample ID: 20220109-A3-YT-02 — Lab Sample ID: 580-109169-3

Date Collected: 01/09/22 13:50 — **Matrix: Water**
Date Received: 01/11/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378172	01/12/22 15:00	JSM	FGS SEA
Total/NA	Prep	3510C			378054	01/11/22 17:34	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/12/22 05:23	JAE	FGS SEA

Client Sample ID: 20220109-E1-YT-03 — Lab Sample ID: 580-109169-4

Date Collected: 01/09/22 16:55 — **Matrix: Water**
Date Received: 01/11/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378172	01/12/22 15:24	JSM	FGS SEA
Total/NA	Prep	3510C			378054	01/11/22 17:34	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/12/22 05:43	JAE	FGS SEA

Client Sample ID: 220109-B1-ZT-03 — Lab Sample ID: 580-109169-5

Date Collected: 01/09/22 19:20 — **Matrix: Water**
Date Received: 01/11/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378172	01/12/22 15:48	JSM	FGS SEA
Total/NA	Prep	3510C			378054	01/11/22 17:34	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/12/22 06:03	JAE	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2236	01-19-22

Sample Summary

Client: AECOM
Project/Site: CV22F0106

Job ID: 580-109169-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109169-1	220109-C3-ZT-01	Water	01/09/22 17:20	01/11/22 10:00
580-109169-2	20220109-D4-YT-04	Water	01/09/22 18:40	01/11/22 10:00
580-109169-3	20220109-A3-YT-02	Water	01/09/22 13:50	01/11/22 10:00
580-109169-4	20220109-E1-YT-03	Water	01/09/22 16:55	01/11/22 10:00
580-109169-5	220109-B1-ZT-03	Water	01/09/22 19:20	01/11/22 10:00

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

Hydrant Compliance

eurofins Environment Testing America

Client Information	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 01092022DW-54
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #: 109169
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days):			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #:			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV22F0106	Project #: 60674414			
Site: RHSF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	TPH-g (C6-C10) by 8260	TPH-d, TPH-o (C10-C24, C24-C40) by 8015	Total Number of containers	Special Instructions/Note:
				Preservation Code:		X	X	A	N	X	
-1	220109-C3-ZT-01	01/09/22	17:20	G	W	N	N	3	2		

Ja
01/09/22

580-109169 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Thomas Aguilo	1/9/22 2100	AECOM		1/9/22 2100	AECOM
Comas Rotto on behalf of Rachel Tuca	1/10/22 1500	AECOM		1/11/22 1000	EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: A2 0.3/1.0 FedEx PD
DW -54/-47/wet/Bnb w/CS

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 01092022DW-97
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #: 109169
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 2			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #:			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV22F0106	Project #: 60674414			
Site: RHSF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 TPH-g (HCl)	EPA 8015 TPH-d/o	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	I		
2 20220109-D4-XT-04	1/9/22	1840	G	W	N	N	X	X		

1/9/22

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	1/9/22 1952	AECOM	[signature]	1/9/22 1952	AECOM
Relinquished on behalf of Rachel Tuci [signature]	1/10/22 1500	AECOM	[signature]	1/11/22 1000	EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: A2 0.3/1.0 Fedex to DW-54/-47 / wet/Bat w/cs

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 01092022OW-48
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #: 109169
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 2			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #:			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV22F0106	Project #: 60674414			
Site: RHSF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 TPH-g (HCl)	EPA 8015 TPH-d/o	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	I		
20220109-A3-VT-02	1/9/22	1350	G	W	N	N	X	X	5	

1/9/22

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	1/9/22 1951	AECOM		1/9/2022 1957	AECOM
Connor Lotto on behalf of Rachel Tucci	1/10/22 1500	AECOM		1/11/22 1000	EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: A2 0.7/1.4 Fedex PO
DW-521-481-45 /wet/but w/cs

Ver: 01/16/2019 1/13/2022

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

01092022DW-45

Client Information	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: ~~20220109-CT-YT-03~~
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #: 109169
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days): 2			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #:			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV22F0106	Project #: 60674414			
Site: RHSF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 TPH-g (HCl)	EPA 8015 TPH-d/o	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	I		
4 20220109-EI-YT-03	1/9/2022	1655	G	W	N	N	X	X	5	

1/9/22

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	1/9/22 @ 1950	AECOM	[signature]	1/9/22 1950	AECOM
Connor Rotter on behalf of Rachel Tucci	1/10/22 1500	AECOM	[signature]	1/11/22 1000	EFGS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: A2 0.7/1.4 Fedex PO DW-521-481-45 / wet/Bub w/CS

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Hobart Compliance

Client Information	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: 01092022OW-52
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: AECOM	PWSID:			Job #: 109169
Address: 1001 Bishop St. Suite 1600	Due Date Requested: see subcontract			
City: Honolulu	TAT Requested (days):			
State, Zip: Hawaii 96813	Compliance Project: Δ Yes Δ No			
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	PO #:			
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	WO #:			
Project Name: CV22F0106	Project #: 60674414			
Site: RHSF	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 TPH-g (HCl)	EPA 8015 TPH-d/o	Total Number of containers	Special Instructions/Note:
				Preservation Code:				A	I		
5	220109-BI-2T-03	01/09/2022	1920	G	W	N	N	3	2	5	

01/09/22 SK

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD.

Special Instructions/QC Requirements: DOD QSM project.

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Samuel Kelley	1/9/22 2050	AECOM		1/9/22 2050	AECOM
Connor Potter on behalf of Rachel Tucci	1/10/22 1500	AECOM		1/11/22 1000	EFGS

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: A2 0.7/1.4 FedEx FD
DW-521-481-45 / wet / Bub w/ CS

Ver: 01/16/2019 1/13/2022

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109169-1

Login Number: 109169
List Number: 1
Creator: Blankinship, Tom X

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
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	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-109117-7
Client Project/Site: Red Hill Drinking Water

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Margie F Pascua

Kristine D. Allen

Authorized for release by:
1/12/2022 6:12:14 PM
Kristine Allen, Client Service Manager
(253)248-4970
Kristine.Allen@Eurofinset.com

Designee for

Elaine Walker, Project Manager II
(253)248-4972
m.elaine.walker@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 580-109117-7

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-109117-7

Comments
No additional comments.

Receipt
The samples were received on 1/10/2022 9:15 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 2.9º C.

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

GC/MS Semi VOA
Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: Hexachlorocyclopentadiene. These analytes may have a %D >60%.

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-377974 and analytical batch 580-377989 recovered outside control limits for the following analytes: Hexachlorocyclopentadiene. Hexachlorocyclopentadiene has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-377974 and analytical batch 580-377989 recovered outside control limits for the following analytes: Diethyl phthalate, Fluoranthene, Benzo[b]fluoranthene and Pyrene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-377989 was outside criteria for the following analytes: N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analytes is considered estimated.

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

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

Organic Prep
Methods 3510C, CWA_Prep: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-377974. Laboratory control sample/laboratory control sample duplicate were created and substituted for MS/MSD/DUP.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-377984. Laboratory control sample/laboratory control sample duplicate were created and substituted for MS/MSD/DUP.

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

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

Definitions/Glossary

Client: AECOM
Job ID: 580-109117-7
Project/Site: Red Hill Drinking Water

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

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

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Client Sample ID: 20220108-E1-ZT03

Lab Sample ID: 580-109117-4

Date Collected: 01/08/22 15:57
Matrix: Water
Date Received: 01/10/22 09:15

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/11/22 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*78 - 120*		*01/11/22 15:09*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.2	U	15	3.2	ug/L			01/11/22 15:09	1
Benzene	0.24	U	1.0	0.24	ug/L			01/11/22 15:09	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/11/22 15:09	1
Bromoform	**0.71**	**J**	1.0	0.51	ug/L			01/11/22 15:09	1
Bromomethane	0.21	U	1.0	0.21	ug/L			01/11/22 15:09	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/11/22 15:09	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/11/22 15:09	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/11/22 15:09	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/11/22 15:09	1
Chloromethane	0.28	U	1.0	0.28	ug/L			01/11/22 15:09	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/11/22 15:09	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/11/22 15:09	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/11/22 15:09	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/11/22 15:09	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/11/22 15:09	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/11/22 15:09	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/11/22 15:09	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/11/22 15:09	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/11/22 15:09	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/11/22 15:09	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/11/22 15:09	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/11/22 15:09	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/11/22 15:09	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/11/22 15:09	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/11/22 15:09	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/11/22 15:09	1
Styrene	0.53	U	1.0	0.53	ug/L			01/11/22 15:09	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/11/22 15:09	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/11/22 15:09	1
Toluene	0.39	U	1.0	0.39	ug/L			01/11/22 15:09	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/11/22 15:09	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/11/22 15:09	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/11/22 15:09	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/11/22 15:09	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/11/22 15:09	1
Vinyl chloride	0.22	U	1.0	0.22	ug/L			01/11/22 15:09	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/11/22 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*01/11/22 15:09*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*		*01/11/22 15:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 120*		*01/11/22 15:09*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*01/11/22 15:09*	*1*

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Client Sample ID: 20220108-E1-ZT03

Lab Sample ID: 580-109117-4

Date Collected: 01/08/22 15:57

Matrix: Water

Date Received: 01/10/22 09:15

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.051	U	0.41	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Acenaphthylene	0.062	U	1.0	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
Anthracene	0.051	U	1.0	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Benzo[a]anthracene	0.051	U	0.26	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Benzo[a]pyrene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
Benzo[b]fluoranthene	0.041	U *+	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
Benzo[g,h,i]perylene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
Benzo[k]fluoranthene	0.051	U	0.26	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Bis(2-chloroethoxy)methane	0.051	U	0.62	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Bis(2-chloroethyl)ether	0.031	U	0.10	0.031	ug/L		01/10/22 19:30	01/11/22 18:03	1
Bis(2-ethylhexyl) phthalate	0.76	U	3.1	0.76	ug/L		01/10/22 19:30	01/11/22 18:03	1
4-Bromophenyl phenyl ether	0.062	U	0.62	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
Butyl benzyl phthalate	0.28	U	4.1	0.28	ug/L		01/10/22 19:30	01/11/22 18:03	1
Carbazole	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
4-Chloroaniline	0.61	U	2.1	0.61	ug/L		01/10/22 19:30	01/11/22 18:03	1
4-Chloro-3-methylphenol	0.13	U	0.62	0.13	ug/L		01/10/22 19:30	01/11/22 18:03	1
2-Chloronaphthalene	0.072	U	1.0	0.072	ug/L		01/10/22 19:30	01/11/22 18:03	1
2-Chlorophenol	0.051	U	1.0	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
4-Chlorophenyl phenyl ether	0.051	U	0.62	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Chrysene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
Dibenz(a,h)anthracene	0.072	U	0.26	0.072	ug/L		01/10/22 19:30	01/11/22 18:03	1
Dibenzofuran	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
1,2-Dichlorobenzene	0.051	U	0.41	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
1,3-Dichlorobenzene	0.041	U	0.41	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
1,4-Dichlorobenzene	0.041	U	0.41	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
3,3'-Dichlorobenzidine	0.27	U	1.0	0.27	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4-Dichlorophenol	0.21	U	1.0	0.21	ug/L		01/10/22 19:30	01/11/22 18:03	1
Diethyl phthalate	0.15	U *+	1.0	0.15	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4-Dimethylphenol	0.16	U	4.1	0.16	ug/L		01/10/22 19:30	01/11/22 18:03	1
Dimethyl phthalate	0.062	U	0.62	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
Di-n-butyl phthalate	0.20	U	3.1	0.20	ug/L		01/10/22 19:30	01/11/22 18:03	1
4,6-Dinitro-2-methylphenol	0.57	U	2.1	0.57	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4-Dinitrophenol	1.6	U	5.1	1.6	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,6-Dinitrotoluene	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
Di-n-octyl phthalate	0.13	U	1.0	0.13	ug/L		01/10/22 19:30	01/11/22 18:03	1
Fluoranthene	0.062	U *+	0.26	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
Fluorene	0.051	U	0.26	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Hexachlorobenzene	0.041	U	0.62	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
Hexachlorobutadiene	0.062	U	1.0	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
Hexachlorocyclopentadiene	0.14	U *-	1.0	0.14	ug/L		01/10/22 19:30	01/11/22 18:03	1
Hexachloroethane	0.051	U	1.0	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
Indeno[1,2,3-cd]pyrene	0.13	U	0.41	0.13	ug/L		01/10/22 19:30	01/11/22 18:03	1
Isophorone	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
2-Methylphenol	0.051	U	0.62	0.051	ug/L		01/10/22 19:30	01/11/22 18:03	1
3 & 4 Methylphenol	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
Naphthalene	0.16	U	0.41	0.16	ug/L		01/10/22 19:30	01/11/22 18:03	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
3-Nitroaniline	0.16	U	3.1	0.16	ug/L		01/10/22 19:30	01/11/22 18:03	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Client Sample ID: 20220108-E1-ZT03

Lab Sample ID: 580-109117-4

Date Collected: 01/08/22 15:57
Matrix: Water
Date Received: 01/10/22 09:15

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	0.22	U	2.1	0.22	ug/L		01/10/22 19:30	01/11/22 18:03	1
Nitrobenzene	0.041	U	1.0	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
4-Nitrophenol	1.7	U	10	1.7	ug/L		01/10/22 19:30	01/11/22 18:03	1
N-Nitrosodi-n-propylamine	0.062	U	0.41	0.062	ug/L		01/10/22 19:30	01/11/22 18:03	1
N-Nitrosodiphenylamine	0.072	U	1.0	0.072	ug/L		01/10/22 19:30	01/11/22 18:03	1
Pentachlorophenol	0.52	U	10	0.52	ug/L		01/10/22 19:30	01/11/22 18:03	1
Phenanthrene	0.12	U	1.0	0.12	ug/L		01/10/22 19:30	01/11/22 18:03	1
Phenol	0.37	U	1.0	0.37	ug/L		01/10/22 19:30	01/11/22 18:03	1
Pyrene	0.041	U *+	1.0	0.041	ug/L		01/10/22 19:30	01/11/22 18:03	1
1,2,4-Trichlorobenzene	0.093	U	0.41	0.093	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4,5-Trichlorophenol	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1
2,4,6-Trichlorophenol	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 18:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*91*		*35 - 120*	*01/10/22 19:30*	*01/11/22 18:03*	*1*
2-Fluorophenol (Surr)	*55*		*21 - 120*	*01/10/22 19:30*	*01/11/22 18:03*	*1*
Nitrobenzene-d5 (Surr)	*93*		*39 - 120*	*01/10/22 19:30*	*01/11/22 18:03*	*1*
Phenol-d5 (Surr)	*32*		*10 - 120*	*01/10/22 19:30*	*01/11/22 18:03*	*1*
Terphenyl-d14	*121*		*63 - 137*	*01/10/22 19:30*	*01/11/22 18:03*	*1*
2,4,6-Tribromophenol	*99*		*50 - 130*	*01/10/22 19:30*	*01/11/22 18:03*	*1*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	45	U	55	45	ug/L		01/11/22 09:52	01/11/22 22:20	1
C24-C40	90	U	180	90	ug/L		01/11/22 09:52	01/11/22 22:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*77*		*53 - 120*	*01/11/22 09:52*	*01/11/22 22:20*	*1*

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378017/5
Matrix: Water
Analysis Batch: 378017

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/11/22 08:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*78 - 120*		*01/11/22 08:00*	*1*

Lab Sample ID: LCS 580-378017/8
Matrix: Water
Analysis Batch: 378017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	1000	1020		ug/L		102	75 - 127

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*78 - 120*

Lab Sample ID: LCSD 580-378017/9
Matrix: Water
Analysis Batch: 378017

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	1000	1030		ug/L		103	75 - 127	0	13

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*78 - 120*

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378016/5
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.2	U	15	3.2	ug/L			01/11/22 08:00	1
Benzene	0.24	U	1.0	0.24	ug/L			01/11/22 08:00	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/11/22 08:00	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/11/22 08:00	1
Bromomethane	0.21	U	1.0	0.21	ug/L			01/11/22 08:00	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/11/22 08:00	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/11/22 08:00	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/11/22 08:00	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/11/22 08:00	1
Chloromethane	0.28	U	1.0	0.28	ug/L			01/11/22 08:00	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/11/22 08:00	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/11/22 08:00	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/11/22 08:00	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/11/22 08:00	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-378016/5
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/11/22 08:00	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/11/22 08:00	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/11/22 08:00	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/11/22 08:00	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/11/22 08:00	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/11/22 08:00	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/11/22 08:00	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/11/22 08:00	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/11/22 08:00	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/11/22 08:00	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
Styrene	0.53	U	1.0	0.53	ug/L			01/11/22 08:00	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/11/22 08:00	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/11/22 08:00	1
Toluene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/11/22 08:00	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/11/22 08:00	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/11/22 08:00	1
Vinyl chloride	0.22	U	1.0	0.22	ug/L			01/11/22 08:00	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/11/22 08:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*01/11/22 08:00*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*01/11/22 08:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*		*01/11/22 08:00*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*01/11/22 08:00*	*1*

Lab Sample ID: LCS 580-378016/6
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	44.4		ug/L		89	44 - 150
Benzene	10.0	10.5		ug/L		105	80 - 122
Bromodichloromethane	10.0	9.89		ug/L		99	75 - 124
Bromoform	10.0	9.15		ug/L		92	56 - 139
Bromomethane	10.0	8.89		ug/L		89	36 - 150
Carbon disulfide	10.0	9.71		ug/L		97	63 - 134
Carbon tetrachloride	10.0	10.2		ug/L		102	72 - 129
Chlorobenzene	10.0	9.93		ug/L		99	80 - 120
Chloroform	10.0	10.6		ug/L		106	78 - 127
Chloromethane	10.0	8.23		ug/L		82	25 - 150
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	76 - 120
cis-1,3-Dichloropropene	10.0	9.56		ug/L		96	77 - 120
Dibromochloromethane	10.0	9.35		ug/L		93	73 - 125

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-378016/6
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	10.0	10.7		ug/L		107	80 - 120
1,2-Dichloroethane	10.0	10.3		ug/L		103	69 - 126
1,1-Dichloroethene	10.0	10.7		ug/L		107	70 - 129
1,2-Dichloroethene, Total	20.0	20.7		ug/L		104	76 - 129
Dichloromethane	10.0	10.5		ug/L		105	77 - 125
1,2-Dichloropropane	10.0	10.0		ug/L		100	80 - 120
Ethylbenzene	10.0	9.88		ug/L		99	80 - 120
Ethyl Chloride	10.0	8.55		ug/L		86	38 - 150
2-Hexanone	50.0	44.9		ug/L		90	65 - 144
Methyl Ethyl Ketone	50.0	47.3		ug/L		95	65 - 137
Methyl isobutyl ketone (MIBK)	50.0	44.4		ug/L		89	59 - 141
m-Xylene & p-Xylene	10.0	9.85		ug/L		98	80 - 120
o-Xylene	10.0	9.76		ug/L		98	80 - 120
Styrene	10.0	9.77		ug/L		98	76 - 122
1,1,2,2-Tetrachloroethane	10.0	8.25		ug/L		83	74 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	76 - 125
Toluene	10.0	9.94		ug/L		99	80 - 120
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	75 - 120
trans-1,3-Dichloropropene	10.0	9.10		ug/L		91	76 - 122
1,1,1-Trichloroethane	10.0	10.6		ug/L		106	74 - 130
1,1,2-Trichloroethane	10.0	9.41		ug/L		94	80 - 121
Trichloroethene	10.0	11.1		ug/L		111	80 - 125
Vinyl chloride	10.0	8.65		ug/L		87	31 - 150
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 580-378016/7
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	50.0	46.6		ug/L		93	44 - 150	5	33
Benzene	10.0	10.1		ug/L		101	80 - 122	4	14
Bromodichloromethane	10.0	9.76		ug/L		98	75 - 124	1	13
Bromoform	10.0	9.28		ug/L		93	56 - 139	1	21
Bromomethane	10.0	10.7		ug/L		107	36 - 150	18	33
Carbon disulfide	10.0	8.90		ug/L		89	63 - 134	9	24
Carbon tetrachloride	10.0	9.77		ug/L		98	72 - 129	4	19
Chlorobenzene	10.0	9.91		ug/L		99	80 - 120	0	10
Chloroform	10.0	10.6		ug/L		106	78 - 127	0	14
Chloromethane	10.0	8.62		ug/L		86	25 - 150	5	26
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 120	2	20
cis-1,3-Dichloropropene	10.0	8.99		ug/L		90	77 - 120	6	35

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-378016/7
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 378016

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	10.0	9.63		ug/L		96	73 - 125	3	13
1,1-Dichloroethane	10.0	10.4		ug/L		104	80 - 120	2	15
1,2-Dichloroethane	10.0	10.2		ug/L		102	69 - 126	0	11
1,1-Dichloroethene	10.0	10.2		ug/L		102	70 - 129	5	23
1,2-Dichloroethene, Total	20.0	20.1		ug/L		100	76 - 129	3	21
Dichloromethane	10.0	11.2		ug/L		112	77 - 125	6	18
1,2-Dichloropropane	10.0	9.95		ug/L		100	80 - 120	1	14
Ethylbenzene	10.0	9.60		ug/L		96	80 - 120	3	14
Ethyl Chloride	10.0	8.90		ug/L		89	38 - 150	4	28
2-Hexanone	50.0	43.6		ug/L		87	65 - 144	3	26
Methyl Ethyl Ketone	50.0	48.6		ug/L		97	65 - 137	3	34
Methyl isobutyl ketone (MIBK)	50.0	44.2		ug/L		88	59 - 141	1	22
m-Xylene & p-Xylene	10.0	9.77		ug/L		98	80 - 120	1	14
o-Xylene	10.0	9.59		ug/L		96	80 - 120	2	16
Styrene	10.0	9.72		ug/L		97	76 - 122	0	16
1,1,2,2-Tetrachloroethane	10.0	8.33		ug/L		83	74 - 124	1	25
Tetrachloroethene	10.0	9.43		ug/L		94	76 - 125	8	13
Toluene	10.0	9.71		ug/L		97	80 - 120	2	13
trans-1,2-Dichloroethene	10.0	9.97		ug/L		100	75 - 120	4	21
trans-1,3-Dichloropropene	10.0	8.72		ug/L		87	76 - 122	4	20
1,1,1-Trichloroethane	10.0	9.53		ug/L		95	74 - 130	11	19
1,1,2-Trichloroethane	10.0	9.65		ug/L		97	80 - 121	3	14
Trichloroethene	10.0	10.9		ug/L		109	80 - 125	2	13
Vinyl chloride	10.0	10.1		ug/L		101	31 - 150	16	26
Xylenes, Total	20.0	19.4		ug/L		97	80 - 120	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-377974/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 377989
Prep Batch: 377974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.050	U	0.40	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Acenaphthylene	0.060	U	1.0	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Anthracene	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[a]anthracene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[a]pyrene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[b]fluoranthene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[g,h,i]perylene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[k]fluoranthene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Bis(2-chloroethoxy)methane	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Bis(2-chloroethyl)ether	0.030	U	0.10	0.030	ug/L		01/10/22 19:30	01/11/22 16:31	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-377974/1-A
Matrix: Water
Analysis Batch: 377989

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 377974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	0.74	U	3.0	0.74	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Bromophenyl phenyl ether	0.060	U	0.60	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Butyl benzyl phthalate	0.27	U	4.0	0.27	ug/L		01/10/22 19:30	01/11/22 16:31	1
Carbazole	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chloroaniline	0.59	U	2.0	0.59	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chloro-3-methylphenol	0.13	U	0.60	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Chloronaphthalene	0.070	U	1.0	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Chlorophenol	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chlorophenyl phenyl ether	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Chrysene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dibenz(a,h)anthracene	0.070	U	0.25	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dibenzofuran	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,2-Dichlorobenzene	0.050	U	0.40	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,3-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,4-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
3,3'-Dichlorobenzidine	0.26	U	1.0	0.26	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dichlorophenol	0.20	U	1.0	0.20	ug/L		01/10/22 19:30	01/11/22 16:31	1
Diethyl phthalate	0.15	U	1.0	0.15	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dimethylphenol	0.16	U	4.0	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dimethyl phthalate	0.060	U	0.60	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Di-n-butyl phthalate	0.19	U	3.0	0.19	ug/L		01/10/22 19:30	01/11/22 16:31	1
4,6-Dinitro-2-methylphenol	0.55	U	2.0	0.55	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dinitrophenol	1.6	U	5.0	1.6	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,6-Dinitrotoluene	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
Di-n-octyl phthalate	0.13	U	1.0	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
Fluoranthene	0.060	U	0.25	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Fluorene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorobenzene	0.040	U	0.60	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorobutadiene	0.060	U	1.0	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorocyclopentadiene	0.14	U	1.0	0.14	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachloroethane	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Indeno[1,2,3-cd]pyrene	0.13	U	0.40	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
Isophorone	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Methylphenol	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
3 & 4 Methylphenol	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
Naphthalene	0.16	U	0.40	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
3-Nitroaniline	0.16	U	3.0	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Nitroaniline	0.21	U	2.0	0.21	ug/L		01/10/22 19:30	01/11/22 16:31	1
Nitrobenzene	0.040	U	1.0	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Nitrophenol	1.7	U	10	1.7	ug/L		01/10/22 19:30	01/11/22 16:31	1
N-Nitrosodi-n-propylamine	0.060	U	0.40	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
N-Nitrosodiphenylamine	0.070	U	1.0	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
Pentachlorophenol	0.51	U	10	0.51	ug/L		01/10/22 19:30	01/11/22 16:31	1
Phenanthrene	0.12	U	1.0	0.12	ug/L		01/10/22 19:30	01/11/22 16:31	1
Phenol	0.36	U	1.0	0.36	ug/L		01/10/22 19:30	01/11/22 16:31	1
Pyrene	0.040	U	1.0	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,2,4-Trichlorobenzene	0.090	U	0.40	0.090	ug/L		01/10/22 19:30	01/11/22 16:31	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-377974/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377989 — **Prep Batch: 377974**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4,6-Trichlorophenol	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*92*		*35 - 120*	*01/10/22 19:30*	*01/11/22 16:31*	*1*
2-Fluorophenol (Surr)	*56*		*21 - 120*	*01/10/22 19:30*	*01/11/22 16:31*	*1*
Nitrobenzene-d5 (Surr)	*98*		*39 - 120*	*01/10/22 19:30*	*01/11/22 16:31*	*1*
Phenol-d5 (Surr)	*30*		*10 - 120*	*01/10/22 19:30*	*01/11/22 16:31*	*1*
Terphenyl-d14	*125*		*63 - 137*	*01/10/22 19:30*	*01/11/22 16:31*	*1*
2,4,6-Tribromophenol	*103*		*50 - 130*	*01/10/22 19:30*	*01/11/22 16:31*	*1*

Lab Sample ID: LCS 580-377974/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377989 — **Prep Batch: 377974**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	2.00	1.68		ug/L		84	41 - 120
Acenaphthylene	2.00	1.74		ug/L		87	43 - 120
Anthracene	2.00	1.99		ug/L		100	58 - 120
Benzo[a]anthracene	2.00	2.38		ug/L		119	48 - 131
Benzo[a]pyrene	2.00	2.22		ug/L		111	55 - 125
Benzo[b]fluoranthene	2.00	2.39		ug/L		120	54 - 124
Benzo[g,h,i]perylene	2.00	1.50		ug/L		75	46 - 124
Benzo[k]fluoranthene	2.00	2.10		ug/L		105	52 - 132
Bis(2-chloroethoxy)methane	2.00	1.89		ug/L		94	38 - 120
Bis(2-ethylhexyl) phthalate	2.00	2.54	J	ug/L		127	41 - 150
4-Bromophenyl phenyl ether	2.00	1.98		ug/L		99	53 - 120
Butyl benzyl phthalate	2.00	2.48	J	ug/L		124	40 - 150
Carbazole	2.00	2.28		ug/L		114	61 - 150
4-Chloroaniline	2.00	0.814	J	ug/L		41	10 - 150
4-Chloro-3-methylphenol	2.00	1.88		ug/L		94	36 - 120
2-Chloronaphthalene	2.00	1.77		ug/L		89	35 - 120
2-Chlorophenol	2.00	1.65		ug/L		82	44 - 120
4-Chlorophenyl phenyl ether	2.00	1.80		ug/L		90	41 - 120
Chrysene	2.00	2.22		ug/L		111	57 - 125
Dibenz(a,h)anthracene	2.00	1.54		ug/L		77	48 - 126
Dibenzofuran	2.00	1.75		ug/L		88	45 - 120
1,2-Dichlorobenzene	2.00	1.64		ug/L		82	20 - 120
1,3-Dichlorobenzene	2.00	1.68		ug/L		84	20 - 120
1,4-Dichlorobenzene	2.00	1.66		ug/L		83	20 - 120
3,3'-Dichlorobenzidine	4.00	4.08		ug/L		102	33 - 150
2,4-Dichlorophenol	2.00	1.76		ug/L		88	45 - 120
Diethyl phthalate	2.00	2.39		ug/L		119	60 - 121
2,4-Dimethylphenol	2.00	1.98	J	ug/L		99	37 - 120
Dimethyl phthalate	2.00	2.18		ug/L		109	54 - 120
Di-n-butyl phthalate	2.00	2.45	J	ug/L		123	55 - 150
4,6-Dinitro-2-methylphenol	4.00	2.58		ug/L		64	29 - 136
2,4-Dinitrophenol	4.00	1.91	J	ug/L		48	10 - 146

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-377974/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377989 — **Prep Batch: 377974**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrotoluene	2.00	2.14		ug/L		107	51 - 120
2,6-Dinitrotoluene	2.00	1.89		ug/L		95	52 - 120
Di-n-octyl phthalate	2.00	2.60		ug/L		130	48 - 140
Fluoranthene	2.00	2.30		ug/L		115	60 - 121
Fluorene	2.00	1.83		ug/L		91	20 - 120
Hexachlorobenzene	2.00	1.95		ug/L		98	49 - 120
Hexachlorobutadiene	2.00	1.68		ug/L		84	10 - 130
Hexachlorocyclopentadiene	2.00	0.164	J *-	ug/L		8	10 - 125
Hexachloroethane	2.00	1.12		ug/L		56	10 - 130
Indeno[1,2,3-cd]pyrene	2.00	1.70		ug/L		85	39 - 124
Isophorone	2.00	1.85		ug/L		93	41 - 120
2-Methylphenol	2.00	1.49		ug/L		75	30 - 120
3 & 4 Methylphenol	2.00	1.44		ug/L		72	29 - 120
Naphthalene	2.00	1.68		ug/L		84	42 - 120
2-Nitroaniline	2.00	2.06		ug/L		103	43 - 120
3-Nitroaniline	2.00	1.61	J	ug/L		81	10 - 138
4-Nitroaniline	2.00	1.76	J	ug/L		88	38 - 133
Nitrobenzene	2.00	1.84		ug/L		92	38 - 120
4-Nitrophenol	4.00	2.01	J	ug/L		50	10 - 120
N-Nitrosodi-n-propylamine	2.00	2.12		ug/L		106	39 - 120
N-Nitrosodiphenylamine	2.00	1.95		ug/L		97	52 - 120
Pentachlorophenol	4.00	2.31	J	ug/L		58	18 - 135
Phenanthrene	2.00	2.07		ug/L		103	54 - 120
Phenol	2.00	0.758	J	ug/L		38	13 - 120
Pyrene	2.00	2.35		ug/L		118	57 - 120
1,2,4-Trichlorobenzene	2.00	1.76		ug/L		88	21 - 120
2,4,5-Trichlorophenol	2.00	1.96		ug/L		98	45 - 120
2,4,6-Trichlorophenol	2.00	1.85		ug/L		92	43 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*76*		*35 - 120*
2-Fluorophenol (Surr)	*50*		*21 - 120*
Nitrobenzene-d5 (Surr)	*87*		*39 - 120*
Phenol-d5 (Surr)	*32*		*10 - 120*
Terphenyl-d14	*120*		*63 - 137*
2,4,6-Tribromophenol	*101*		*50 - 130*

Lab Sample ID: LCSD 580-377974/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377989 — **Prep Batch: 377974**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	2.00	1.70		ug/L		85	41 - 120	1	35
Acenaphthylene	2.00	1.76		ug/L		88	43 - 120	1	35
Anthracene	2.00	2.16		ug/L		108	58 - 120	8	35
Benzo[a]anthracene	2.00	2.51		ug/L		125	48 - 131	5	35
Benzo[a]pyrene	2.00	2.33		ug/L		117	55 - 125	5	35
Benzo[b]fluoranthene	2.00	2.54	*+	ug/L		127	54 - 124	6	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-377974/3-A
Matrix: Water
Analysis Batch: 377989

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 377974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	2.00	1.59		ug/L		79	46 - 124	6	35
Benzo[k]fluoranthene	2.00	2.22		ug/L		111	52 - 132	5	35
Bis(2-chloroethoxy)methane	2.00	1.88		ug/L		94	38 - 120	0	35
Bis(2-ethylhexyl) phthalate	2.00	2.67	J	ug/L		134	41 - 150	5	35
4-Bromophenyl phenyl ether	2.00	1.98		ug/L		99	53 - 120	0	35
Butyl benzyl phthalate	2.00	2.61	J	ug/L		131	40 - 150	5	35
Carbazole	2.00	2.47		ug/L		124	61 - 150	8	35
4-Chloroaniline	2.00	1.12	J	ug/L		56	10 - 150	31	35
4-Chloro-3-methylphenol	2.00	1.85		ug/L		93	36 - 120	2	35
2-Chloronaphthalene	2.00	1.76		ug/L		88	35 - 120	0	35
2-Chlorophenol	2.00	1.65		ug/L		83	44 - 120	0	35
4-Chlorophenyl phenyl ether	2.00	1.85		ug/L		92	41 - 120	2	35
Chrysene	2.00	2.35		ug/L		118	57 - 125	6	35
Dibenz(a,h)anthracene	2.00	1.67		ug/L		84	48 - 126	8	35
Dibenzofuran	2.00	1.89		ug/L		95	45 - 120	8	35
1,2-Dichlorobenzene	2.00	1.73		ug/L		86	20 - 120	5	35
1,3-Dichlorobenzene	2.00	1.70		ug/L		85	20 - 120	2	35
1,4-Dichlorobenzene	2.00	1.67		ug/L		84	20 - 120	1	35
3,3'-Dichlorobenzidine	4.00	4.59		ug/L		115	33 - 150	12	35
2,4-Dichlorophenol	2.00	1.78		ug/L		89	45 - 120	1	35
Diethyl phthalate	2.00	2.47	*+	ug/L		123	60 - 121	3	35
2,4-Dimethylphenol	2.00	1.97	J	ug/L		99	37 - 120	1	35
Dimethyl phthalate	2.00	2.25		ug/L		112	54 - 120	3	35
Di-n-butyl phthalate	2.00	2.60	J	ug/L		130	55 - 150	6	35
4,6-Dinitro-2-methylphenol	4.00	2.62		ug/L		65	29 - 136	1	35
2,4-Dinitrophenol	4.00	2.05	J	ug/L		51	10 - 146	7	35
2,4-Dinitrotoluene	2.00	2.30		ug/L		115	51 - 120	7	35
2,6-Dinitrotoluene	2.00	2.02		ug/L		101	52 - 120	6	35
Di-n-octyl phthalate	2.00	2.70		ug/L		135	48 - 140	4	35
Fluoranthene	2.00	2.54	*+	ug/L		127	60 - 121	10	35
Fluorene	2.00	1.95		ug/L		98	20 - 120	7	35
Hexachlorobenzene	2.00	2.05		ug/L		103	49 - 120	5	35
Hexachlorobutadiene	2.00	1.66		ug/L		83	10 - 130	1	35
Hexachlorocyclopentadiene	2.00	0.182	J *-	ug/L		9	10 - 125	10	35
Hexachloroethane	2.00	1.14		ug/L		57	10 - 130	2	35
Indeno[1,2,3-cd]pyrene	2.00	1.73		ug/L		86	39 - 124	1	35
Isophorone	2.00	1.98		ug/L		99	41 - 120	7	35
2-Methylphenol	2.00	1.51		ug/L		76	30 - 120	1	35
3 & 4 Methylphenol	2.00	1.42		ug/L		71	29 - 120	2	35
Naphthalene	2.00	1.64		ug/L		82	42 - 120	2	35
2-Nitroaniline	2.00	2.06		ug/L		103	43 - 120	0	35
3-Nitroaniline	2.00	1.68	J	ug/L		84	10 - 138	4	35
4-Nitroaniline	2.00	2.13		ug/L		106	38 - 133	19	35
Nitrobenzene	2.00	1.80		ug/L		90	38 - 120	2	35
4-Nitrophenol	4.00	2.05	J	ug/L		51	10 - 120	2	35
N-Nitrosodi-n-propylamine	2.00	2.02		ug/L		101	39 - 120	5	35
N-Nitrosodiphenylamine	2.00	2.12		ug/L		106	52 - 120	8	35
Pentachlorophenol	4.00	2.04	J	ug/L		51	18 - 135	13	35
Phenanthrene	2.00	2.24		ug/L		112	54 - 120	8	35

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-377974/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 377989 — **Prep Batch: 377974**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol			2.00	0.762	J	ug/L		38	13 - 120	1	35
Pyrene			2.00	2.54	*+	ug/L		127	57 - 120	8	35
1,2,4-Trichlorobenzene			2.00	1.73		ug/L		87	21 - 120	2	35
2,4,5-Trichlorophenol			2.00	1.96		ug/L		98	45 - 120	0	35
2,4,6-Trichlorophenol			2.00	1.84		ug/L		92	43 - 120	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*77*		*35 - 120*
2-Fluorophenol (Surr)	*50*		*21 - 120*
Nitrobenzene-d5 (Surr)	*82*		*39 - 120*
Phenol-d5 (Surr)	*29*		*10 - 120*
Terphenyl-d14	*128*		*63 - 137*
2,4,6-Tribromophenol	*110*		*50 - 130*

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 580-377984/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378039 — **Prep Batch: 377984**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	45	U	55	45	ug/L		01/11/22 09:52	01/11/22 20:20	1
C24-C40	90	U	180	90	ug/L		01/11/22 09:52	01/11/22 20:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*73*		*53 - 120*	*01/11/22 09:52*	*01/11/22 20:20*	*1*

Lab Sample ID: LCS 580-377984/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378039 — **Prep Batch: 377984**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
C9-C25			4000	3240		ug/L		81	55 - 134		
C24-C40			4000	3950		ug/L		99	36 - 143		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*72*		*53 - 120*

Lab Sample ID: LCSD 580-377984/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 378039 — **Prep Batch: 377984**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C9-C25			4000	3240		ug/L		81	55 - 134	0	26
C24-C40			4000	3850		ug/L		96	36 - 143	3	24

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*78*		*53 - 120*

Lab Chronicle

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Client Sample ID: 20220108-E1-ZT03

Lab Sample ID: 580-109117-4

Date Collected: 01/08/22 15:57

Matrix: Water

Date Received: 01/10/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378017	01/11/22 15:09	JSM	FGS SEA
Total/NA	Analysis	8260D		1	378016	01/11/22 15:09	JSM	FGS SEA
Total/NA	Prep	3510C			377974	01/10/22 19:30	JHR	FGS SEA
Total/NA	Analysis	8270E		1	377989	01/11/22 18:03	T1L	FGS SEA
Total/NA	Prep	3510C			377984	01/11/22 09:52	M1E	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/11/22 22:20	JAE	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Laboratory: Eurofins Seattle

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	L2236	01-19-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260D		Water	1,2-Dichloroethene, Total

Sample Summary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109117-4	20220108-E1-ZT03	Water	01/08/22 15:57	01/10/22 09:15

Eurofins FGS, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins Environment Testing America

Client Information			
Client Contact: Alethea Ramos (alternate: Margie Pascua)	Sampler: AECOM	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx
Company: AECOM	Phone:	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii
Address: 1001 Bishop St. Suite 1600	PWSID:		COC No: 01092022DW-03
City: Honolulu	Due Date Requested: see subcontract		Page: Page 1 of 1
State, Zip: Hawaii 96813	TAT Requested (days): 48hr		Job #:
Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373)	Compliance Project: Δ Yes Δ No		
Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com)	PO #:		
Project Name: CV22F0106	WO #:		
Site: RHSF	Project #: 60674414		
	SSOW#:		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA 8260 TPH-g (HCl) + VOCs	EPA 8270 SVOCs (none)	EPA 8015 TPH-d/o	Total Number of containers
			Preservation Code:				A	I	I	
20220108-E1-ZT03	01/08/22	1557	G	W	N	N	3	2	2	7
20220108-B1-ZT04	01/08/22	1825	G	W	N	N	3	2	2	7

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Special Instructions/Note:

Therm. ID: A2 Cor: 3.2° Unc: 3.9°
Cooler Dsc: DW-03 (OP)
Packing: Bus
Cust. Seal: Yes ✓ No
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Cour:
Other: Client

Possible Hazard Identification
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if sa
☐ Return To Client ☐ Disposal By Lab

Deliverable Requested: I, II, III, IV, Other (specify)
Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQuIS EDD
Special Instructions/QC Requirements: DOD QSM

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Sarah Wells	1/8/22 1920	AECOM	[signature]	1/8/22 1920	AECOM
[signature] Corner Rothe on the behalf of Rachel Tacci	01/09/22 0900	AECOM	David Bohrens [signature]	01/10/2022 0840	AECOM
[signature]	01/10/2022 0915	AECOM	[signature]	1/10/22 0915	ET GS

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109117-7

Login Number: 109117

List Number: 1

Creator: Presley, Kim A

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	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.	False	Refer to Job Narrative for details.
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	

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 2A10040

Project: 60674414, COC # 01092022 DW-44

Attn: Margie Pascua

Client: AECOM - Honolulu
1001 Bishop Street Suite 1600
Honolulu, HI 96813

Report Date: 1/13/2022

Received Date: 1/10/2022

Turnaround Time: 3 workdays

Phones: (808) 529-7277

Fax: (808) 524-0246

P.O. #: reference number 60571032.02.46.01

Billing Code:

ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

Dear Margie Pascua,

Enclosed are the results of analyses for samples received 1/10/22 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Reviewed by:

Brandon Gee For Kim G. Tu
Project Manager

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

Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported:
01/13/2022 18:01

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
20220109-E1-YT-03	AECOM	2A10040-01	Water	01/09/22 16:55	

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Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported: 01/13/2022 18:01

Sample Results

Sample: 20220109-E1-YT-03
2A10040-01 (Water)

Sampled: 01/09/22 16:55 by AECOM

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods							
Method: SM 5310B			**Instr:** TOC02				
Batch ID: W2A0451 **Preparation:** _NONE (TOC/TOX)			**Prepared:** 01/11/22 09:24				**Analyst:** ajc
Total Organic Carbon (TOC)	**0.336**	0.190	0.300	mg/l	1	01/12/22	
Metals by EPA 200 Series Methods							
Method: EPA 200.8			**Instr:** ICPMS04				
Batch ID: W2A0580 **Preparation:** EPA 200.2			**Prepared:** 01/10/22 14:25				**Analyst:** chc
Antimony, Total	ND	0.0889	0.500	ug/l	1	01/11/22	U
Arsenic, Total	**0.112**	0.0741	0.400	ug/l	1	01/11/22	J
Barium, Total	**4.00**	0.142	1.00	ug/l	1	01/11/22	
Beryllium, Total	ND	0.0624	0.100	ug/l	1	01/11/22	U
Cadmium, Total	ND	0.0416	0.200	ug/l	1	01/11/22	U
Chromium, Total	**0.542**	0.0887	0.200	ug/l	1	01/11/22	
Copper, Total	**2.33**	0.225	0.500	ug/l	1	01/11/22	
Lead, Total	**0.136**	0.0827	0.200	ug/l	1	01/11/22	J
Selenium, Total	**0.353**	0.0666	0.400	ug/l	1	01/11/22	J
Thallium, Total	ND	0.0210	0.200	ug/l	1	01/11/22	U
Method: EPA 245.1			**Instr:** HG03				
Batch ID: W2A0582 **Preparation:** Method (Hot Block)			**Prepared:** 01/10/22 12:15				**Analyst:** kvm
Mercury, Total	ND	0.0170	0.0500	ug/l	1	01/10/22	U
Semivolatile Organic Compounds by GC/MS							
Method: EPA 525.2			**Instr:** GCMS16				
Batch ID: W2A0581 **Preparation:** Method (SPE)			**Prepared:** 01/10/22 12:15				**Analyst:** rmr
1-Methylnaphthalene	ND	0.00801	0.0500	ug/l	1	01/11/22	U
2-Methylnaphthalene	**0.0105**	0.00904	0.0500	ug/l	1	01/11/22	J
Alachlor	ND	0.0110	0.100	ug/l	1	01/11/22	U
Atrazine	ND	0.00734	0.100	ug/l	1	01/11/22	U
Benzo (a) pyrene	ND	0.0117	0.100	ug/l	1	01/11/22	Q-02, U
Bis(2-ethylhexyl)adipate	ND	0.00962	5.00	ug/l	1	01/11/22	U
Bis(2-ethylhexyl)phthalate	ND	0.437	3.00	ug/l	1	01/11/22	U
Endrin	ND	0.00991	0.200	ug/l	1	01/11/22	U
gamma-BHC (Lindane)	ND	0.00633	0.100	ug/l	1	01/11/22	U
Heptachlor	ND	0.00965	0.100	ug/l	1	01/11/22	BS-04, U
Heptachlor epoxide	ND	0.0122	0.100	ug/l	1	01/11/22	U
Hexachlorobenzene	ND	0.0980	0.100	ug/l	1	01/11/22	U
Hexachlorocyclopentadiene	ND	0.00594	1.00	ug/l	1	01/11/22	U
Methoxychlor	ND	0.00863	0.200	ug/l	1	01/11/22	U
Naphthalene	**0.0105**	0.0103	0.0500	ug/l	1	01/11/22	J
Pentachlorophenol	ND	0.0242	1.00	ug/l	1	01/11/22	U

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Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported: 01/13/2022 18:01

Sample Results

(Continued)

Sample: 20220109-E1-YT-03
2A10040-01 (Water)

Sampled: 01/09/22 16:55 by AECOM

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Semivolatile Organic Compounds by GC/MS (Continued)							
Method: EPA 525.2			**Instr:** GCMS16				
Batch ID: W2A0581 **Preparation:** Method (SPE)			**Prepared:** 01/10/22 12:15				**Analyst:** rmr
Simazine	ND	0.00734	0.100	ug/l	1	01/11/22	U
Surrogate(s)							
1,3-Dimethyl-2-nitrobenzene	*100%*	*Conc: 5.06*	*70-130*			*01/11/22*	
Perylene-d12	*97%*	*Conc: 4.92*	*70-130*			*01/11/22*	
Triphenyl phosphate	*102%*	*Conc: 5.16*	*70-130*			*01/11/22*	
Volatile Organic Compounds by P&T and GC/MS							
Method: EPA 524.2			**Instr:** GCMS14				
Batch ID: W2A0576 **Preparation:** Method (P+T)			**Prepared:** 01/10/22 17:00				**Analyst:** cam
1,1,1-Trichloroethane	ND	0.256	0.500	ug/l	1	01/11/22	U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l	1	01/11/22	U
1,1-Dichloroethene	ND	0.160	0.500	ug/l	1	01/11/22	U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l	1	01/11/22	U
1,2-Dichloroethane	ND	0.243	0.500	ug/l	1	01/11/22	U
1,2-Dichloropropane	ND	0.130	0.500	ug/l	1	01/11/22	U
Benzene	ND	0.150	0.500	ug/l	1	01/11/22	U
Carbon tetrachloride	ND	0.270	0.500	ug/l	1	01/11/22	U
Chlorobenzene	ND	0.150	0.500	ug/l	1	01/11/22	U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l	1	01/11/22	U
Ethylbenzene	ND	0.210	0.500	ug/l	1	01/11/22	U
m,p-Xylene	ND	0.330	0.500	ug/l	1	01/11/22	U
Methylene chloride	ND	0.303	0.500	ug/l	1	01/11/22	U
o-Dichlorobenzene	ND	0.190	0.500	ug/l	1	01/11/22	U
o-Xylene	ND	0.200	0.500	ug/l	1	01/11/22	U
p-Dichlorobenzene	ND	0.180	0.500	ug/l	1	01/11/22	U
Styrene	ND	0.190	0.500	ug/l	1	01/11/22	U
Tetrachloroethene	ND	0.180	0.500	ug/l	1	01/11/22	U
THMs, Total	**1.10**		0.500	ug/l	1	01/11/22	
Toluene	ND	0.294	0.500	ug/l	1	01/11/22	U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l	1	01/11/22	U
Trichloroethene	ND	0.180	0.500	ug/l	1	01/11/22	U
Vinyl chloride	ND	0.180	0.500	ug/l	1	01/11/22	U
Surrogate(s)							
1,2-Dichlorobenzene-d4	*81%*	*Conc: 8.09*	*70-130*			*01/11/22*	
4-Bromofluorobenzene	*79%*	*Conc: 7.94*	*70-130*			*01/11/22*	

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Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported: 01/13/2022 18:01

Sample Results

(Continued)

Sample: 20220109-E1-YT-03
2A10040-01RE1 (Water)

Sampled: 01/09/22 16:55 by AECOM

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
Chlorinated Pesticides and/or PCBs by GC/ECD							
Method: EPA 508.1			**Instr:** GC08				
Batch ID: W2A0806 **Preparation:** Method (SPE)			**Prepared:** 01/12/22 14:11				**Analyst:** rjg
Aroclor 1016	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1221	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1232	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1242	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1248	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1254	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Aroclor 1260	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
Chlordane (tech)	ND	0.100	0.100	ug/l	1	01/13/22	R-01, U
PCBs, Total	ND		0.500	ug/l	1	01/13/22	U
Surrogate(s)							
4,4-Dibromobiphenyl	*115%*	*Conc: 0.122*	*70-130*			*01/13/22*	

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1001 Bishop Street Suite 1600
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Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported: 01/13/2022 18:01

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0806 - EPA 508.1											
Blank (W2A0806-BLK1)					**Prepared: 01/12/22**	**Analyzed: 01/13/22**					
Aroclor 1016	ND	0.0157	0.100	ug/l							U
Aroclor 1221	ND	0.0436	0.100	ug/l							U
Aroclor 1232	ND	0.0102	0.100	ug/l							U
Aroclor 1242	ND	0.0737	0.100	ug/l							U
Aroclor 1248	ND	0.0941	0.100	ug/l							U
Aroclor 1254	ND	0.0869	0.100	ug/l							U
Aroclor 1260	ND	0.0379	0.100	ug/l							U
Chlordane (tech)	ND	0.0669	0.100	ug/l							U
PCBs, Total	ND		0.500	ug/l							U
Surrogate(s)											
4,4-Dibromobiphenyl	*0.0942*			*ug/l*	*0.100*		*94*	*70-130*			
LCS (W2A0806-BS1)					**Prepared: 01/12/22**	**Analyzed: 01/13/22**					
Aroclor 1016	0.425	0.0157	0.100	ug/l	0.500		85	70-130			
Aroclor 1260	0.443	0.0379	0.100	ug/l	0.500		89	70-130			
Surrogate(s)											
4,4-Dibromobiphenyl	*0.0934*			*ug/l*	*0.100*		*93*	*70-130*			
LCS Dup (W2A0806-BSD1)					**Prepared: 01/12/22**	**Analyzed: 01/13/22**					
Aroclor 1016	0.413	0.0157	0.100	ug/l	0.500		83	70-130	3	30	
Aroclor 1260	0.435	0.0379	0.100	ug/l	0.500		87	70-130	2	30	
Surrogate(s)											
4,4-Dibromobiphenyl	*0.0886*			*ug/l*	*0.100*		*89*	*70-130*			

Quality Control Results

Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0451 - SM 5310B											
Blank (W2A0451-BLK1)					**Prepared: 01/07/22**	**Analyzed: 01/12/22**					
Total Organic Carbon (TOC)	ND	0.190	0.300	mg/l							U
LCS (W2A0451-BS1)					**Prepared: 01/07/22**	**Analyzed: 01/12/22**					
Total Organic Carbon (TOC)	1.08	0.190	0.300	mg/l	1.00		108	85-115			
Matrix Spike (W2A0451-MS1)	**Source: 2A03057-01**				**Prepared: 01/07/22**	**Analyzed: 01/12/22**					
Total Organic Carbon (TOC)	5.83	0.190	0.300	mg/l	5.00	1.62	84	76-115			
Matrix Spike Dup (W2A0451-MSD1)	**Source: 2A03057-01**				**Prepared: 01/07/22**	**Analyzed: 01/12/22**					
Total Organic Carbon (TOC)	5.83	0.190	0.300	mg/l	5.00	1.62	84	76-115	0.02	20	

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Project Manager: Margie Pascua

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0580 - EPA 200.8											
Blank (W2A0580-BLK1)					**Prepared: 01/10/22**	**Analyzed: 01/11/22**					
Antimony, Total	ND	0.0889	0.500	ug/l							U
Arsenic, Total	ND	0.0741	0.400	ug/l							U
Barium, Total	ND	0.142	1.00	ug/l							U
Beryllium, Total	ND	0.0624	0.100	ug/l							U
Cadmium, Total	ND	0.0416	0.200	ug/l							U
Chromium, Total	ND	0.0887	0.200	ug/l							U
Copper, Total	ND	0.225	0.500	ug/l							U
Lead, Total	ND	0.0827	0.200	ug/l							U
Selenium, Total	ND	0.0666	0.400	ug/l							U
Thallium, Total	ND	0.0210	0.200	ug/l							U
LCS (W2A0580-BS1)					**Prepared: 01/10/22**	**Analyzed: 01/11/22**					
Antimony, Total	47.2	0.0889	0.500	ug/l	50.0		94	85-115			
Arsenic, Total	45.6	0.0741	0.400	ug/l	50.0		91	85-115			
Barium, Total	47.1	0.142	1.00	ug/l	50.0		94	85-115			
Beryllium, Total	46.0	0.0624	0.100	ug/l	50.0		92	85-115			
Cadmium, Total	43.5	0.0416	0.200	ug/l	50.0		87	85-115			
Chromium, Total	46.1	0.0887	0.200	ug/l	50.0		92	85-115			
Copper, Total	49.3	0.225	0.500	ug/l	50.0		99	85-115			
Lead, Total	47.7	0.0827	0.200	ug/l	50.0		95	85-115			
Selenium, Total	44.8	0.0666	0.400	ug/l	50.0		90	85-115			
Thallium, Total	47.1	0.0210	0.200	ug/l	50.0		94	85-115			
Matrix Spike (W2A0580-MS1)	**Source: 2A10032-01**				**Prepared: 01/10/22**	**Analyzed: 01/11/22**					
Antimony, Total	44.8	0.0889	0.500	ug/l	50.0	ND	90	70-130			
Arsenic, Total	47.7	0.0741	0.400	ug/l	50.0	0.0785	95	70-130			
Barium, Total	47.4	0.142	1.00	ug/l	50.0	2.89	89	70-130			
Beryllium, Total	44.3	0.0624	0.100	ug/l	50.0	ND	89	70-130			
Cadmium, Total	45.7	0.0416	0.200	ug/l	50.0	ND	91	70-130			
Chromium, Total	50.0	0.0887	0.200	ug/l	50.0	1.28	97	70-130			
Copper, Total	54.2	0.225	0.500	ug/l	50.0	10.8	87	70-130			
Lead, Total	45.0	0.0827	0.200	ug/l	50.0	0.812	88	70-130			
Selenium, Total	46.4	0.0666	0.400	ug/l	50.0	0.165	92	70-130			
Thallium, Total	43.3	0.0210	0.200	ug/l	50.0	ND	87	70-130			
Matrix Spike Dup (W2A0580-MSD1)	**Source: 2A10032-01**				**Prepared: 01/10/22**	**Analyzed: 01/11/22**					
Antimony, Total	49.2	0.0889	0.500	ug/l	50.0	ND	98	70-130	9	30	
Arsenic, Total	50.3	0.0741	0.400	ug/l	50.0	0.0785	100	70-130	5	30	
Barium, Total	52.4	0.142	1.00	ug/l	50.0	2.89	99	70-130	10	30	
Beryllium, Total	48.9	0.0624	0.100	ug/l	50.0	ND	98	70-130	10	30	
Cadmium, Total	48.5	0.0416	0.200	ug/l	50.0	ND	97	70-130	6	30	
Chromium, Total	51.7	0.0887	0.200	ug/l	50.0	1.28	101	70-130	3	30	

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0580 - EPA 200.8 (Continued)											
Matrix Spike Dup (W2A0580-MSD1)	**Source: 2A10032-01**				**Prepared: 01/10/22**	**Analyzed: 01/11/22**					
Copper, Total	59.6	0.225	0.500	ug/l	50.0	10.8	98	70-130	10	30	
Lead, Total	49.2	0.0827	0.200	ug/l	50.0	0.812	97	70-130	9	30	
Selenium, Total	50.0	0.0666	0.400	ug/l	50.0	0.165	100	70-130	8	30	
Thallium, Total	47.7	0.0210	0.200	ug/l	50.0	ND	95	70-130	10	30	
Batch: W2A0582 - EPA 245.1											
Blank (W2A0582-BLK1)					**Prepared & Analyzed: 01/10/22**						
Mercury, Total	ND	0.0170	0.0500	ug/l							U
LCS (W2A0582-BS1)					**Prepared & Analyzed: 01/10/22**						
Mercury, Total	1.07	0.0170	0.0500	ug/l	1.00		107	85-115			
Matrix Spike (W2A0582-MS1)	**Source: 2A10032-01**				**Prepared & Analyzed: 01/10/22**						
Mercury, Total	1.07	0.0170	0.0500	ug/l	1.00	ND	107	70-130			
Matrix Spike Dup (W2A0582-MSD1)	**Source: 2A10032-01**				**Prepared & Analyzed: 01/10/22**						
Mercury, Total	1.09	0.0170	0.0500	ug/l	1.00	ND	109	70-130	2	20	

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Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0581 - EPA 525.2											
Blank (W2A0581-BLK1)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
1-Methylnaphthalene	ND	0.00801	0.0500	ug/l							U
2-Methylnaphthalene	0.00987	0.00904	0.0500	ug/l							J
Alachlor	ND	0.0110	0.100	ug/l							U
Atrazine	ND	0.00734	0.100	ug/l							U
Benzo (a) pyrene	ND	0.0117	0.100	ug/l							U
Bis(2-ethylhexyl)adipate	ND	0.00962	5.00	ug/l							U
Bis(2-ethylhexyl)phthalate	ND	0.437	3.00	ug/l							U
Endrin	ND	0.00991	0.200	ug/l							U
gamma-BHC (Lindane)	ND	0.00633	0.100	ug/l							U
Heptachlor	ND	0.00965	0.100	ug/l							U
Heptachlor epoxide	ND	0.0122	0.100	ug/l							U
Hexachlorobenzene	ND	0.0980	0.100	ug/l							U
Hexachlorocyclopentadiene	ND	0.00594	1.00	ug/l							U
Methoxychlor	ND	0.00863	0.200	ug/l							U
Naphthalene	ND	0.0103	0.0500	ug/l							U
Pentachlorophenol	ND	0.0242	1.00	ug/l							U
Simazine	ND	0.00734	0.100	ug/l							U
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*4.80*			*ug/l*	*5.00*		*96*	*70-130*			
Perylene-d12	*4.44*			*ug/l*	*5.00*		*89*	*70-130*			
Triphenyl phosphate	*4.34*			*ug/l*	*5.00*		*87*	*70-130*			
LCS (W2A0581-BS1)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
1-Methylnaphthalene	0.211	0.00801	0.0500	ug/l	0.250		84	70-130			
2-Methylnaphthalene	0.207	0.00904	0.0500	ug/l	0.250		83	70-130			
Alachlor	0.389	0.0110	0.100	ug/l	0.500		78	70-130			
Atrazine	0.215	0.00734	0.100	ug/l	0.250		86	70-130			
Benzo (a) pyrene	0.110	0.0117	0.100	ug/l	0.250		44	60-130			Q-02
Bis(2-ethylhexyl)adipate	0.153	0.00962	5.00	ug/l	0.250		61	50-150			J
Bis(2-ethylhexyl)phthalate	0.172	0.00	3.00	ug/l	0.250		69	50-150			J
Endrin	0.223	0.00991	0.200	ug/l	0.250		89	70-130			
gamma-BHC (Lindane)	0.276	0.00633	0.100	ug/l	0.250		110	70-130			
Heptachlor	0.167	0.00965	0.100	ug/l	0.250		67	70-130			BS-04
Heptachlor epoxide	0.219	0.0122	0.100	ug/l	0.250		87	70-130			
Hexachlorobenzene	0.0392	0.00	0.100	ug/l	0.0500		78	70-130			J
Hexachlorocyclopentadiene	0.154	0.00594	1.00	ug/l	0.250		62	33-106			J
Methoxychlor	0.197	0.00863	0.200	ug/l	0.250		79	70-130			J
Naphthalene	0.218	0.0103	0.0500	ug/l	0.250		87	70-130			
Pentachlorophenol	0.258	0.0242	1.00	ug/l	0.250		103	50-120			J
Simazine	0.221	0.00734	0.100	ug/l	0.250		88	60-130			

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Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0581 - EPA 525.2 (Continued)											
LCS (W2A0581-BS1)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*4.82*			*ug/l*	*5.00*		*96*	*70-130*			
Perylene-d12	*4.66*			*ug/l*	*5.00*		*93*	*70-130*			
Triphenyl phosphate	*4.71*			*ug/l*	*5.00*		*94*	*70-130*			
LCS (W2A0581-BS2)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
1-Methylnaphthalene	0.0482	0.00801	0.0500	ug/l	0.0500		96	50-150			J
2-Methylnaphthalene	0.0490	0.00904	0.0500	ug/l	0.0500		98	50-150			J
Alachlor	0.0858	0.0110	0.100	ug/l	0.100		86	50-150			J
Atrazine	0.0619	0.00734	0.100	ug/l	0.0500		124	50-150			J
Benzo (a) pyrene	0.0704	0.0117	0.100	ug/l	0.0500		141	50-150			J
Bis(2-ethylhexyl)adipate	0.0808	0.00962	5.00	ug/l	0.0500		162	50-150			J
Bis(2-ethylhexyl)phthalate	0.0983	0.00	3.00	ug/l	0.0500		197	50-150			J
Endrin	0.0682	0.00991	0.200	ug/l	0.0500		136	50-150			J
gamma-BHC (Lindane)	0.0473	0.00633	0.100	ug/l	0.0500		95	50-150			J
Heptachlor	0.0523	0.00965	0.100	ug/l	0.0500		105	50-150			J
Heptachlor epoxide	0.0431	0.0122	0.100	ug/l	0.0500		86	50-150			J
Hexachlorobenzene	0.00931	0.00	0.100	ug/l	0.0100		93	50-150			J
Hexachlorocyclopentadiene	0.129	0.00594	1.00	ug/l	0.0500		259	50-150			J
Methoxychlor	0.0670	0.00863	0.200	ug/l	0.0500		134	50-150			J
Naphthalene	0.0501	0.0103	0.0500	ug/l	0.0500		100	50-150			
Pentachlorophenol	0.116	0.0242	1.00	ug/l	0.0500		233	50-150			J
Simazine	0.0705	0.00734	0.100	ug/l	0.0500		141	60-150			J
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*4.93*			*ug/l*	*5.00*		*99*	*70-130*			
Perylene-d12	*4.70*			*ug/l*	*5.00*		*94*	*70-130*			
Triphenyl phosphate	*5.11*			*ug/l*	*5.00*		*102*	*70-130*			
LCS (W2A0581-BS3)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
1-Methylnaphthalene	0.0483	0.00801	0.0500	ug/l	0.0500		97	50-150			J
2-Methylnaphthalene	0.0479	0.00904	0.0500	ug/l	0.0500		96	50-150			J
Alachlor	0.0866	0.0110	0.100	ug/l	0.100		87	50-150			J
Atrazine	0.0611	0.00734	0.100	ug/l	0.0500		122	50-150			J
Benzo (a) pyrene	0.0705	0.0117	0.100	ug/l	0.0500		141	50-150			J
Bis(2-ethylhexyl)adipate	0.0781	0.00962	5.00	ug/l	0.0500		156	50-150			J
Bis(2-ethylhexyl)phthalate	0.0987	0.00	3.00	ug/l	0.0500		197	50-150			J
Endrin	0.0880	0.00991	0.200	ug/l	0.0500		176	50-150			Q-08, J
gamma-BHC (Lindane)	0.0499	0.00633	0.100	ug/l	0.0500		100	50-150			J
Heptachlor	0.0536	0.00965	0.100	ug/l	0.0500		107	50-150			J
Heptachlor epoxide	0.0492	0.0122	0.100	ug/l	0.0500		98	50-150			J
Hexachlorobenzene	0.00763	0.00	0.100	ug/l	0.0100		76	50-150			J

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Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0581 - EPA 525.2 (Continued)											
LCS (W2A0581-BS3)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
Hexachlorocyclopentadiene	0.120	0.00594	1.00	ug/l	0.0500		239	50-150			J
Methoxychlor	0.0663	0.00863	0.200	ug/l	0.0500		133	50-150			J
Naphthalene	0.0458	0.0103	0.0500	ug/l	0.0500		92	50-150			J
Pentachlorophenol	0.117	0.0242	1.00	ug/l	0.0500		233	50-150			J
Simazine	0.0736	0.00734	0.100	ug/l	0.0500		147	50-150			J
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*4.90*			*ug/l*	*5.00*		*98*	*70-130*			
Perylene-d12	*4.92*			*ug/l*	*5.00*		*98*	*70-130*			
Triphenyl phosphate	*5.03*			*ug/l*	*5.00*		*101*	*70-130*			
LCS Dup (W2A0581-BSD1)					**Prepared: 01/10/22 Analyzed: 01/11/22**						
1-Methylnaphthalene	0.216	0.00801	0.0500	ug/l	0.250		87	70-130	3	30	
2-Methylnaphthalene	0.216	0.00904	0.0500	ug/l	0.250		86	70-130	4	30	
Alachlor	0.411	0.0110	0.100	ug/l	0.500		82	70-130	6	30	
Atrazine	0.221	0.00734	0.100	ug/l	0.250		88	70-130	3	30	
Benzo (a) pyrene	0.142	0.0117	0.100	ug/l	0.250		57	60-130	25	30	Q-02
Bis(2-ethylhexyl)adipate	0.205	0.00962	5.00	ug/l	0.250		82	50-150	29	30	J
Bis(2-ethylhexyl)phthalate	0.224	0.00	3.00	ug/l	0.250		90	50-150	26	30	J
Endrin	0.306	0.00991	0.200	ug/l	0.250		122	70-130	31	30	Q-12
gamma-BHC (Lindane)	0.284	0.00633	0.100	ug/l	0.250		114	70-130	3	30	
Heptachlor	0.206	0.00965	0.100	ug/l	0.250		82	70-130	21	30	
Heptachlor epoxide	0.238	0.0122	0.100	ug/l	0.250		95	70-130	8	30	
Hexachlorobenzene	0.0439	0.00	0.100	ug/l	0.0500		88	70-130	11	30	J
Hexachlorocyclopentadiene	0.181	0.00594	1.00	ug/l	0.250		72	33-106	16	30	J
Methoxychlor	0.246	0.00863	0.200	ug/l	0.250		99	70-130	22	30	
Naphthalene	0.224	0.0103	0.0500	ug/l	0.250		90	70-130	3	30	
Pentachlorophenol	0.285	0.0242	1.00	ug/l	0.250		114	50-120	10	30	J
Simazine	0.231	0.00734	0.100	ug/l	0.250		93	60-130	5	30	
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	*4.86*			*ug/l*	*5.00*		*97*	*70-130*			
Perylene-d12	*4.73*			*ug/l*	*5.00*		*95*	*70-130*			
Triphenyl phosphate	*5.25*			*ug/l*	*5.00*		*105*	*70-130*			

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Project Manager: Margie Pascua

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Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0576 - EPA 524.2											
Blank (W2A0576-BLK1)					**Prepared & Analyzed: 01/10/22**						
1,1,1-Trichloroethane	ND	0.256	0.500	ug/l							U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l							U
1,1-Dichloroethene	ND	0.160	0.500	ug/l							U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l							U
1,2-Dichloroethane	ND	0.243	0.500	ug/l							U
1,2-Dichloropropane	ND	0.130	0.500	ug/l							U
Benzene	ND	0.150	0.500	ug/l							U
Carbon tetrachloride	ND	0.270	0.500	ug/l							U
Chlorobenzene	ND	0.150	0.500	ug/l							U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l							U
Ethylbenzene	ND	0.210	0.500	ug/l							U
m,p-Xylene	ND	0.330	0.500	ug/l							U
Methylene chloride	ND	0.303	0.500	ug/l							U
o-Dichlorobenzene	ND	0.190	0.500	ug/l							U
o-Xylene	ND	0.200	0.500	ug/l							U
p-Dichlorobenzene	ND	0.180	0.500	ug/l							U
Styrene	ND	0.190	0.500	ug/l							U
Tetrachloroethene	ND	0.180	0.500	ug/l							U
THMs, Total	ND		0.500	ug/l							U
Toluene	ND	0.294	0.500	ug/l							U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l							U
Trichloroethene	ND	0.180	0.500	ug/l							U
Vinyl chloride	ND	0.180	0.500	ug/l							U
Surrogate(s)											
1,2-Dichlorobenzene-d4	*8.16*			*ug/l*	*10.0*		*82*	*70-130*			
4-Bromofluorobenzene	*7.95*			*ug/l*	*10.0*		*80*	*70-130*			
LCS (W2A0576-BS1)					**Prepared & Analyzed: 01/10/22**						
1,1,1-Trichloroethane	4.94	0.256	0.500	ug/l	5.00		99	70-130			
1,1,2-Trichloroethane	4.98	0.190	0.500	ug/l	5.00		100	70-130			
1,1-Dichloroethene	5.05	0.160	0.500	ug/l	5.00		101	70-130			
1,2,4-Trichlorobenzene	5.41	0.170	0.500	ug/l	5.00		108	70-130			
1,2-Dichloroethane	4.99	0.243	0.500	ug/l	5.00		100	70-130			
1,2-Dichloropropane	5.08	0.130	0.500	ug/l	5.00		102	70-130			
Benzene	5.05	0.150	0.500	ug/l	5.00		101	70-130			
Carbon tetrachloride	4.96	0.270	0.500	ug/l	5.00		99	70-130			
Chlorobenzene	5.10	0.150	0.500	ug/l	5.00		102	70-130			
cis-1,2-Dichloroethene	5.12	0.250	0.500	ug/l	5.00		102	70-130			
Ethylbenzene	5.71	0.210	0.500	ug/l	5.00		114	70-130			
m,p-Xylene	5.68	0.330	0.500	ug/l	5.00		114	70-130			

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1001 Bishop Street Suite 1600
Honolulu, HI 96813

Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported: 01/13/2022 18:01

Quality Control Results

(Continued)

Volatile Organic Compounds by P&T and GC/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W2A0576 - EPA 524.2 (Continued)											
LCS (W2A0576-BS1)					**Prepared & Analyzed: 01/10/22**						
Methylene chloride	5.18	0.303	0.500	ug/l	5.00		104	70-130			
o-Dichlorobenzene	5.01	0.190	0.500	ug/l	5.00		100	70-130			
o-Xylene	5.59	0.200	0.500	ug/l	5.00		112	70-130			
p-Dichlorobenzene	4.94	0.180	0.500	ug/l	5.00		99	70-130			
Styrene	5.45	0.190	0.500	ug/l	5.00		109	70-130			
Tetrachloroethene	4.80	0.180	0.500	ug/l	5.00		96	70-130			
Toluene	5.34	0.294	0.500	ug/l	5.00		107	70-130			
trans-1,2-Dichloroethene	5.20	0.259	0.500	ug/l	5.00		104	70-130			
Trichloroethene	5.14	0.180	0.500	ug/l	5.00		103	70-130			
Vinyl chloride	4.96	0.180	0.500	ug/l	5.00		99	70-130			
Surrogate(s)											
1,2-Dichlorobenzene-d4	*10.2*			*ug/l*	*10.0*		*102*	*70-130*			
4-Bromofluorobenzene	*10.3*			*ug/l*	*10.0*		*103*	*70-130*			
LCS Dup (W2A0576-BSD1)					**Prepared & Analyzed: 01/10/22**						
1,1,1-Trichloroethane	4.73	0.256	0.500	ug/l	5.00		95	70-130	4	30	
1,1,2-Trichloroethane	4.80	0.190	0.500	ug/l	5.00		96	70-130	4	30	
1,1-Dichloroethene	4.73	0.160	0.500	ug/l	5.00		95	70-130	6	30	
1,2,4-Trichlorobenzene	5.20	0.170	0.500	ug/l	5.00		104	70-130	4	30	
1,2-Dichloroethane	4.78	0.243	0.500	ug/l	5.00		96	70-130	4	30	
1,2-Dichloropropane	4.87	0.130	0.500	ug/l	5.00		97	70-130	4	30	
Benzene	4.82	0.150	0.500	ug/l	5.00		96	70-130	5	30	
Carbon tetrachloride	4.61	0.270	0.500	ug/l	5.00		92	70-130	7	30	
Chlorobenzene	4.87	0.150	0.500	ug/l	5.00		97	70-130	5	30	
cis-1,2-Dichloroethene	4.88	0.250	0.500	ug/l	5.00		98	70-130	5	30	
Ethylbenzene	5.40	0.210	0.500	ug/l	5.00		108	70-130	6	30	
m,p-Xylene	5.41	0.330	0.500	ug/l	5.00		108	70-130	5	30	
Methylene chloride	5.10	0.303	0.500	ug/l	5.00		102	70-130	1	30	
o-Dichlorobenzene	4.76	0.190	0.500	ug/l	5.00		95	70-130	5	30	
o-Xylene	5.29	0.200	0.500	ug/l	5.00		106	70-130	5	30	
p-Dichlorobenzene	4.68	0.180	0.500	ug/l	5.00		94	70-130	5	30	
Styrene	5.19	0.190	0.500	ug/l	5.00		104	70-130	5	30	
Tetrachloroethene	4.55	0.180	0.500	ug/l	5.00		91	70-130	5	30	
Toluene	5.08	0.294	0.500	ug/l	5.00		102	70-130	5	30	
trans-1,2-Dichloroethene	4.93	0.259	0.500	ug/l	5.00		99	70-130	5	30	
Trichloroethene	4.80	0.180	0.500	ug/l	5.00		96	70-130	7	30	
Vinyl chloride	4.86	0.180	0.500	ug/l	5.00		97	70-130	2	30	
Surrogate(s)											
1,2-Dichlorobenzene-d4	*10.3*			*ug/l*	*10.0*		*103*	*70-130*			
4-Bromofluorobenzene	*10.2*			*ug/l*	*10.0*		*102*	*70-130*			

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1001 Bishop Street Suite 1600
Honolulu, HI 96813

Project Number: 60674414, COC # 01092022 DW-44

Project Manager: Margie Pascua

Reported:
01/13/2022 18:01

Notes and Definitions

Item	Definition
BS-04	The recovery of this analyte in LCS or LCSD was outside control limit. Sample was accepted based on the remaining LCS, LCSD or LCS-LL.
J	Estimated conc. detected <MRL and >MDL.
Q-02	Low recovery of this analyte in the QC sample. The analysis of the low level standard produced acceptable recovery indicating that the sample result might be accurately reported as Not Detected.
Q-08	High bias in the QC sample does not affect sample result since analyte was not detected or below the reporting limit.
Q-12	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on the percent recoveries and/or other acceptable QC data.
R-01	The MDL and/or MRL for this analyte has been raised to account for matrix interference.
U	Analyte included in the analysis, but not detected
%REC	Percent Recovery
Dil	Dilution
MDL	Method Detection Limit
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

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Memorandum

To	Karen Mixon, Data Validation Manager	Info	Completed
Subject	Summary Data Quality Review Joint Base Pearl Harbor-Hickam, Hawaii Red Hill Bulk Fuel Storage Facility		
From	Kristin Rutherford, Chemist		
Date	January 16, 2022		

The summary data quality review of 10 water samples collected on January 8 and 9, 2022, has been completed. The samples were collected by AECOM personnel and were analyzed at Eurofins TestAmerica, in Seattle, Washington for total petroleum hydrocarbons (TPHs) by EPA Method 8260/CALUFT (gasoline-range, C6-C12 hydrocarbons), EPA Method 8015D (diesel range, C9-C25 hydrocarbons, and motor oil range, C24-C40 hydrocarbons), volatile organic compounds (VOCs) by EPA Method 8260D, and semivolatile organic compounds (SVOCs) by EPA Method 8270E. The analyses were performed in general accordance with the specified TPH methods and/or with methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*. The laboratory provided a summary report containing sample results and associated quality assurance (QA) and quality control (QC) data. The following samples are associated with Eurofins TestAmerica-Seattle laboratory groups 580-109117-1, 580-109117-5, 580-109117-6, 580-109117-7, 580-109117-8 and 580-109169-1:

Sample ID	Laboratory IDs	Requested Analyses
20220108-D4-TY04	580-109117-1	TPH, VOCs, SVOCs
20220108-A3-ZT01	580-109117-6	TPH, VOCs, SVOCs
20220108-C3-ZT02	580-109117-7	TPH, VOCs, SVOCs
20220108-E1-ZT03	580-109117-4	TPH, VOCs, SVOCs
20220108-B1-ZT04	580-109117-5	TPH, VOCs, SVOCs
220109-C3-ZT-01	580-109169-1	TPH
20220109-D4-YT-04	580-109169-2	TPH
20220109-A3-YT-02	580-109169-3	TPH
20220109-E1-YT-03	580-109169-4	TPH
220109-B1-ZT-03	580-109169-5	TPH

Upon receipt by the laboratory, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The cooler temperatures were received within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. Results for the full VOC analyte list were reported for the samples noted in the table above but were not requested on the COCs. Results for TPH (gasoline-range organics) were reported for sample 20220108-D4-TY04 but were not requested on the COC for laboratory group 580-109117-1.

Data validation is based on method performance criteria and QC criteria documented in the laboratory reports. Holding times, field/method/trip blanks, surrogate recoveries, laboratory control sample results, and reporting limits were reviewed to assess compliance with applicable methods and laboratory control criteria. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA document *National Functional Guidelines for Organic Superfund Methods Data Review*, November 2020. The following results required qualification:

- No TPH data were qualified in association with these laboratory groups.

- The following VOC surrogate percent recoveries were below the laboratory control limits:

Sample	Surrogate	%Recovery	Control Limits
20220108-A3-ZT01	Toluene-d8	0.3%	80-120%
20220108-C3-ZT02	Toluene-d8	0.3%	80-120%
20220108-B1-ZT04	Toluene-d8	0.3%	80-120%
20220108-D4-TY04	Toluene-d8	0.3%	80-120%

All positive results in these samples were qualified as estimated "J" and all non-detect results were rejected and flagged 'R' based on the surrogate recoveries.

- The following percent recoveries for the SVOC surrogates were below the laboratory control limits:

Sample	Surrogate	%Recovery	Control Limits
20220108-A3-ZT01	2-Fluorophenol	0.7%	21-120%
	Phenol-d5	0%	10-120%
20220108-C3-ZT02	Phenol-d5	8%	10-120%
20220108-B1-ZT04	2-Fluorophenol	12%	21-120%
	Phenol-d5	0%	10-120%
20220108-D4-TY04	2-Fluorophenol	0.3%	21-120%
	Phenol-d5	0.5%	10-120%

The positive results for the acid compounds in the samples noted in the table above were qualified as estimated and flagged 'J' and the non-detect results were rejected and flagged 'R' based on the acid surrogate recoveries. The compounds are listed below:

2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2-Chlorophenol
2-Methylphenol
3 & 4 Methylphenol
4,6-Dinitro-2-methylphenol
4-Chloro-3-methylphenol
4-Nitrophenol
Pentachlorophenol
Phenol

- The following SVOC laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries were outside the laboratory control limits:

LCS/LCSD ID	Compound	%Recovery LCS/LCSD	Control Limits	Sample(s)
LCS 580-377974/2-A LCS 580-377974/3-A	Hexachlorocyclopentadiene	8%/9%	10-125%	20220108-A3-ZT01 20220108-C3-ZT02 20220108-E1-ZT03 20220108-B1-ZT04

The non-detect results for hexachlorocyclopentadiene in all samples were rejected and flagged 'R' based on recoveries less than 10%.

- Project screening levels were met for all non-detect SVOC results, with the exception of hexachlorobenzene that had a method detection limit of approximately 0.040 ug/L in all samples, which exceeded the project screening level of 0.0003 ug/L.

- The laboratory noted that the minimum response factor (RF) for n-nitroso-di-n-propylamine was outside the method control criteria in the continuing calibration verification (CCV) associated with analysis batches 580-377989 and 580-378101. The results for n-nitroso-di-n-propylamine in samples 20220108-D4-TY04, 20220108-A3-ZT01, 20220108-C3-ZT02, 20220108-E1-ZT03, and 20220108-B1-ZT04 were qualified as estimated and flagged 'J.'

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Memorandum

To	Karen Mixon, Data Validation Manager	Info	Completed
Subject	Summary Data Quality Review Joint Base Pearl Harbor-Hickam, Hawaii Red Hill Bulk Fuel Storage Facility		
From	Kristin Rutherford, Chemist		
Date	January 16, 2022		

The summary data quality review of 10 water samples collected on January 8 and 9, 2022, has been completed. The samples were collected by AECOM personnel and were analyzed at Eurofins TestAmerica, in Seattle, Washington for total petroleum hydrocarbons (TPHs) by EPA Method 8260/CALUFT (gasoline-range, C6-C12 hydrocarbons), EPA Method 8015D (diesel range, C9-C25 hydrocarbons, and motor oil range, C24-C40 hydrocarbons), volatile organic compounds (VOCs) by EPA Method 8260D, and semivolatile organic compounds (SVOCs) by EPA Method 8270E. The analyses were performed in general accordance with the specified TPH methods and/or with methods specified in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*. The laboratory provided a summary report containing sample results and associated quality assurance (QA) and quality control (QC) data. The following samples are associated with Eurofins TestAmerica-Seattle laboratory groups 580-109117-1, 580-109117-5, 580-109117-6, 580-109117-7, 580-109117-8 and 580-109169-1:

Sample ID	Laboratory IDs	Requested Analyses
20220108-D4-TY04	580-109117-1	TPH, VOCs, SVOCs
20220108-A3-ZT01	580-109117-6	TPH, VOCs, SVOCs
20220108-C3-ZT02	580-109117-7	TPH, VOCs, SVOCs
20220108-E1-ZT03	580-109117-4	TPH, VOCs, SVOCs
20220108-B1-ZT04	580-109117-5	TPH, VOCs, SVOCs
220109-C3-ZT-01	580-109169-1	TPH
20220109-D4-YT-04	580-109169-2	TPH
20220109-A3-YT-02	580-109169-3	TPH
20220109-E1-YT-03	580-109169-4	TPH
220109-B1-ZT-03	580-109169-5	TPH

Upon receipt by the laboratory, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The cooler temperatures were received within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C. Results for the full VOC analyte list were reported for the samples noted in the table above but were not requested on the COCs. Results for TPH (gasoline-range organics) were reported for sample 20220108-D4-TY04 but were not requested on the COC for laboratory group 580-109117-1.

Data validation is based on method performance criteria and QC criteria documented in the laboratory reports. Holding times, field/method/trip blanks, surrogate recoveries, laboratory control sample results, and reporting limits were reviewed to assess compliance with applicable methods and laboratory control criteria. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA document *National Functional Guidelines for Organic Superfund Methods Data Review*, November 2020. The following results required qualification:

- No TPH data were qualified in association with these laboratory groups.

- The following VOC surrogate percent recoveries were below the laboratory control limits:

Sample	Surrogate	%Recovery	Control Limits
20220108-A3-ZT01	Toluene-d8	0.3%	80-120%
20220108-C3-ZT02	Toluene-d8	0.3%	80-120%
20220108-B1-ZT04	Toluene-d8	0.3%	80-120%
20220108-D4-TY04	Toluene-d8	0.3%	80-120%

All positive results in these samples were qualified as estimated "J" and all non-detect results were rejected and flagged 'R' based on the surrogate recoveries.

- The following percent recoveries for the SVOC surrogates were below the laboratory control limits:

Sample	Surrogate	%Recovery	Control Limits
20220108-A3-ZT01	2-Fluorophenol	0.7%	21-120%
	Phenol-d5	0%	10-120%
20220108-C3-ZT02	Phenol-d5	8%	10-120%
20220108-B1-ZT04	2-Fluorophenol	12%	21-120%
	Phenol-d5	0%	10-120%
20220108-D4-TY04	2-Fluorophenol	0.3%	21-120%
	Phenol-d5	0.5%	10-120%

The positive results for the acid compounds in the samples noted in the table above were qualified as estimated and flagged 'J' and the non-detect results were rejected and flagged 'R' based on the acid surrogate recoveries. The compounds are listed below:

2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2-Chlorophenol
2-Methylphenol
3 & 4 Methylphenol
4,6-Dinitro-2-methylphenol
4-Chloro-3-methylphenol
4-Nitrophenol
Pentachlorophenol
Phenol

- The following SVOC laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries were outside the laboratory control limits:

LCS/LCSD ID	Compound	%Recovery LCS/LCSD	Control Limits	Sample(s)
LCS 580-377974/2-A LCS 580-377974/3-A	Hexachlorocyclopentadiene	8%/9%	10-125%	20220108-A3-ZT01 20220108-C3-ZT02 20220108-E1-ZT03 20220108-B1-ZT04

The non-detect results for hexachlorocyclopentadiene in all samples were rejected and flagged 'R' based on recoveries less than 10%.

- Project screening levels were met for all non-detect SVOC results, with the exception of hexachlorobenzene that had a method detection limit of approximately 0.040 ug/L in all samples, which exceeded the project screening level of 0.0003 ug/L.

- The laboratory noted that the minimum response factor (RF) for n-nitroso-di-n-propylamine was outside the method control criteria in the continuing calibration verification (CCV) associated with analysis batches 580-377989 and 580-378101. The results for n-nitroso-di-n-propylamine in samples 20220108-D4-TY04, 20220108-A3-ZT01, 20220108-C3-ZT02, 20220108-E1-ZT03, and 20220108-B1-ZT04 were qualified as estimated and flagged 'J.'

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Memorandum

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To	Karen Mixon, Data Validation Manager	Info	Completed
Subject	Summary Data Quality Review Joint Base Pearl Harbor-Hickam, Hawaii Red Hill Bulk Fuel Storage Facility		
From	Waverly Braunstein, Chemist		
Date	January 16, 2022		

The summary data quality review of five water samples and two trip blanks collected on January 9, 2022, has been completed. The samples were collected by AECOM personnel and were analyzed at WECK Laboratories, in City of Industry, California, for volatile organic compounds (VOCs) by EPA Method 524.2, semivolatile organic compounds (SVOCs) and organochlorine pesticides by EPA Method 525.2, total metals (antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, selenium, and thallium) by EPA Method 200.8, total mercury by EPA Method 245.1, PCBs (Aroclors) by EPA Method 508.1, and total organic carbon (TOC) by Standard Methods 5310B. The analyses were performed in general accordance with the methods specified in EPA's drinking water program. The laboratory provided summary reports containing sample results and associated quality assurance (QA) and quality control (QC) data. The following samples are associated with WECK Laboratories groups 2A10034, 2A10038, 2A10040, 2A10041, and 2A10043:

Sample ID	**Laboratory IDs**	**Requested Analyses**
20220109-A3-YT-01 (Trip blank)	2A10038-02	VOC
20220109-A3-YT-02	2A10038-01	VOC, SVOC/Pest, Metals/Mercury, TOC, PCB
20220109-B1-ZT-03	2A10041-01	VOC, SVOC/Pest, Metals/Mercury, TOC, PCB
20220109-C3-ZT-01	2A10034-01	VOC, SVOC/Pest, Metals/Mercury, TOC, PCB
20220109-C3-ZT-02 (Trip blank)	2A10034-02	VOC
20220109-D4-YT-04	2A10043-01	VOC, SVOC/Pest, Metals/Mercury, TOC, PCB
20220109-E1-YT-03	2A10040-01	VOC, SVOC/Pest, Metals/Mercury, TOC, PCB

Upon receipt by the laboratory, the sample jar information was compared to the associated chain-of-custody (COC) and the cooler temperatures were recorded. The cooler temperatures were received within the EPA-recommended limits of greater than 0°C and less than or equal to 6°C.

Data validation is based on method performance criteria and QC criteria documented in the laboratory reports. Holding times, field/method/trip blanks, surrogate recoveries, laboratory control sample results, and reporting limits were reviewed to assess compliance with applicable methods and laboratory control criteria. If data qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA documents *National Functional Guidelines for Organic Superfund Methods Data Review*, November 2020 and *National Functional Guidelines for Inorganic Superfund Methods Data Review*, November 2020. The following results required qualification:

- The chain-of-custody was reviewed for completeness and agreement with reported results. Sample identification discrepancies are tabulated below. No action was taken other than this notation.

ID on COC	**ID on Lab Report**
20220109-A3-YT-02	2020109-A3-YT-02

AECOM

Summary Data Quality Review
Joint Base Pearl Harbor-Hickam, Hawaii
Red Hill Bulk Fuel Storage Facility

ID on COC	ID on Lab Report
220109-B1-ZT-03	220109-B1-ZT-03
220109-C3-ZT-01	20220109-C3-ZT-01
220109-C3-ZT-02	20220109-C3-ZT-02

- No data were qualified for VOCs, Metals/Mercury, TOC, or PCBs in association with laboratory groups 2A10034, 2A10038, 2A10040, 2A10041, and 2A10043.

- The 2-methylnaphthalene results were qualified as non-detect and flagged 'U' at the reporting limits due to method blank contamination in samples 20220109-A3-YT-02, 20220109-B1-ZT-03, 20220109-C3-ZT-01, 20220109-D4-YT-04, and 20220109-E1-YT-03.

- The following percent recoveries for the SVOC/Pesticide laboratory control sample (LCS) were below the laboratory control limits:

LCS	Analyte	%Recovery	Control Limits
LCS (W2A0581-BS1)	Benzo (a) pyrene	44%	60-130%
LCS (W2A0581-BS1D)	Benzo (a) pyrene	57%	60-130%
LCS (W2A0581-BS1)	Heptachlor	67%	70-130%

The positive and non-detect results for benzo(a)pyrene and heptachlor in samples 20220109-A3-YT-02, 20220109-B1-ZT-03, 20220109-C3-ZT-01, 20220109-D4-YT-04, and 20220109-E1-YT-03 were qualified as estimated and flagged 'J' based on the LCS recoveries noted in the table above.

- The following analytes exceeded the Incident Specific Screening Criteria:

Sample Name	Analyte	Result	MDL	Incident Specific Screening Criteria	Units
2020109-A3-YT-02	Endrin	ND	0.00991	0.0023	µg/L
2020109-A3-YT-02	Heptachlor	ND	0.00965	0.0036	µg/L
2020109-A3-YT-02	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
2020109-A3-YT-02	Hexachlorobenzene	ND	0.098	0.0003	µg/L
20220109-C3-ZT-01	Endrin	ND	0.00991	0.0023	µg/L
20220109-C3-ZT-01	Heptachlor	ND	0.00965	0.0036	µg/L
20220109-C3-ZT-01	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
20220109-C3-ZT-01	Hexachlorobenzene	ND	0.098	0.0003	µg/L
20220109-D4-YT-04	Endrin	ND	0.00991	0.0023	µg/L
20220109-D4-YT-04	Heptachlor	ND	0.00965	0.0036	µg/L
20220109-D4-YT-04	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
20220109-D4-YT-04	Hexachlorobenzene	ND	0.098	0.0003	µg/L
20220109-E1-YT-03	Endrin	ND	0.00991	0.0023	µg/L
20220109-E1-YT-03	Heptachlor	ND	0.00965	0.0036	µg/L
20220109-E1-YT-03	Heptachlor epoxide	ND	0.0122	0.0036	µg/L

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Sample Name	Analyte	Result	MDL	Incident Specific Screening Criteria	Units
20220109-E1-YT-03	Hexachlorobenzene	ND	0.098	0.0003	µg/L
220109-B1-ZT-03	Endrin	ND	0.00991	0.0023	µg/L
220109-B1-ZT-03	Heptachlor	ND	0.00965	0.0036	µg/L
220109-B1-ZT-03	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
220109-B1-ZT-03	Hexachlorobenzene	ND	0.098	0.0003	µg/L