

ANALYTICAL REPORT

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

Laboratory Job ID: 580-109287-1
Client Project/Site: Red Hill Drinking Water

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Margie F Pascua



Authorized for release by:
1/15/2022 4:53:06 PM
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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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Case Narrative

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Job ID: 580-109287-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative 580-109287-1

Comments

No additional comments.

Receipt

The samples were received on 1/14/2022 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.9° C, 1.0° C and 1.4° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described 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

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-378340. Laboratory control sample/laboratory control sample duplicate were created and substituted for MS/MSD/DUP.

Method 3510C: A deviation from the Standard Operating Procedure (SOP) occurred. Samples were received in 500mL containers. 250mLs were decanted off leaving 250mLs for extraction. Samples were spiked and solvent rinsed and prepared for extraction/digestion per the SOP.

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: Red Hill Drinking Water

Job ID: 580-109287-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
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: 580-109287-1

Client Sample ID: 220112-H3-ZT15

Lab Sample ID: 580-109287-1

Date Collected: 01/12/22 14:30

Matrix: Water

Date Received: 01/14/22 10:30

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			01/15/22 04:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		78 - 120					01/15/22 04:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 12:18	01/14/22 20:17	1
C24-C40	180	U	200	180	ug/L		01/14/22 12:18	01/14/22 20:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	66		53 - 120				01/14/22 12:18	01/14/22 20:17	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Client Sample ID: 220112-H3-ZT11

Lab Sample ID: 580-109287-2

Date Collected: 01/12/22 17:20

Matrix: Water

Date Received: 01/14/22 10:30

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			01/15/22 04:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		78 - 120					01/15/22 04:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	91	U	110	91	ug/L		01/14/22 12:18	01/14/22 20:37	1
C24-C40	180	U	200	180	ug/L		01/14/22 12:18	01/14/22 20:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	70		53 - 120				01/14/22 12:18	01/14/22 20:37	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Client Sample ID: 220112-H3-ZT12

Lab Sample ID: 580-109287-3

Date Collected: 01/12/22 17:15

Matrix: Water

Date Received: 01/14/22 10:30

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			01/15/22 05:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		78 - 120					01/15/22 05:13	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Client Sample ID: 220112-H3-ZT07

Lab Sample ID: 580-109287-4

Date Collected: 01/12/22 15:50

Matrix: Water

Date Received: 01/14/22 10:30

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			01/15/22 05:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		78 - 120					01/15/22 05:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 12:18	01/14/22 20:57	1
C24-C40	180	U	200	180	ug/L		01/14/22 12:18	01/14/22 20:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	72		53 - 120				01/14/22 12:18	01/14/22 20:57	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Client Sample ID: 220112-H3-ZT08

Lab Sample ID: 580-109287-5

Date Collected: 01/12/22 15:45

Matrix: Water

Date Received: 01/14/22 10:30

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			01/15/22 06:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		78 - 120		01/15/22 06:00	1

QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

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

Lab Sample ID: MB 580-378428/4
Matrix: Water
Analysis Batch: 378428

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			01/15/22 03:14	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		78 - 120					01/15/22 03:14	1

Lab Sample ID: LCS 580-378428/5
Matrix: Water
Analysis Batch: 378428

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	993		ug/L		99	75 - 127
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	100		78 - 120				

Lab Sample ID: LCSD 580-378428/6
Matrix: Water
Analysis Batch: 378428

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	1020		ug/L		102	75 - 127	2	13
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		78 - 120						

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

Lab Sample ID: MB 580-378340/1-A
Matrix: Water
Analysis Batch: 378372

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 11:50	01/14/22 18:01	1
C24-C40	180	U	200	180	ug/L		01/14/22 11:50	01/14/22 18:01	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	73		53 - 120				01/14/22 11:50	01/14/22 18:01	1

Lab Sample ID: LCS 580-378340/2-A
Matrix: Water
Analysis Batch: 378372

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378340

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C9-C25	4000	3200		ug/L		80	55 - 134
C24-C40	4000	4350		ug/L		109	36 - 143

Eurofins Seattle

QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

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

Lab Sample ID: LCS 580-378340/2-A

Matrix: Water

Analysis Batch: 378372

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 378340

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	80		53 - 120

Lab Sample ID: LCSD 580-378340/3-A

Matrix: Water

Analysis Batch: 378372

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 378340

	Spike	LCSD	LCSD						%Rec.	RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
C9-C25	4000	3380		ug/L		85	55 - 134	6	26		
C24-C40	4000	4320		ug/L		108	36 - 143	1	24		

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
<i>o</i> -Terphenyl	87		53 - 120

Lab Chronicle

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Client Sample ID: 220112-H3-ZT15

Lab Sample ID: 580-109287-1

Date Collected: 01/12/22 14:30

Matrix: Water

Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378428	01/15/22 04:25	B1M	FGS SEA
Total/NA	Prep	3510C			378340	01/14/22 12:18	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 20:17	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT11

Lab Sample ID: 580-109287-2

Date Collected: 01/12/22 17:20

Matrix: Water

Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378428	01/15/22 04:49	B1M	FGS SEA
Total/NA	Prep	3510C			378340	01/14/22 12:18	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 20:37	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT12

Lab Sample ID: 580-109287-3

Date Collected: 01/12/22 17:15

Matrix: Water

Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378428	01/15/22 05:13	B1M	FGS SEA

Client Sample ID: 220112-H3-ZT07

Lab Sample ID: 580-109287-4

Date Collected: 01/12/22 15:50

Matrix: Water

Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378428	01/15/22 05:36	B1M	FGS SEA
Total/NA	Prep	3510C			378340	01/14/22 12:18	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 20:57	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT08

Lab Sample ID: 580-109287-5

Date Collected: 01/12/22 15:45

Matrix: Water

Date Received: 01/14/22 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378428	01/15/22 06:00	B1M	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: 580-109287-1

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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Sample Summary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109287-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109287-1	220112-H3-ZT15	Water	01/12/22 14:30	01/14/22 10:30
580-109287-2	220112-H3-ZT11	Water	01/12/22 17:20	01/14/22 10:30
580-109287-3	220112-H3-ZT12	Water	01/12/22 17:15	01/14/22 10:30
580-109287-4	220112-H3-ZT07	Water	01/12/22 15:50	01/14/22 10:30
580-109287-5	220112-H3-ZT08	Water	01/12/22 15:45	01/14/22 10:30

1

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Hydrant Compliance

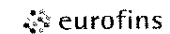
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Eurofins FGS, Seattle

5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

Hydrant Compliance

Environment Testing
America

Client Information		Sampler: AECOM		Lab PM: Elaine Walker		Carrier Tracking No(s): FedEx		COC No: 611220220W-77	
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:		Analysis Requested					
Address: 1001 Bishop St. Suite 1600		Due Date Requested: see subcontract		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					
City: Honolulu		TAT Requested (days): 48 hrs. RUSH							
State, Zip: Hawaii 96813		Compliance Project: ☐ Yes ☐ 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		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:					
Site: RHSF		SSOW#:							
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste oil, BT=tissue, A=air)	Special Instructions/Note:			
220112-H3-ZT07		1/12/22	1550	G	W	X X A I			
220112-H3-ZT08		1/12/22	1545	G	W	X X A I			
Possible Hazard Identification		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological				Sample Disposal (A fee may be assessed) ☐ Return To Client ☐ Disposal I			
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: DOC			
Empty Kit Relinquished by:		Date:		Time:		Metho			
Relinquished by: <i>Corina Schmitt</i>		Date/Time: 1/12/22 2000		Company: AECOM		Received by: <i>Corina Schmitt</i>		Date/Time: 1/12/22 2000	
Relinquished by: <i>Corina Schmitt</i>		Date/Time: 1/13/22 1500		Company: AECOM		Received by: <i>Corina Schmitt</i>		Date/Time: 1/14/22 1030	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109287-1

Login Number: 109287

List Number: 1

Creator: Greene, Ashton R

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

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Client Project/Site: Red Hill Drinking Water

For:
AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Margie F Pascua



Authorized for release by:
1/16/2022 12:13:05 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

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results through

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Have a Question?



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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.

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Case Narrative

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Job ID: 580-109289-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative 580-109289-1

Comments

No additional comments.

Receipt

The samples were received on 1/14/2022 12:15 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.9° C, 1.0° C and 1.4° C.

GC/MS VOA

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-378374 recovered above the upper control limit for Chloromethane, Vinyl chloride, Bromomethane, Ethyl Chloride and 1,1-Dichloroethene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: 220112-H3-ZT13 (580-109289-1), 220112-H3-ZT14 (580-109289-2), 220112-H3-ZT09 (580-109289-3), 220112-H3-ZT10 (580-109289-4), 220112-H3-ZT05 (580-109289-5), 220112-H3-ZT06 (580-109289-6) and (CCVIS 580-378374/3).

Method 8260D: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-378374 recovered outside control limits for the following analytes: Chloromethane, Vinyl chloride and Bromomethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: Surrogate Toluene-d8 (Surr) recovery for the following samples was outside control limits: 220112-H3-ZT13 (580-109289-1), 220112-H3-ZT09 (580-109289-3) and 220112-H3-ZT05 (580-109289-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC/MS Semi VOA

Method 8270E: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-378439 and analytical batch 580-378445 recovered outside control limits for the following analytes: 3,3'-Dichlorobenzidine. The individual recoveries of both the LCS and LCSD met the acceptance criteria.

Method 8270E: Surrogates 2-Fluorophenol (Surr), Phenol-d5 (Surr) and 2,4,6-Tribromophenol recovery for the following samples was outside control limits: 220112-H3-ZT13 (580-109289-1), 220112-H3-ZT09 (580-109289-3) and 220112-H3-ZT05 (580-109289-5). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-378445 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 580-378338. 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 580-378439, so a laboratory control sample/laboratory control sample duplicate were created and substituted for the MS/MSD/DUP.

Method 3510C: The following sample formed emulsions during the base phase of the extraction procedure: 220112-H3-ZT05

Case Narrative

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Job ID: 580-109289-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

(580-109289-5). The emulsions were broken up using additional sodium sulfate filtration and methylene chloride rinses.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-378340. 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
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi 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.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: 580-109289-1

Client Sample ID: 220112-H3-ZT13

Lab Sample ID: 580-109289-1

Date Collected: 01/12/22 19:00

Matrix: Water

Date Received: 01/14/22 12:15

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			01/14/22 21:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		78 - 120					01/14/22 21:40	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			01/14/22 21:40	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 21:40	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 21:40	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 21:40	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/14/22 21:40	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 21:40	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 21:40	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 21:40	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 21:40	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/14/22 21:40	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 21:40	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 21:40	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 21:40	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 21:40	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/14/22 21:40	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 21:40	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 21:40	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 21:40	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 21:40	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 21:40	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 21:40	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 21:40	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 21:40	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 21:40	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 21:40	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 21:40	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 21:40	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 21:40	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 21:40	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 21:40	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 21:40	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 21:40	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 21:40	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 21:40	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 21:40	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/14/22 21:40	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 21:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120					01/14/22 21:40	1
Dibromofluoromethane (Surr)	105		80 - 120					01/14/22 21:40	1
1,2-Dichloroethane-d4 (Surr)	105		80 - 120					01/14/22 21:40	1
Toluene-d8 (Surr)	0.2	S1-	80 - 120					01/14/22 21:40	1

Eurofins Seattle

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT13

Lab Sample ID: 580-109289-1

Date Collected: 01/12/22 19:00

Matrix: Water

Date Received: 01/14/22 12:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Acenaphthylene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
Anthracene	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Benzo[a]anthracene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Benzo[a]pyrene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
Benzo[b]fluoranthene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
Benzo[g,h,i]perylene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
Benzo[k]fluoranthene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Bis(2-chloroethoxy)methane	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Bis(2-chloroethyl)ether	1.7		0.10	0.031	ug/L		01/15/22 13:28	01/15/22 19:13	1
Bis(2-ethylhexyl) phthalate	0.77	U	3.1	0.77	ug/L		01/15/22 13:28	01/15/22 19:13	1
4-Bromophenyl phenyl ether	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
Butyl benzyl phthalate	0.28	U	4.2	0.28	ug/L		01/15/22 13:28	01/15/22 19:13	1
Carbazole	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
4-Chloroaniline	0.62	U	2.1	0.62	ug/L		01/15/22 13:28	01/15/22 19:13	1
4-Chloro-3-methylphenol	0.14	U	0.63	0.14	ug/L		01/15/22 13:28	01/15/22 19:13	1
2-Chloronaphthalene	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:13	1
2-Chlorophenol	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
4-Chlorophenyl phenyl ether	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Chrysene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
Dibenz(a,h)anthracene	0.073	U	0.26	0.073	ug/L		01/15/22 13:28	01/15/22 19:13	1
Dibenzofuran	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
1,2-Dichlorobenzene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
1,3-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
1,4-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
3,3'-Dichlorobenzidine	0.27	U *1	1.0	0.27	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4-Dichlorophenol	0.21	U	1.0	0.21	ug/L		01/15/22 13:28	01/15/22 19:13	1
Diethyl phthalate	0.16	U	1.0	0.16	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4-Dimethylphenol	0.17	U	4.2	0.17	ug/L		01/15/22 13:28	01/15/22 19:13	1
Dimethyl phthalate	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
Di-n-butyl phthalate	0.20	U	3.1	0.20	ug/L		01/15/22 13:28	01/15/22 19:13	1
4,6-Dinitro-2-methylphenol	0.57	U	2.1	0.57	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4-Dinitrophenol	1.7	U	5.2	1.7	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,6-Dinitrotoluene	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
Di-n-octyl phthalate	0.14	U	1.0	0.14	ug/L		01/15/22 13:28	01/15/22 19:13	1
Fluoranthene	0.063	U	0.26	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
Fluorene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Hexachlorobenzene	0.042	U	0.63	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
Hexachlorobutadiene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
Hexachlorocyclopentadiene	0.15	U	1.0	0.15	ug/L		01/15/22 13:28	01/15/22 19:13	1
Hexachloroethane	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
Indeno[1,2,3-cd]pyrene	0.14	U	0.42	0.14	ug/L		01/15/22 13:28	01/15/22 19:13	1
Isophorone	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
2-Methylphenol	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:13	1
3 & 4 Methylphenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
Naphthalene	0.17	U	0.42	0.17	ug/L		01/15/22 13:28	01/15/22 19:13	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
3-Nitroaniline	0.17	U	3.1	0.17	ug/L		01/15/22 13:28	01/15/22 19:13	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT13

Lab Sample ID: 580-109289-1

Date Collected: 01/12/22 19:00

Matrix: Water

Date Received: 01/14/22 12:15

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		01/15/22 13:28	01/15/22 19:13	1
Nitrobenzene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
4-Nitrophenol	1.8	U	10	1.8	ug/L		01/15/22 13:28	01/15/22 19:13	1
N-Nitrosodi-n-propylamine	0.063	U	0.42	0.063	ug/L		01/15/22 13:28	01/15/22 19:13	1
N-Nitrosodiphenylamine	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:13	1
Pentachlorophenol	0.53	U	10	0.53	ug/L		01/15/22 13:28	01/15/22 19:13	1
Phenanthrene	0.13	U	1.0	0.13	ug/L		01/15/22 13:28	01/15/22 19:13	1
Phenol	0.38	U	1.0	0.38	ug/L		01/15/22 13:28	01/15/22 19:13	1
Pyrene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:13	1
1,2,4-Trichlorobenzene	0.094	U	0.42	0.094	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4,5-Trichlorophenol	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1
2,4,6-Trichlorophenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	40		35 - 120	01/15/22 13:28	01/15/22 19:13	1
2-Fluorophenol (Surr)	3	S1-	21 - 120	01/15/22 13:28	01/15/22 19:13	1
Nitrobenzene-d5 (Surr)	50		39 - 120	01/15/22 13:28	01/15/22 19:13	1
Phenol-d5 (Surr)	0.4	S1-	10 - 120	01/15/22 13:28	01/15/22 19:13	1
Terphenyl-d14	64		63 - 137	01/15/22 13:28	01/15/22 19:13	1
2,4,6-Tribromophenol	94		50 - 130	01/15/22 13:28	01/15/22 19:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	99	J	110	88	ug/L		01/14/22 13:09	01/14/22 22:54	1
C24-C40	180	U	200	180	ug/L		01/14/22 13:09	01/14/22 22:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	71		53 - 120	01/14/22 13:09	01/14/22 22:54	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT14

Lab Sample ID: 580-109289-2

Date Collected: 01/12/22 18:55

Matrix: Water

Date Received: 01/14/22 12:15

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			01/14/22 22:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		78 - 120					01/14/22 22:04	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			01/14/22 22:04	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 22:04	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 22:04	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 22:04	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/14/22 22:04	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 22:04	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 22:04	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 22:04	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 22:04	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/14/22 22:04	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 22:04	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 22:04	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 22:04	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 22:04	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/14/22 22:04	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 22:04	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 22:04	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 22:04	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 22:04	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 22:04	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 22:04	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 22:04	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 22:04	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 22:04	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 22:04	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 22:04	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 22:04	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 22:04	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 22:04	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 22:04	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 22:04	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 22:04	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 22:04	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 22:04	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 22:04	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/14/22 22:04	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 22:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		80 - 120					01/14/22 22:04	1
Dibromofluoromethane (Surr)	105		80 - 120					01/14/22 22:04	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					01/14/22 22:04	1
Toluene-d8 (Surr)	95		80 - 120					01/14/22 22:04	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT09

Lab Sample ID: 580-109289-3

Date Collected: 01/12/22 17:00

Matrix: Water

Date Received: 01/14/22 12:15

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			01/14/22 22:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		78 - 120					01/14/22 22:28	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			01/14/22 22:28	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 22:28	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 22:28	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 22:28	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/14/22 22:28	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 22:28	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 22:28	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 22:28	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 22:28	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/14/22 22:28	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 22:28	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 22:28	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 22:28	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 22:28	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/14/22 22:28	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 22:28	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 22:28	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 22:28	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 22:28	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 22:28	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 22:28	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 22:28	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 22:28	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 22:28	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 22:28	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 22:28	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 22:28	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 22:28	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 22:28	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 22:28	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 22:28	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 22:28	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 22:28	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 22:28	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 22:28	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/14/22 22:28	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 22:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		80 - 120					01/14/22 22:28	1
Dibromofluoromethane (Surr)	109		80 - 120					01/14/22 22:28	1
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					01/14/22 22:28	1
Toluene-d8 (Surr)	0.5	S1-	80 - 120					01/14/22 22:28	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT09

Lab Sample ID: 580-109289-3

Date Collected: 01/12/22 17:00

Matrix: Water

Date Received: 01/14/22 12:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Acenaphthylene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
Anthracene	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Benzo[a]anthracene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Benzo[a]pyrene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
Benzo[b]fluoranthene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
Benzo[g,h,i]perylene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
Benzo[k]fluoranthene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Bis(2-chloroethoxy)methane	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Bis(2-chloroethyl)ether	2.4		0.10	0.031	ug/L		01/15/22 13:28	01/15/22 19:36	1
Bis(2-ethylhexyl) phthalate	0.77	U	3.1	0.77	ug/L		01/15/22 13:28	01/15/22 19:36	1
4-Bromophenyl phenyl ether	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
Butyl benzyl phthalate	0.28	U	4.2	0.28	ug/L		01/15/22 13:28	01/15/22 19:36	1
Carbazole	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
4-Chloroaniline	0.62	U	2.1	0.62	ug/L		01/15/22 13:28	01/15/22 19:36	1
4-Chloro-3-methylphenol	0.14	U	0.63	0.14	ug/L		01/15/22 13:28	01/15/22 19:36	1
2-Chloronaphthalene	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:36	1
2-Chlorophenol	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
4-Chlorophenyl phenyl ether	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Chrysene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
Dibenz(a,h)anthracene	0.073	U	0.26	0.073	ug/L		01/15/22 13:28	01/15/22 19:36	1
Dibenzofuran	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
1,2-Dichlorobenzene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
1,3-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
1,4-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
3,3'-Dichlorobenzidine	0.27	U *1	1.0	0.27	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4-Dichlorophenol	0.21	U	1.0	0.21	ug/L		01/15/22 13:28	01/15/22 19:36	1
Diethyl phthalate	0.16	U	1.0	0.16	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4-Dimethylphenol	0.17	U	4.2	0.17	ug/L		01/15/22 13:28	01/15/22 19:36	1
Dimethyl phthalate	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
Di-n-butyl phthalate	0.20	U	3.1	0.20	ug/L		01/15/22 13:28	01/15/22 19:36	1
4,6-Dinitro-2-methylphenol	0.57	U	2.1	0.57	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4-Dinitrophenol	1.7	U	5.2	1.7	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,6-Dinitrotoluene	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
Di-n-octyl phthalate	0.14	U	1.0	0.14	ug/L		01/15/22 13:28	01/15/22 19:36	1
Fluoranthene	0.063	U	0.26	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
Fluorene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Hexachlorobenzene	0.042	U	0.63	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
Hexachlorobutadiene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
Hexachlorocyclopentadiene	0.15	U	1.0	0.15	ug/L		01/15/22 13:28	01/15/22 19:36	1
Hexachloroethane	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
Indeno[1,2,3-cd]pyrene	0.14	U	0.42	0.14	ug/L		01/15/22 13:28	01/15/22 19:36	1
Isophorone	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
2-Methylphenol	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:36	1
3 & 4 Methylphenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
Naphthalene	0.17	U	0.42	0.17	ug/L		01/15/22 13:28	01/15/22 19:36	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
3-Nitroaniline	0.17	U	3.1	0.17	ug/L		01/15/22 13:28	01/15/22 19:36	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT09

Lab Sample ID: 580-109289-3

Date Collected: 01/12/22 17:00

Matrix: Water

Date Received: 01/14/22 12:15

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		01/15/22 13:28	01/15/22 19:36	1
Nitrobenzene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
4-Nitrophenol	1.8	U	10	1.8	ug/L		01/15/22 13:28	01/15/22 19:36	1
N-Nitrosodi-n-propylamine	0.063	U	0.42	0.063	ug/L		01/15/22 13:28	01/15/22 19:36	1
N-Nitrosodiphenylamine	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:36	1
Pentachlorophenol	0.53	U	10	0.53	ug/L		01/15/22 13:28	01/15/22 19:36	1
Phenanthrene	0.13	U	1.0	0.13	ug/L		01/15/22 13:28	01/15/22 19:36	1
Phenol	0.38	U	1.0	0.38	ug/L		01/15/22 13:28	01/15/22 19:36	1
Pyrene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:36	1
1,2,4-Trichlorobenzene	0.094	U	0.42	0.094	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4,5-Trichlorophenol	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1
2,4,6-Trichlorophenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	68		35 - 120	01/15/22 13:28	01/15/22 19:36	1
2-Fluorophenol (Surr)	0	S1-	21 - 120	01/15/22 13:28	01/15/22 19:36	1
Nitrobenzene-d5 (Surr)	94		39 - 120	01/15/22 13:28	01/15/22 19:36	1
Phenol-d5 (Surr)	0.3	S1-	10 - 120	01/15/22 13:28	01/15/22 19:36	1
Terphenyl-d14	105		63 - 137	01/15/22 13:28	01/15/22 19:36	1
2,4,6-Tribromophenol	179	S1+	50 - 130	01/15/22 13:28	01/15/22 19:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 13:09	01/14/22 23:13	1
C24-C40	180	U	200	180	ug/L		01/14/22 13:09	01/14/22 23:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	76		53 - 120	01/14/22 13:09	01/14/22 23:13	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT10

Lab Sample ID: 580-109289-4

Date Collected: 01/12/22 16:55

Matrix: Water

Date Received: 01/14/22 12:15

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			01/14/22 22:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		78 - 120					01/14/22 22:52	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			01/14/22 22:52	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 22:52	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 22:52	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 22:52	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/14/22 22:52	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 22:52	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 22:52	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 22:52	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 22:52	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/14/22 22:52	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 22:52	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 22:52	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 22:52	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 22:52	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/14/22 22:52	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 22:52	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 22:52	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 22:52	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 22:52	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 22:52	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 22:52	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 22:52	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 22:52	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 22:52	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 22:52	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 22:52	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 22:52	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 22:52	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 22:52	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 22:52	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 22:52	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 22:52	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 22:52	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 22:52	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 22:52	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/14/22 22:52	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 22:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		80 - 120					01/14/22 22:52	1
Dibromofluoromethane (Surr)	106		80 - 120					01/14/22 22:52	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					01/14/22 22:52	1
Toluene-d8 (Surr)	97		80 - 120					01/14/22 22:52	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT05

Lab Sample ID: 580-109289-5

Date Collected: 01/12/22 15:30

Matrix: Water

Date Received: 01/14/22 12:15

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			01/14/22 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		78 - 120					01/14/22 23:15	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			01/14/22 23:15	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 23:15	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 23:15	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 23:15	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/14/22 23:15	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 23:15	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 23:15	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 23:15	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 23:15	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/14/22 23:15	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 23:15	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 23:15	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 23:15	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 23:15	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/14/22 23:15	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 23:15	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 23:15	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 23:15	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 23:15	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 23:15	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 23:15	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 23:15	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 23:15	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 23:15	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 23:15	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 23:15	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 23:15	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 23:15	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 23:15	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 23:15	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 23:15	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 23:15	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 23:15	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 23:15	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 23:15	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/14/22 23:15	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		80 - 120					01/14/22 23:15	1
Dibromofluoromethane (Surr)	109		80 - 120					01/14/22 23:15	1
1,2-Dichloroethane-d4 (Surr)	109		80 - 120					01/14/22 23:15	1
Toluene-d8 (Surr)	0.6	S1-	80 - 120					01/14/22 23:15	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT05

Lab Sample ID: 580-109289-5

Date Collected: 01/12/22 15:30

Matrix: Water

Date Received: 01/14/22 12:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Acenaphthylene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
Anthracene	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Benzo[a]anthracene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Benzo[a]pyrene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
Benzo[b]fluoranthene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
Benzo[g,h,i]perylene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
Benzo[k]fluoranthene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Bis(2-chloroethoxy)methane	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Bis(2-chloroethyl)ether	1.7		0.10	0.031	ug/L		01/15/22 13:28	01/15/22 19:59	1
Bis(2-ethylhexyl) phthalate	0.77	U	3.1	0.77	ug/L		01/15/22 13:28	01/15/22 19:59	1
4-Bromophenyl phenyl ether	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
Butyl benzyl phthalate	1.0	J	4.2	0.28	ug/L		01/15/22 13:28	01/15/22 19:59	1
Carbazole	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
4-Chloroaniline	0.62	U	2.1	0.62	ug/L		01/15/22 13:28	01/15/22 19:59	1
4-Chloro-3-methylphenol	0.14	U	0.63	0.14	ug/L		01/15/22 13:28	01/15/22 19:59	1
2-Chloronaphthalene	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:59	1
2-Chlorophenol	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
4-Chlorophenyl phenyl ether	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Chrysene	0.042	U	0.26	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
Dibenz(a,h)anthracene	0.073	U	0.26	0.073	ug/L		01/15/22 13:28	01/15/22 19:59	1
Dibenzofuran	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
1,2-Dichlorobenzene	0.052	U	0.42	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
1,3-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
1,4-Dichlorobenzene	0.042	U	0.42	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
3,3'-Dichlorobenzidine	0.27	U *1	1.0	0.27	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4-Dichlorophenol	0.21	U	1.0	0.21	ug/L		01/15/22 13:28	01/15/22 19:59	1
Diethyl phthalate	0.16	U	1.0	0.16	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4-Dimethylphenol	0.17	U	4.2	0.17	ug/L		01/15/22 13:28	01/15/22 19:59	1
Dimethyl phthalate	0.063	U	0.63	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
Di-n-butyl phthalate	0.20	U	3.1	0.20	ug/L		01/15/22 13:28	01/15/22 19:59	1
4,6-Dinitro-2-methylphenol	0.58	U	2.1	0.58	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4-Dinitrophenol	1.7	U	5.2	1.7	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,6-Dinitrotoluene	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
Di-n-octyl phthalate	0.14	U	1.0	0.14	ug/L		01/15/22 13:28	01/15/22 19:59	1
Fluoranthene	0.063	U	0.26	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
Fluorene	0.052	U	0.26	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Hexachlorobenzene	0.042	U	0.63	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
Hexachlorobutadiene	0.063	U	1.0	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
Hexachlorocyclopentadiene	0.15	U	1.0	0.15	ug/L		01/15/22 13:28	01/15/22 19:59	1
Hexachloroethane	0.052	U	1.0	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
Indeno[1,2,3-cd]pyrene	0.14	U	0.42	0.14	ug/L		01/15/22 13:28	01/15/22 19:59	1
Isophorone	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
2-Methylphenol	0.052	U	0.63	0.052	ug/L		01/15/22 13:28	01/15/22 19:59	1
3 & 4 Methylphenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
Naphthalene	0.17	U	0.42	0.17	ug/L		01/15/22 13:28	01/15/22 19:59	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
3-Nitroaniline	0.17	U	3.1	0.17	ug/L		01/15/22 13:28	01/15/22 19:59	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT05

Lab Sample ID: 580-109289-5

Date Collected: 01/12/22 15:30

Matrix: Water

Date Received: 01/14/22 12:15

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		01/15/22 13:28	01/15/22 19:59	1
Nitrobenzene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
4-Nitrophenol	1.8	U	10	1.8	ug/L		01/15/22 13:28	01/15/22 19:59	1
N-Nitrosodi-n-propylamine	0.063	U	0.42	0.063	ug/L		01/15/22 13:28	01/15/22 19:59	1
N-Nitrosodiphenylamine	0.073	U	1.0	0.073	ug/L		01/15/22 13:28	01/15/22 19:59	1
Pentachlorophenol	0.53	U	10	0.53	ug/L		01/15/22 13:28	01/15/22 19:59	1
Phenanthrene	0.13	U	1.0	0.13	ug/L		01/15/22 13:28	01/15/22 19:59	1
Phenol	0.38	U	1.0	0.38	ug/L		01/15/22 13:28	01/15/22 19:59	1
Pyrene	0.042	U	1.0	0.042	ug/L		01/15/22 13:28	01/15/22 19:59	1
1,2,4-Trichlorobenzene	0.094	U	0.42	0.094	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4,5-Trichlorophenol	0.10	U	0.42	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1
2,4,6-Trichlorophenol	0.10	U	0.63	0.10	ug/L		01/15/22 13:28	01/15/22 19:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	45		35 - 120	01/15/22 13:28	01/15/22 19:59	1
2-Fluorophenol (Surr)	0.7	S1-	21 - 120	01/15/22 13:28	01/15/22 19:59	1
Nitrobenzene-d5 (Surr)	68		39 - 120	01/15/22 13:28	01/15/22 19:59	1
Phenol-d5 (Surr)	0.4	S1-	10 - 120	01/15/22 13:28	01/15/22 19:59	1
Terphenyl-d14	89		63 - 137	01/15/22 13:28	01/15/22 19:59	1
2,4,6-Tribromophenol	133	S1+	50 - 130	01/15/22 13:28	01/15/22 19:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 13:09	01/14/22 23:32	1
C24-C40	180	U	200	180	ug/L		01/14/22 13:09	01/14/22 23:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	74		53 - 120	01/14/22 13:09	01/14/22 23:32	1

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT06

Lab Sample ID: 580-109289-6

Date Collected: 01/12/22 15:25

Matrix: Water

Date Received: 01/14/22 12:15

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			01/15/22 00:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		78 - 120					01/15/22 00:03	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			01/15/22 00:03	1
Benzene	0.24	U	1.0	0.24	ug/L			01/15/22 00:03	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/15/22 00:03	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/15/22 00:03	1
Bromomethane	0.21	U *+	1.0	0.21	ug/L			01/15/22 00:03	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/15/22 00:03	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/15/22 00:03	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/15/22 00:03	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/15/22 00:03	1
Chloromethane	0.28	U *+	1.0	0.28	ug/L			01/15/22 00:03	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/15/22 00:03	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/15/22 00:03	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/15/22 00:03	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/15/22 00:03	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/15/22 00:03	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/15/22 00:03	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/15/22 00:03	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/15/22 00:03	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/15/22 00:03	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/15/22 00:03	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/15/22 00:03	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/15/22 00:03	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/15/22 00:03	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/15/22 00:03	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/15/22 00:03	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/15/22 00:03	1
Styrene	0.53	U	1.0	0.53	ug/L			01/15/22 00:03	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/15/22 00:03	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/15/22 00:03	1
Toluene	0.39	U	1.0	0.39	ug/L			01/15/22 00:03	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/15/22 00:03	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/15/22 00:03	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/15/22 00:03	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/15/22 00:03	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/15/22 00:03	1
Vinyl chloride	0.22	U *+	1.0	0.22	ug/L			01/15/22 00:03	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/15/22 00:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		80 - 120					01/15/22 00:03	1
Dibromofluoromethane (Surr)	103		80 - 120					01/15/22 00:03	1
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					01/15/22 00:03	1
Toluene-d8 (Surr)	96		80 - 120					01/15/22 00:03	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: MB 580-378375/5

Matrix: Water

Analysis Batch: 378375

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			01/14/22 15:43	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		78 - 120					01/14/22 15:43	1

Lab Sample ID: LCS 580-378375/8

Matrix: Water

Analysis Batch: 378375

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	1200		ug/L		120	75 - 127
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	102		78 - 120				

Lab Sample ID: LCSD 580-378375/9

Matrix: Water

Analysis Batch: 378375

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Gasoline Range Organics (C6-C12)	1000	1070		ug/L		107	75 - 127	12	13
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	99		78 - 120						

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

Lab Sample ID: MB 580-378374/5

Matrix: Water

Analysis Batch: 378374

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			01/14/22 15:43	1
Benzene	0.24	U	1.0	0.24	ug/L			01/14/22 15:43	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/14/22 15:43	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/14/22 15:43	1
Bromomethane	0.21	U	1.0	0.21	ug/L			01/14/22 15:43	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/14/22 15:43	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/14/22 15:43	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/14/22 15:43	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/14/22 15:43	1
Chloromethane	0.28	U	1.0	0.28	ug/L			01/14/22 15:43	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/14/22 15:43	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/14/22 15:43	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/14/22 15:43	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/14/22 15:43	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: MB 580-378374/5

Matrix: Water

Analysis Batch: 378374

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			01/14/22 15:43	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/14/22 15:43	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/14/22 15:43	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/14/22 15:43	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/14/22 15:43	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/14/22 15:43	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/14/22 15:43	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/14/22 15:43	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/14/22 15:43	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/14/22 15:43	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/14/22 15:43	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/14/22 15:43	1
Styrene	0.53	U	1.0	0.53	ug/L			01/14/22 15:43	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/14/22 15:43	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/14/22 15:43	1
Toluene	0.39	U	1.0	0.39	ug/L			01/14/22 15:43	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/14/22 15:43	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/14/22 15:43	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/14/22 15:43	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/14/22 15:43	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/14/22 15:43	1
Vinyl chloride	0.22	U	1.0	0.22	ug/L			01/14/22 15:43	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/14/22 15:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		80 - 120		01/14/22 15:43	1
Dibromofluoromethane (Surr)	100		80 - 120		01/14/22 15:43	1
1,2-Dichloroethane-d4 (Surr)	101		80 - 120		01/14/22 15:43	1
Toluene-d8 (Surr)	100		80 - 120		01/14/22 15:43	1

Lab Sample ID: LCS 580-378374/6

Matrix: Water

Analysis Batch: 378374

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	58.3		ug/L		117	44 - 150
Benzene	10.0	11.3		ug/L		113	80 - 122
Bromodichloromethane	10.0	10.6		ug/L		106	75 - 124
Bromoform	10.0	9.59		ug/L		96	56 - 139
Bromomethane	10.0	15.5	*+	ug/L		155	36 - 150
Carbon disulfide	10.0	10.5		ug/L		105	63 - 134
Carbon tetrachloride	10.0	11.1		ug/L		111	72 - 129
Chlorobenzene	10.0	10.4		ug/L		104	80 - 120
Chloroform	10.0	11.2		ug/L		112	78 - 127
Chloromethane	10.0	27.1	*+	ug/L		271	25 - 150
cis-1,2-Dichloroethene	10.0	11.2		ug/L		112	76 - 120
cis-1,3-Dichloropropene	10.0	10.4		ug/L		104	77 - 120
Dibromochloromethane	10.0	10.1		ug/L		101	73 - 125

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: LCS 580-378374/6

Matrix: Water

Analysis Batch: 378374

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	11.4		ug/L		114	80 - 120
1,2-Dichloroethane	10.0	10.9		ug/L		109	69 - 126
1,1-Dichloroethene	10.0	11.8		ug/L		118	70 - 129
1,2-Dichloroethene, Total	20.0	22.7		ug/L		114	76 - 129
Dichloromethane	10.0	11.8		ug/L		118	77 - 125
1,2-Dichloropropane	10.0	11.0		ug/L		110	80 - 120
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
Ethyl Chloride	10.0	13.8		ug/L		138	38 - 150
2-Hexanone	50.0	51.9		ug/L		104	65 - 144
Methyl Ethyl Ketone	50.0	59.3		ug/L		119	65 - 137
Methyl isobutyl ketone (MIBK)	50.0	51.0		ug/L		102	59 - 141
m-Xylene & p-Xylene	10.0	10.2		ug/L		102	80 - 120
o-Xylene	10.0	9.93		ug/L		99	80 - 120
Styrene	10.0	10.1		ug/L		101	76 - 122
1,1,1,2-Tetrachloroethane	10.0	10.5		ug/L		105	74 - 124
Tetrachloroethene	10.0	10.9		ug/L		109	76 - 125
Toluene	10.0	10.6		ug/L		106	80 - 120
trans-1,2-Dichloroethene	10.0	11.5		ug/L		115	75 - 120
trans-1,3-Dichloropropene	10.0	10.1		ug/L		101	76 - 122
1,1,1-Trichloroethane	10.0	10.6		ug/L		106	74 - 130
1,1,2-Trichloroethane	10.0	10.5		ug/L		105	80 - 121
Trichloroethene	10.0	11.2		ug/L		112	80 - 125
Vinyl chloride	10.0	20.4	*+	ug/L		204	31 - 150
Xylenes, Total	20.0	20.1		ug/L		101	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	98		80 - 120
Toluene-d8 (Surr)	98		80 - 120

Lab Sample ID: LCSD 580-378374/7

Matrix: Water

Analysis Batch: 378374

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	59.5		ug/L		119	44 - 150	2	33
Benzene	10.0	11.4		ug/L		114	80 - 122	1	14
Bromodichloromethane	10.0	10.7		ug/L		107	75 - 124	1	13
Bromoform	10.0	9.52		ug/L		95	56 - 139	1	21
Bromomethane	10.0	16.2	*+	ug/L		162	36 - 150	4	33
Carbon disulfide	10.0	11.7		ug/L		117	63 - 134	10	24
Carbon tetrachloride	10.0	11.2		ug/L		112	72 - 129	0	19
Chlorobenzene	10.0	10.4		ug/L		104	80 - 120	1	10
Chloroform	10.0	11.4		ug/L		114	78 - 127	1	14
Chloromethane	10.0	26.4	*+	ug/L		264	25 - 150	3	26
cis-1,2-Dichloroethene	10.0	11.4		ug/L		114	76 - 120	2	20
cis-1,3-Dichloropropene	10.0	10.1		ug/L		101	77 - 120	3	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: LCSD 580-378374/7

Matrix: Water

Analysis Batch: 378374

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
Dibromochloromethane	10.0	9.87		ug/L		99	73 - 125	2	13
1,1-Dichloroethane	10.0	11.4		ug/L		114	80 - 120	0	15
1,2-Dichloroethane	10.0	11.0		ug/L		110	69 - 126	1	11
1,1-Dichloroethene	10.0	12.0		ug/L		120	70 - 129	2	23
1,2-Dichloroethene, Total	20.0	22.8		ug/L		114	76 - 129	0	21
Dichloromethane	10.0	12.0		ug/L		120	77 - 125	1	18
1,2-Dichloropropane	10.0	11.4		ug/L		114	80 - 120	3	14
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120	1	14
Ethyl Chloride	10.0	13.7		ug/L		137	38 - 150	0	28
2-Hexanone	50.0	48.0		ug/L		96	65 - 144	8	26
Methyl Ethyl Ketone	50.0	58.0		ug/L		116	65 - 137	2	34
Methyl isobutyl ketone (MIBK)	50.0	47.0		ug/L		94	59 - 141	8	22
m-Xylene & p-Xylene	10.0	9.98		ug/L		100	80 - 120	2	14
o-Xylene	10.0	9.96		ug/L		100	80 - 120	0	16
Styrene	10.0	10.2		ug/L		102	76 - 122	0	16
1,1,2,2-Tetrachloroethane	10.0	9.43		ug/L		94	74 - 124	11	25
Tetrachloroethene	10.0	10.5		ug/L		105	76 - 125	4	13
Toluene	10.0	10.4		ug/L		104	80 - 120	2	13
trans-1,2-Dichloroethene	10.0	11.4		ug/L		114	75 - 120	1	21
trans-1,3-Dichloropropene	10.0	9.75		ug/L		97	76 - 122	4	20
1,1,1-Trichloroethane	10.0	12.4		ug/L		124	74 - 130	16	19
1,1,2-Trichloroethane	10.0	10.2		ug/L		102	80 - 121	3	14
Trichloroethene	10.0	11.1		ug/L		111	80 - 125	0	13
Vinyl chloride	10.0	21.6	+	ug/L		216	31 - 150	6	26
Xylenes, Total	20.0	19.9		ug/L		100	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	103		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
Toluene-d8 (Surr)	98		80 - 120

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

Lab Sample ID: MB 580-378439/1-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 378439

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.050	U	0.40	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Acenaphthylene	0.060	U	1.0	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
Anthracene	0.050	U	1.0	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Benzo[a]anthracene	0.050	U	0.25	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Benzo[a]pyrene	0.040	U	0.25	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
Benzo[b]fluoranthene	0.040	U	0.25	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
Benzo[g,h,i]perylene	0.040	U	0.25	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
Benzo[k]fluoranthene	0.050	U	0.25	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Bis(2-chloroethoxy)methane	0.050	U	0.60	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Bis(2-chloroethyl)ether	0.030	U	0.10	0.030	ug/L		01/15/22 13:28	01/15/22 18:04	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: MB 580-378439/1-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 378439

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		01/15/22 13:28	01/15/22 18:04	1
4-Bromophenyl phenyl ether	0.060	U	0.60	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
Butyl benzyl phthalate	0.27	U	4.0	0.27	ug/L		01/15/22 13:28	01/15/22 18:04	1
Carbazole	0.10	U	0.60	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
4-Chloroaniline	0.59	U	2.0	0.59	ug/L		01/15/22 13:28	01/15/22 18:04	1
4-Chloro-3-methylphenol	0.13	U	0.60	0.13	ug/L		01/15/22 13:28	01/15/22 18:04	1
2-Chloronaphthalene	0.070	U	1.0	0.070	ug/L		01/15/22 13:28	01/15/22 18:04	1
2-Chlorophenol	0.050	U	1.0	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
4-Chlorophenyl phenyl ether	0.050	U	0.60	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Chrysene	0.040	U	0.25	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
Dibenz(a,h)anthracene	0.070	U	0.25	0.070	ug/L		01/15/22 13:28	01/15/22 18:04	1
Dibenzofuran	0.10	U	0.40	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
1,2-Dichlorobenzene	0.050	U	0.40	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
1,3-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
1,4-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
3,3'-Dichlorobenzidine	0.26	U	1.0	0.26	ug/L		01/15/22 13:28	01/15/22 18:04	1
2,4-Dichlorophenol	0.20	U	1.0	0.20	ug/L		01/15/22 13:28	01/15/22 18:04	1
Diethyl phthalate	0.15	U	1.0	0.15	ug/L		01/15/22 13:28	01/15/22 18:04	1
2,4-Dimethylphenol	0.16	U	4.0	0.16	ug/L		01/15/22 13:28	01/15/22 18:04	1
Dimethyl phthalate	0.060	U	0.60	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
Di-n-butyl phthalate	0.19	U	3.0	0.19	ug/L		01/15/22 13:28	01/15/22 18:04	1
4,6-Dinitro-2-methylphenol	0.55	U	2.0	0.55	ug/L		01/15/22 13:28	01/15/22 18:04	1
2,4-Dinitrophenol	1.6	U	5.0	1.6	ug/L		01/15/22 13:28	01/15/22 18:04	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
2,6-Dinitrotoluene	0.10	U	0.40	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
Di-n-octyl phthalate	0.13	U	1.0	0.13	ug/L		01/15/22 13:28	01/15/22 18:04	1
Fluoranthene	0.060	U	0.25	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
Fluorene	0.050	U	0.25	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Hexachlorobenzene	0.040	U	0.60	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
Hexachlorobutadiene	0.060	U	1.0	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
Hexachlorocyclopentadiene	0.14	U	1.0	0.14	ug/L		01/15/22 13:28	01/15/22 18:04	1
Hexachloroethane	0.050	U	1.0	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
Indeno[1,2,3-cd]pyrene	0.13	U	0.40	0.13	ug/L		01/15/22 13:28	01/15/22 18:04	1
Isophorone	0.10	U	0.40	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
2-Methylphenol	0.050	U	0.60	0.050	ug/L		01/15/22 13:28	01/15/22 18:04	1
3 & 4 Methylphenol	0.10	U	0.60	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
Naphthalene	0.16	U	0.40	0.16	ug/L		01/15/22 13:28	01/15/22 18:04	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
3-Nitroaniline	0.16	U	3.0	0.16	ug/L		01/15/22 13:28	01/15/22 18:04	1
4-Nitroaniline	0.21	U	2.0	0.21	ug/L		01/15/22 13:28	01/15/22 18:04	1
Nitrobenzene	0.040	U	1.0	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
4-Nitrophenol	1.7	U	10	1.7	ug/L		01/15/22 13:28	01/15/22 18:04	1
N-Nitrosodi-n-propylamine	0.060	U	0.40	0.060	ug/L		01/15/22 13:28	01/15/22 18:04	1
N-Nitrosodiphenylamine	0.070	U	1.0	0.070	ug/L		01/15/22 13:28	01/15/22 18:04	1
Pentachlorophenol	0.51	U	10	0.51	ug/L		01/15/22 13:28	01/15/22 18:04	1
Phenanthrene	0.12	U	1.0	0.12	ug/L		01/15/22 13:28	01/15/22 18:04	1
Phenol	0.36	U	1.0	0.36	ug/L		01/15/22 13:28	01/15/22 18:04	1
Pyrene	0.040	U	1.0	0.040	ug/L		01/15/22 13:28	01/15/22 18:04	1
1,2,4-Trichlorobenzene	0.090	U	0.40	0.090	ug/L		01/15/22 13:28	01/15/22 18:04	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: MB 580-378439/1-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 378439

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		01/15/22 13:28	01/15/22 18:04	1
2,4,6-Trichlorophenol	0.10	U	0.60	0.10	ug/L		01/15/22 13:28	01/15/22 18:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	83		35 - 120				01/15/22 13:28	01/15/22 18:04	1
2-Fluorophenol (Surr)	63		21 - 120				01/15/22 13:28	01/15/22 18:04	1
Nitrobenzene-d5 (Surr)	92		39 - 120				01/15/22 13:28	01/15/22 18:04	1
Phenol-d5 (Surr)	38		10 - 120				01/15/22 13:28	01/15/22 18:04	1
Terphenyl-d14	119		63 - 137				01/15/22 13:28	01/15/22 18:04	1
2,4,6-Tribromophenol	101		50 - 130				01/15/22 13:28	01/15/22 18:04	1

Lab Sample ID: LCS 580-378439/2-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 378439

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	2.00	1.50		ug/L		75	41 - 120
Acenaphthylene	2.00	1.54		ug/L		77	43 - 120
Anthracene	2.00	1.47		ug/L		73	58 - 120
Benzo[a]anthracene	2.00	1.51		ug/L		76	48 - 131
Benzo[a]pyrene	2.00	1.49		ug/L		75	55 - 125
Benzo[b]fluoranthene	2.00	1.48		ug/L		74	54 - 124
Benzo[g,h,i]perylene	2.00	1.54		ug/L		77	46 - 124
Benzo[k]fluoranthene	2.00	1.50		ug/L		75	52 - 132
Bis(2-chloroethoxy)methane	2.00	1.71		ug/L		85	38 - 120
Bis(2-ethylhexyl) phthalate	2.00	1.89	J	ug/L		95	41 - 150
4-Bromophenyl phenyl ether	2.00	1.60		ug/L		80	53 - 120
Butyl benzyl phthalate	2.00	1.83	J	ug/L		91	40 - 150
Carbazole	2.00	1.50		ug/L		75	61 - 150
4-Chloroaniline	2.00	1.35	J	ug/L		68	10 - 150
4-Chloro-3-methylphenol	2.00	1.77		ug/L		89	36 - 120
2-Chloronaphthalene	2.00	1.47		ug/L		73	35 - 120
2-Chlorophenol	2.00	1.53		ug/L		76	44 - 120
4-Chlorophenyl phenyl ether	2.00	1.58		ug/L		79	41 - 120
Chrysene	2.00	1.61		ug/L		80	57 - 125
Dibenz(a,h)anthracene	2.00	1.45		ug/L		73	48 - 126
Dibenzofuran	2.00	1.59		ug/L		79	45 - 120
1,2-Dichlorobenzene	2.00	1.39		ug/L		69	20 - 120
1,3-Dichlorobenzene	2.00	1.37		ug/L		69	20 - 120
1,4-Dichlorobenzene	2.00	1.34		ug/L		67	20 - 120
3,3'-Dichlorobenzidine	4.00	2.35		ug/L		59	33 - 150
2,4-Dichlorophenol	2.00	1.61		ug/L		81	45 - 120
Diethyl phthalate	2.00	1.72		ug/L		86	60 - 121
2,4-Dimethylphenol	2.00	1.86	J	ug/L		93	37 - 120
Dimethyl phthalate	2.00	1.61		ug/L		80	54 - 120
Di-n-butyl phthalate	2.00	1.64	J	ug/L		82	55 - 150
4,6-Dinitro-2-methylphenol	4.00	2.29		ug/L		57	29 - 136
2,4-Dinitrophenol	4.00	2.20	J	ug/L		55	10 - 146

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: LCS 580-378439/2-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 378439

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrotoluene	2.00	1.56		ug/L		78	51 - 120
2,6-Dinitrotoluene	2.00	1.50		ug/L		75	52 - 120
Di-n-octyl phthalate	2.00	1.75		ug/L		88	48 - 140
Fluoranthene	2.00	1.57		ug/L		79	60 - 121
Fluorene	2.00	1.53		ug/L		77	20 - 120
Hexachlorobenzene	2.00	1.46		ug/L		73	49 - 120
Hexachlorobutadiene	2.00	1.37		ug/L		68	10 - 130
Hexachlorocyclopentadiene	2.00	0.830	J	ug/L		42	10 - 125
Hexachloroethane	2.00	1.40		ug/L		70	10 - 130
Indeno[1,2,3-cd]pyrene	2.00	1.44		ug/L		72	39 - 124
Isophorone	2.00	1.64		ug/L		82	41 - 120
2-Methylphenol	2.00	1.64		ug/L		82	30 - 120
3 & 4 Methylphenol	2.00	1.62		ug/L		81	29 - 120
Naphthalene	2.00	1.39		ug/L		70	42 - 120
2-Nitroaniline	2.00	1.59		ug/L		80	43 - 120
3-Nitroaniline	2.00	1.22	J	ug/L		61	10 - 138
4-Nitroaniline	2.00	1.29	J	ug/L		64	38 - 133
Nitrobenzene	2.00	1.64		ug/L		82	38 - 120
4-Nitrophenol	4.00	1.7	U	ug/L		39	10 - 120
N-Nitrosodi-n-propylamine	2.00	1.71		ug/L		86	39 - 120
N-Nitrosodiphenylamine	2.00	1.50		ug/L		75	52 - 120
Pentachlorophenol	4.00	1.27	J	ug/L		32	18 - 135
Phenanthrene	2.00	1.50		ug/L		75	54 - 120
Phenol	2.00	0.907	J	ug/L		45	13 - 120
Pyrene	2.00	1.52		ug/L		76	57 - 120
1,2,4-Trichlorobenzene	2.00	1.42		ug/L		71	21 - 120
2,4,5-Trichlorophenol	2.00	1.65		ug/L		83	45 - 120
2,4,6-Trichlorophenol	2.00	1.56		ug/L		78	43 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	69		35 - 120
2-Fluorophenol (Surr)	61		21 - 120
Nitrobenzene-d5 (Surr)	77		39 - 120
Phenol-d5 (Surr)	41		10 - 120
Terphenyl-d14	85		63 - 137
2,4,6-Tribromophenol	78		50 - 130

Lab Sample ID: LCSD 580-378439/3-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 378439

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	2.00	1.65		ug/L		82	41 - 120	9	35
Acenaphthylene	2.00	1.69		ug/L		84	43 - 120	9	35
Anthracene	2.00	1.56		ug/L		78	58 - 120	6	35
Benzo[a]anthracene	2.00	1.71		ug/L		86	48 - 131	12	35
Benzo[a]pyrene	2.00	1.58		ug/L		79	55 - 125	5	35
Benzo[b]fluoranthene	2.00	1.58		ug/L		79	54 - 124	7	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: LCSD 580-378439/3-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 378439

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	RPD Limit
Benzo[g,h,i]perylene	2.00	1.61		ug/L		80	46 - 124		4	35
Benzo[k]fluoranthene	2.00	1.50		ug/L		75	52 - 132		0	35
Bis(2-chloroethoxy)methane	2.00	1.86		ug/L		93	38 - 120		9	35
Bis(2-ethylhexyl) phthalate	2.00	2.12	J	ug/L		106	41 - 150		11	35
4-Bromophenyl phenyl ether	2.00	1.75		ug/L		87	53 - 120		9	35
Butyl benzyl phthalate	2.00	2.07	J	ug/L		103	40 - 150		12	35
Carbazole	2.00	1.69		ug/L		85	61 - 150		12	35
4-Chloroaniline	2.00	1.43	J	ug/L		71	10 - 150		5	35
4-Chloro-3-methylphenol	2.00	1.92		ug/L		96	36 - 120		8	35
2-Chloronaphthalene	2.00	1.61		ug/L		80	35 - 120		9	35
2-Chlorophenol	2.00	1.59		ug/L		80	44 - 120		4	35
4-Chlorophenyl phenyl ether	2.00	1.76		ug/L		88	41 - 120		11	35
Chrysene	2.00	1.80		ug/L		90	57 - 125		11	35
Dibenz(a,h)anthracene	2.00	1.53		ug/L		77	48 - 126		6	35
Dibenzofuran	2.00	1.74		ug/L		87	45 - 120		9	35
1,2-Dichlorobenzene	2.00	1.41		ug/L		71	20 - 120		2	35
1,3-Dichlorobenzene	2.00	1.39		ug/L		69	20 - 120		1	35
1,4-Dichlorobenzene	2.00	1.36		ug/L		68	20 - 120		2	35
3,3'-Dichlorobenzidine	4.00	3.54	*1	ug/L		89	33 - 150		40	35
2,4-Dichlorophenol	2.00	1.68		ug/L		84	45 - 120		4	35
Diethyl phthalate	2.00	1.95		ug/L		97	60 - 121		13	35
2,4-Dimethylphenol	2.00	1.92	J	ug/L		96	37 - 120		3	35
Dimethyl phthalate	2.00	1.88		ug/L		94	54 - 120		15	35
Di-n-butyl phthalate	2.00	1.81	J	ug/L		91	55 - 150		10	35
4,6-Dinitro-2-methylphenol	4.00	2.56		ug/L		64	29 - 136		11	35
2,4-Dinitrophenol	4.00	2.42	J	ug/L		60	10 - 146		9	35
2,4-Dinitrotoluene	2.00	1.76		ug/L		88	51 - 120		12	35
2,6-Dinitrotoluene	2.00	1.78		ug/L		89	52 - 120		18	35
Di-n-octyl phthalate	2.00	1.87		ug/L		94	48 - 140		7	35
Fluoranthene	2.00	1.71		ug/L		85	60 - 121		8	35
Fluorene	2.00	1.76		ug/L		88	20 - 120		14	35
Hexachlorobenzene	2.00	1.63		ug/L		82	49 - 120		11	35
Hexachlorobutadiene	2.00	1.34		ug/L		67	10 - 130		2	35
Hexachlorocyclopentadiene	2.00	0.870	J	ug/L		43	10 - 125		5	35
Hexachloroethane	2.00	1.44		ug/L		72	10 - 130		3	35
Indeno[1,2,3-cd]pyrene	2.00	1.63		ug/L		81	39 - 124		12	35
Isophorone	2.00	1.74		ug/L		87	41 - 120		6	35
2-Methylphenol	2.00	1.60		ug/L		80	30 - 120		3	35
3 & 4 Methylphenol	2.00	1.52		ug/L		76	29 - 120		7	35
Naphthalene	2.00	1.44		ug/L		72	42 - 120		3	35
2-Nitroaniline	2.00	1.87		ug/L		93	43 - 120		16	35
3-Nitroaniline	2.00	1.64	J	ug/L		82	10 - 138		29	35
4-Nitroaniline	2.00	1.71	J	ug/L		86	38 - 133		28	35
Nitrobenzene	2.00	1.75		ug/L		87	38 - 120		6	35
4-Nitrophenol	4.00	1.7	U	ug/L		35	10 - 120		11	35
N-Nitrosodi-n-propylamine	2.00	1.96		ug/L		98	39 - 120		13	35
N-Nitrosodiphenylamine	2.00	1.66		ug/L		83	52 - 120		10	35
Pentachlorophenol	4.00	0.944	J	ug/L		24	18 - 135		29	35
Phenanthrene	2.00	1.64		ug/L		82	54 - 120		9	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

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

Lab Sample ID: LCSD 580-378439/3-A

Matrix: Water

Analysis Batch: 378445

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 378439

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	2.00	0.835	J	ug/L		42	13 - 120	8	35
Pyrene	2.00	1.67		ug/L		83	57 - 120	9	35
1,2,4-Trichlorobenzene	2.00	1.45		ug/L		73	21 - 120	2	35
2,4,5-Trichlorophenol	2.00	1.76		ug/L		88	45 - 120	6	35
2,4,6-Trichlorophenol	2.00	1.64		ug/L		82	43 - 120	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl	78		35 - 120
2-Fluorophenol (Surr)	59		21 - 120
Nitrobenzene-d5 (Surr)	85		39 - 120
Phenol-d5 (Surr)	39		10 - 120
Terphenyl-d14	93		63 - 137
2,4,6-Tribromophenol	85		50 - 130

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

Lab Sample ID: MB 580-378340/1-A

Matrix: Water

Analysis Batch: 378372

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 378340

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	90	U	110	90	ug/L		01/14/22 11:50	01/14/22 18:01	1
C24-C40	180	U	200	180	ug/L		01/14/22 11:50	01/14/22 18:01	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	73		53 - 120				01/14/22 11:50	01/14/22 18:01	1

Lab Sample ID: LCS 580-378340/2-A

Matrix: Water

Analysis Batch: 378372

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 378340

			Spike	LCS	LCS	%Rec.			
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits
C9-C25			4000	3200		ug/L		80	55 - 134
C24-C40			4000	4350		ug/L		109	36 - 143
			LCS	LCS					
Surrogate	%Recovery	Qualifier	Limits						
<i>o</i> -Terphenyl	80		53 - 120						

Lab Sample ID: LCSD 580-378340/3-A

Matrix: Water

Analysis Batch: 378372

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 378340

			Spike	LCSD	LCSD				%Rec.	RPD	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
C9-C25			4000	3380		ug/L		85	55 - 134	6	26
C24-C40			4000	4320		ug/L		108	36 - 143	1	24
		LCSD	LCSD								
Surrogate	%Recovery	Qualifier	Limits								
o-Terphenyl	87		53 - 120								

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Lab Chronicle

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT13

Lab Sample ID: 580-109289-1

Date Collected: 01/12/22 19:00

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/14/22 21:40	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/14/22 21:40	JSM	FGS SEA
Total/NA	Prep	3510C			378439	01/15/22 13:28	RJL	FGS SEA
Total/NA	Analysis	8270E		1	378445	01/15/22 19:13	T1L	FGS SEA
Total/NA	Prep	3510C			378340	01/14/22 13:09	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 22:54	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT14

Lab Sample ID: 580-109289-2

Date Collected: 01/12/22 18:55

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/14/22 22:04	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/14/22 22:04	JSM	FGS SEA

Client Sample ID: 220112-H3-ZT09

Lab Sample ID: 580-109289-3

Date Collected: 01/12/22 17:00

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/14/22 22:28	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/14/22 22:28	JSM	FGS SEA
Total/NA	Prep	3510C			378439	01/15/22 13:28	RJL	FGS SEA
Total/NA	Analysis	8270E		1	378445	01/15/22 19:36	T1L	FGS SEA
Total/NA	Prep	3510C			378340	01/14/22 13:09	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 23:13	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT10

Lab Sample ID: 580-109289-4

Date Collected: 01/12/22 16:55

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/14/22 22:52	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/14/22 22:52	JSM	FGS SEA

Client Sample ID: 220112-H3-ZT05

Lab Sample ID: 580-109289-5

Date Collected: 01/12/22 15:30

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/14/22 23:15	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/14/22 23:15	JSM	FGS SEA
Total/NA	Prep	3510C			378439	01/15/22 13:28	RJL	FGS SEA
Total/NA	Analysis	8270E		1	378445	01/15/22 19:59	T1L	FGS SEA

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Lab Chronicle

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Client Sample ID: 220112-H3-ZT05

Lab Sample ID: 580-109289-5

Date Collected: 01/12/22 15:30

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			378340	01/14/22 13:09	JHR	FGS SEA
Total/NA	Analysis	8015D		1	378372	01/14/22 23:32	JCM	FGS SEA

Client Sample ID: 220112-H3-ZT06

Lab Sample ID: 580-109289-6

Date Collected: 01/12/22 15:25

Matrix: Water

Date Received: 01/14/22 12:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378375	01/15/22 00:03	B1M	FGS SEA
Total/NA	Analysis	8260D		1	378374	01/15/22 00:03	JSM	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: 580-109289-1

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

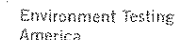
Client: AECOM

Project/Site: Red Hill Drinking Water

Job ID: 580-109289-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109289-1	220112-H3-ZT13	Water	01/12/22 19:00	01/14/22 12:15
580-109289-2	220112-H3-ZT14	Water	01/12/22 18:55	01/14/22 12:15
580-109289-3	220112-H3-ZT09	Water	01/12/22 17:00	01/14/22 12:15
580-109289-4	220112-H3-ZT10	Water	01/12/22 16:55	01/14/22 12:15
580-109289-5	220112-H3-ZT05	Water	01/12/22 15:30	01/14/22 12:15
580-109289-6	220112-H3-ZT06	Water	01/12/22 15:25	01/14/22 12:15

Hydrant Screening



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

Hydrant Screening

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

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109289-1

Login Number: 109289

List Source: Eurofins Seattle

List Number: 1

Creator: Greene, Ashton R

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Work Orders: 2A13026

Project: 60674414, COC # 01122022DW-70/01122022DW-74

Attn: Margie Pascua

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

Report Date: 1/16/2022

Received Date: 1/13/2022

Turnaround Time: 3 workdays

Phones: (808) 529-7277

Fax: (808) 524-0246

P.O. #: reference number
60571032.02.46.01

Billing Code:

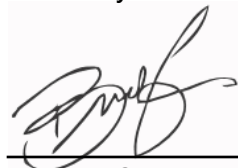
ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP
#CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

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 1/13/22 with the Chain-of-Custody document. The samples were received in good condition, at 2.0 °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



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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Case Narrative

SUPP Report generated to correct sample time for -02. BG 1/16/22

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
220112-H3-ZT15	AECOM	2A13026-01	Water	01/12/22 19:30	
220112-H3-ZT11	AECOM	2A13026-02	Water	01/12/22 17:20	

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

Sample: 220112-H3-ZT15
2A13026-01 (Water) Sampled: 01/12/22 19:30 by AECOM

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Chlorinated Pesticides and/or PCBs by GC/ECD

Method: EPA 508.1

Instr: GC08

Batch ID: W2A0878

Preparation: Method (SPE)

Prepared: 01/13/22 10:12

Analyst: rjg

Aroclor 1016	ND	0.0157	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1221	ND	0.0436	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1232	ND	0.0102	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1242	ND	0.0737	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1248	ND	0.0941	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1254	ND	0.0869	0.100	ug/l	1	01/15/22	A-01, U
Aroclor 1260	ND	0.0379	0.100	ug/l	1	01/15/22	A-01, U
Chlordane (tech)	ND	0.0669	0.100	ug/l	1	01/15/22	A-01, U
PCBs, Total	ND		0.500	ug/l	1	01/15/22	A-01, U

Surrogate(s)

4,4-Dibromobiphenyl	81%	Conc: 0.0829	70-130			01/15/22	
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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 5310B

Instr: TOC02

Batch ID: W2A0833

Preparation: _NONE (TOC/TOX)

Prepared: 01/13/22 09:58

Analyst: ajc

Total Organic Carbon (TOC)	0.265	0.190	0.300	mg/l	1	01/13/22	J
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Metals by EPA 200 Series Methods

Method: EPA 200.8

Instr: ICPMS04

Batch ID: W2A0905

Preparation: EPA 200.2

Prepared: 01/13/22 15:41

Analyst: mpn

Antimony, Total	0.193	0.0889	0.500	ug/l	1	01/13/22	J
Arsenic, Total	0.302	0.0741	0.400	ug/l	1	01/13/22	J
Barium, Total	2.45	0.142	1.00	ug/l	1	01/13/22	
Beryllium, Total	ND	0.0624	0.100	ug/l	1	01/13/22	U
Cadmium, Total	ND	0.0416	0.200	ug/l	1	01/13/22	U
Chromium, Total	1.52	0.0887	0.200	ug/l	1	01/13/22	
Copper, Total	14.5	0.225	0.500	ug/l	1	01/13/22	
Lead, Total	1.23	0.0827	0.200	ug/l	1	01/13/22	
Selenium, Total	1.51	0.0666	0.400	ug/l	1	01/13/22	
Thallium, Total	ND	0.0210	0.200	ug/l	1	01/13/22	U

Method: EPA 245.1

Instr: HG03

Batch ID: W2A0916

Preparation: EPA 245.1

Prepared: 01/13/22 17:54

Analyst: kvm

Mercury, Total	ND	0.0170	0.0500	ug/l	1	01/14/22	U
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Semivolatile Organic Compounds by GC/MS

Method: EPA 525.2

Instr: GCMS16

Batch ID: W2A0884

Preparation: Method (SPE)

Prepared: 01/13/22 11:40

Analyst: rmr

1-Methylnaphthalene	ND	0.00801	0.0500	ug/l	1	01/14/22	A-01a, U
2-Methylnaphthalene	ND	0.00904	0.0500	ug/l	1	01/14/22	A-01a, U

2A13026

Page 3 of 16

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

(Continued)

Sample: 220112-H3-ZT15
2A13026-01 (Water)

Sampled: 01/12/22 19:30 by AECOM

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Semivolatile Organic Compounds by GC/MS (Continued)

Method: EPA 525.2

Instr: GCMS16

Batch ID: W2A0884

Preparation: Method (SPE)

Prepared: 01/13/22 11:40

Analyst: rmr

Alachlor	ND	0.0110	0.100	ug/l	1	01/14/22	A-01a, U
Atrazine	ND	0.00734	0.100	ug/l	1	01/14/22	A-01a, U
Benzo (a) pyrene	ND	0.0117	0.100	ug/l	1	01/14/22	A-01a, Q-02, U
Bis(2-ethylhexyl)adipate	ND	0.00962	5.00	ug/l	1	01/14/22	A-01a, U
Bis(2-ethylhexyl)phthalate	ND	0.437	3.00	ug/l	1	01/14/22	A-01a, U
Endrin	ND	0.00991	0.200	ug/l	1	01/14/22	A-01a, U
gamma-BHC (Lindane)	ND	0.00633	0.100	ug/l	1	01/14/22	A-01a, U
Heptachlor	ND	0.00965	0.100	ug/l	1	01/14/22	A-01a, U
Heptachlor epoxide	ND	0.0122	0.100	ug/l	1	01/14/22	A-01a, U
Hexachlorobenzene	ND	0.0980	0.100	ug/l	1	01/14/22	A-01a, U
Hexachlorocyclopentadiene	ND	0.00594	1.00	ug/l	1	01/14/22	A-01a, U
Methoxychlor	ND	0.00863	0.200	ug/l	1	01/14/22	A-01a, U
Naphthalene	ND	0.0103	0.0500	ug/l	1	01/14/22	A-01a, U
Pentachlorophenol	ND	0.0242	1.00	ug/l	1	01/14/22	A-01a, U
Simazine	ND	0.00734	0.100	ug/l	1	01/14/22	A-01a, U

Surrogate(s)

1,3-Dimethyl-2-nitrobenzene	94%	Conc: 4.82	70-130			01/14/22	A-01a
Perylene-d12	97%	Conc: 4.94	70-130			01/14/22	A-01a
Triphenyl phosphate	111%	Conc: 5.65	70-130			01/14/22	A-01a

Volatile Organic Compounds by P&T and GC/MS

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0744

Preparation: EPA 5030

Prepared: 01/13/22 00:00

Analyst: cam

1,1,1-Trichloroethane	ND	0.256	0.500	ug/l	1	01/13/22	U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l	1	01/13/22	U
1,1-Dichloroethene	ND	0.160	0.500	ug/l	1	01/13/22	U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l	1	01/13/22	U
1,2-Dichloroethane	ND	0.243	0.500	ug/l	1	01/13/22	U
1,2-Dichloropropane	ND	0.130	0.500	ug/l	1	01/13/22	U
Benzene	ND	0.150	0.500	ug/l	1	01/13/22	U
Carbon tetrachloride	ND	0.270	0.500	ug/l	1	01/13/22	U
Chlorobenzene	ND	0.150	0.500	ug/l	1	01/13/22	U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l	1	01/13/22	U
Ethylbenzene	ND	0.210	0.500	ug/l	1	01/13/22	U
m,p-Xylene	ND	0.330	0.500	ug/l	1	01/13/22	U
Methylene chloride	ND	0.303	0.500	ug/l	1	01/13/22	U

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

(Continued)

Sample: 220112-H3-ZT15
2A13026-01 (Water) Sampled: 01/12/22 19:30 by AECOM
(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0744

Preparation: EPA 5030

Prepared: 01/13/22 00:00

Analyst: cam

o-Dichlorobenzene	ND	0.190	0.500	ug/l	1	01/13/22	U
o-Xylene	ND	0.200	0.500	ug/l	1	01/13/22	U
p-Dichlorobenzene	ND	0.180	0.500	ug/l	1	01/13/22	U
Styrene	ND	0.190	0.500	ug/l	1	01/13/22	U
Tetrachloroethene	ND	0.180	0.500	ug/l	1	01/13/22	U
THMs, Total	ND		0.500	ug/l	1	01/13/22	U
Toluene	ND	0.294	0.500	ug/l	1	01/13/22	U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l	1	01/13/22	U
Trichloroethene	ND	0.180	0.500	ug/l	1	01/13/22	U
Vinyl chloride	ND	0.180	0.500	ug/l	1	01/13/22	U

Surrogate(s)

1,2-Dichlorobenzene-d4	92%	Conc: 9.23	70-130	01/13/22
4-Bromofluorobenzene	90%	Conc: 9.01	70-130	01/13/22

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

(Continued)

Sample: 220112-H3-ZT11
2A13026-02 (Water) Sampled: 01/12/22 17:20 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: W2A0878		Preparation: Method (SPE)		Prepared: 01/13/22 10:12		Analyst: rjg	
Aroclor 1016	ND	0.0157	0.100	ug/l	1	01/15/22	U
Aroclor 1221	ND	0.0436	0.100	ug/l	1	01/15/22	U
Aroclor 1232	ND	0.0102	0.100	ug/l	1	01/15/22	U
Aroclor 1242	ND	0.0737	0.100	ug/l	1	01/15/22	U
Aroclor 1248	ND	0.0941	0.100	ug/l	1	01/15/22	U
Aroclor 1254	ND	0.0869	0.100	ug/l	1	01/15/22	U
Aroclor 1260	ND	0.0379	0.100	ug/l	1	01/15/22	U
Chlordane (tech)	ND	0.0669	0.100	ug/l	1	01/15/22	U
PCBs, Total	ND		0.500	ug/l	1	01/15/22	U
Surrogate(s)							
4,4-Dibromobiphenyl	82%	Conc: 0.0839	70-130			01/15/22	

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

Method: SM 5310B				Instr: TOC02			
Batch ID: W2A0833		Preparation: _NONE (TOC/TOX)		Prepared: 01/13/22 09:58		Analyst: ajc	
Total Organic Carbon (TOC)	ND	0.190	0.300	mg/l	1	01/13/22	U

Metals by EPA 200 Series Methods

Method: EPA 200.8				Instr: ICPMS04			
Batch ID: W2A0905		Preparation: EPA 200.2		Prepared: 01/13/22 15:41		Analyst: mpn	
Antimony, Total	ND	0.0889	0.500	ug/l	1	01/13/22	U
Arsenic, Total	0.352	0.0741	0.400	ug/l	1	01/13/22	J
Barium, Total	2.52	0.142	1.00	ug/l	1	01/13/22	
Beryllium, Total	ND	0.0624	0.100	ug/l	1	01/13/22	U
Cadmium, Total	ND	0.0416	0.200	ug/l	1	01/13/22	U
Chromium, Total	1.51	0.0887	0.200	ug/l	1	01/13/22	
Copper, Total	10.5	0.225	0.500	ug/l	1	01/13/22	
Lead, Total	2.18	0.0827	0.200	ug/l	1	01/13/22	
Selenium, Total	2.01	0.0666	0.400	ug/l	1	01/13/22	
Thallium, Total	ND	0.0210	0.200	ug/l	1	01/13/22	U

Method: EPA 245.1				Instr: HG03			
Batch ID: W2A0916		Preparation: EPA 245.1		Prepared: 01/13/22 17:54		Analyst: kvm	
Mercury, Total	ND	0.0170	0.0500	ug/l	1	01/14/22	U

Semivolatile Organic Compounds by GC/MS

Method: EPA 525.2				Instr: GCMS16			
Batch ID: W2A0884		Preparation: Method (SPE)		Prepared: 01/13/22 11:40		Analyst: rmr	
1-Methylnaphthalene	ND	0.00801	0.0500	ug/l	1	01/14/22	U
2-Methylnaphthalene	ND	0.00904	0.0500	ug/l	1	01/14/22	U

2A13026

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

(Continued)

Sample: 220112-H3-ZT11
2A13026-02 (Water)

Sampled: 01/12/22 17:20 by AECOM
(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Semivolatile Organic Compounds by GC/MS (Continued)

Method: EPA 525.2

Instr: GCMS16

Batch ID: W2A0884

Preparation: Method (SPE)

Prepared: 01/13/22 11:40

Analyst: rmr

Alachlor	ND	0.0110	0.100	ug/l	1	01/14/22	U
Atrazine	ND	0.00734	0.100	ug/l	1	01/14/22	U
Benzo (a) pyrene	ND	0.0117	0.100	ug/l	1	01/14/22	Q-02, U
Bis(2-ethylhexyl)adipate	ND	0.00962	5.00	ug/l	1	01/14/22	U
Bis(2-ethylhexyl)phthalate	ND	0.437	3.00	ug/l	1	01/14/22	U
Endrin	ND	0.00991	0.200	ug/l	1	01/14/22	U
gamma-BHC (Lindane)	ND	0.00633	0.100	ug/l	1	01/14/22	U
Heptachlor	ND	0.00965	0.100	ug/l	1	01/14/22	U
Heptachlor epoxide	ND	0.0122	0.100	ug/l	1	01/14/22	U
Hexachlorobenzene	ND	0.0980	0.100	ug/l	1	01/14/22	U
Hexachlorocyclopentadiene	ND	0.00594	1.00	ug/l	1	01/14/22	U
Methoxychlor	ND	0.00863	0.200	ug/l	1	01/14/22	U
Naphthalene	ND	0.0103	0.0500	ug/l	1	01/14/22	U
Pentachlorophenol	ND	0.0242	1.00	ug/l	1	01/14/22	U
Simazine	ND	0.00734	0.100	ug/l	1	01/14/22	U

Surrogate(s)

1,3-Dimethyl-2-nitrobenzene	97%	Conc: 4.93	70-130	01/14/22
Perylene-d12	97%	Conc: 4.95	70-130	01/14/22
Triphenyl phosphate	108%	Conc: 5.47	70-130	01/14/22

Volatile Organic Compounds by P&T and GC/MS

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0744

Preparation: EPA 5030

Prepared: 01/13/22 00:00

Analyst: cam

1,1,1-Trichloroethane	ND	0.256	0.500	ug/l	1	01/13/22	U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l	1	01/13/22	U
1,1-Dichloroethene	ND	0.160	0.500	ug/l	1	01/13/22	U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l	1	01/13/22	U
1,2-Dichloroethane	ND	0.243	0.500	ug/l	1	01/13/22	U
1,2-Dichloropropane	ND	0.130	0.500	ug/l	1	01/13/22	U
Benzene	ND	0.150	0.500	ug/l	1	01/13/22	U
Carbon tetrachloride	ND	0.270	0.500	ug/l	1	01/13/22	U
Chlorobenzene	ND	0.150	0.500	ug/l	1	01/13/22	U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l	1	01/13/22	U
Ethylbenzene	ND	0.210	0.500	ug/l	1	01/13/22	U
m,p-Xylene	ND	0.330	0.500	ug/l	1	01/13/22	U
Methylene chloride	ND	0.303	0.500	ug/l	1	01/13/22	U
o-Dichlorobenzene	ND	0.190	0.500	ug/l	1	01/13/22	U

2A13026

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Sample Results

(Continued)

Sample: 220112-H3-ZT11
2A13026-02 (Water) Sampled: 01/12/22 17:20 by AECOM
(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0744

Preparation: EPA 5030

Prepared: 01/13/22 00:00

Analyst: cam

o-Xylene	ND	0.200	0.500	ug/l	1	01/13/22	U
p-Dichlorobenzene	ND	0.180	0.500	ug/l	1	01/13/22	U
Styrene	ND	0.190	0.500	ug/l	1	01/13/22	U
Tetrachloroethene	ND	0.180	0.500	ug/l	1	01/13/22	U
THMs, Total	ND		0.500	ug/l	1	01/13/22	U
Toluene	ND	0.294	0.500	ug/l	1	01/13/22	U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l	1	01/13/22	U
Trichloroethene	ND	0.180	0.500	ug/l	1	01/13/22	U
Vinyl chloride	ND	0.180	0.500	ug/l	1	01/13/22	U

Surrogate(s)

1,2-Dichlorobenzene-d4	92%	Conc: 9.22	70-130	01/13/22
4-Bromofluorobenzene	89%	Conc: 8.92	70-130	01/13/22

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0878 - EPA 508.1											
Blank (W2A0878-BLK1)						Prepared: 01/13/22 Analyzed: 01/14/22					
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
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0759			ug/l	0.100		76	70-130			
LCS (W2A0878-BS1)						Prepared: 01/13/22 Analyzed: 01/14/22					
Chlordane (tech)	0.460	0.0669	0.100	ug/l	0.500		92	70-130			
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0817			ug/l	0.100		82	70-130			
LCS Dup (W2A0878-BSD1)						Prepared: 01/13/22 Analyzed: 01/14/22					
Chlordane (tech)	0.451	0.0669	0.100	ug/l	0.500		90	70-130	2	30	
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0789			ug/l	0.100		79	70-130			

Quality Control Results

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

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0833 - SM 5310B											
Blank (W2A0833-BLK1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	ND	0.190	0.300	mg/l							U
LCS (W2A0833-BS1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	0.969	0.190	0.300	mg/l	1.00		97	85-115			
Matrix Spike (W2A0833-MS1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	4.47	0.190	0.300	mg/l	5.00	ND	89	76-115			
Matrix Spike Dup (W2A0833-MSD1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	4.48	0.190	0.300	mg/l	5.00	ND	90	76-115	0.2	20	

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Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W2A0905 - EPA 200.8											
Blank (W2A0905-BLK1)					Prepared & Analyzed: 01/13/22						
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 (W2A0905-BS1)					Prepared & Analyzed: 01/13/22						
Antimony, Total	45.8	0.0889	0.500	ug/l	50.0		92	85-115			
Arsenic, Total	50.6	0.0741	0.400	ug/l	50.0		101	85-115			
Barium, Total	50.0	0.142	1.00	ug/l	50.0		100	85-115			
Beryllium, Total	46.8	0.0624	0.100	ug/l	50.0		94	85-115			
Cadmium, Total	48.3	0.0416	0.200	ug/l	50.0		97	85-115			
Chromium, Total	50.3	0.0887	0.200	ug/l	50.0		101	85-115			
Copper, Total	51.8	0.225	0.500	ug/l	50.0		104	85-115			
Lead, Total	49.1	0.0827	0.200	ug/l	50.0		98	85-115			
Selenium, Total	48.7	0.0666	0.400	ug/l	50.0		97	85-115			
Thallium, Total	48.7	0.0210	0.200	ug/l	50.0		97	85-115			
Matrix Spike (W2A0905-MS1)					Source: 2A13022-01 Prepared & Analyzed: 01/13/22						
Antimony, Total	51.4	0.0889	0.500	ug/l	50.0	ND	103	70-130			
Arsenic, Total	52.1	0.0741	0.400	ug/l	50.0	0.394	103	70-130			
Barium, Total	55.8	0.142	1.00	ug/l	50.0	3.81	104	70-130			
Beryllium, Total	48.8	0.0624	0.100	ug/l	50.0	ND	98	70-130			
Cadmium, Total	50.0	0.0416	0.200	ug/l	50.0	ND	100	70-130			
Chromium, Total	51.9	0.0887	0.200	ug/l	50.0	1.53	101	70-130			
Copper, Total	53.9	0.225	0.500	ug/l	50.0	2.66	102	70-130			
Lead, Total	50.7	0.0827	0.200	ug/l	50.0	0.254	101	70-130			
Selenium, Total	53.0	0.0666	0.400	ug/l	50.0	2.10	102	70-130			
Thallium, Total	45.5	0.0210	0.200	ug/l	50.0	ND	91	70-130			
Matrix Spike Dup (W2A0905-MSD1)					Source: 2A13022-01 Prepared & Analyzed: 01/13/22						
Antimony, Total	60.5	0.0889	0.500	ug/l	50.0	ND	121	70-130	16	30	
Arsenic, Total	60.5	0.0741	0.400	ug/l	50.0	0.394	120	70-130	15	30	
Barium, Total	63.8	0.142	1.00	ug/l	50.0	3.81	120	70-130	13	30	
Beryllium, Total	56.1	0.0624	0.100	ug/l	50.0	ND	112	70-130	14	30	
Cadmium, Total	58.3	0.0416	0.200	ug/l	50.0	ND	117	70-130	15	30	
Chromium, Total	59.3	0.0887	0.200	ug/l	50.0	1.53	116	70-130	13	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	Limits	RPD	Limit	Qualifier
Batch: W2A0905 - EPA 200.8 (Continued)											
Matrix Spike Dup (W2A0905-MSD1)			Source: 2A13022-01			Prepared & Analyzed: 01/13/22					
Copper, Total	61.9	0.225	0.500	ug/l	50.0	2.66	118	70-130	14	30	
Lead, Total	58.7	0.0827	0.200	ug/l	50.0	0.254	117	70-130	15	30	
Selenium, Total	61.7	0.0666	0.400	ug/l	50.0	2.10	119	70-130	15	30	
Thallium, Total	51.8	0.0210	0.200	ug/l	50.0	ND	104	70-130	13	30	
Batch: W2A0916 - EPA 245.1											
Blank (W2A0916-BLK1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	ND	0.0170	0.0500	ug/l							U
LCS (W2A0916-BS1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.06	0.0170	0.0500	ug/l	1.00		106	85-115			
Matrix Spike (W2A0916-MS1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.09	0.0170	0.0500	ug/l	1.00	ND	109	70-130			
Matrix Spike Dup (W2A0916-MSD1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.07	0.0170	0.0500	ug/l	1.00	ND	107	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	Limits	RPD	Limit	Qualifier
Batch: W2A0884 - EPA 525.2											
Blank (W2A0884-BLK1)						Prepared & Analyzed: 01/13/22					
1-Methylnaphthalene	ND	0.00801	0.0500	ug/l							U
2-Methylnaphthalene	ND	0.00904	0.0500	ug/l							U
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
<i>Surrogate(s)</i>											
1,3-Dimethyl-2-nitrobenzene	4.77			ug/l	5.00		95	70-130			
Perylene-d12	4.79			ug/l	5.00		96	70-130			
Triphenyl phosphate	4.85			ug/l	5.00		97	70-130			
LCS (W2A0884-BS1)						Prepared & Analyzed: 01/13/22					
1-Methylnaphthalene	0.200	0.00801	0.0500	ug/l	0.250		80	70-130			
2-Methylnaphthalene	0.200	0.00904	0.0500	ug/l	0.250		80	70-130			
Alachlor	0.410	0.0110	0.100	ug/l	0.500		82	70-130			
Atrazine	0.244	0.00734	0.100	ug/l	0.250		98	70-130			
Benzo (a) pyrene	0.140	0.0117	0.100	ug/l	0.250		56	60-130			Q-02
Bis(2-ethylhexyl)adipate	0.199	0.00962	5.00	ug/l	0.250		80	70-130			J
Bis(2-ethylhexyl)phthalate	0.222	0.00	3.00	ug/l	0.250		89	70-130			J
Endrin	0.234	0.00991	0.200	ug/l	0.250		94	70-130			
gamma-BHC (Lindane)	0.290	0.00633	0.100	ug/l	0.250		116	70-130			
Heptachlor	0.204	0.00965	0.100	ug/l	0.250		82	70-130			
Heptachlor epoxide	0.246	0.0122	0.100	ug/l	0.250		98	70-130			
Hexachlorobenzene	0.0436	0.00	0.100	ug/l	0.0500		87	70-130			J
Hexachlorocyclopentadiene	0.187	0.00594	1.00	ug/l	0.250		75	33-106			J
Methoxychlor	0.229	0.00863	0.200	ug/l	0.250		91	70-130			
Naphthalene	0.200	0.0103	0.0500	ug/l	0.250		80	70-130			
Pentachlorophenol	0.179	0.0242	1.00	ug/l	0.250		72	50-120			J
Simazine	0.209	0.00734	0.100	ug/l	0.250		84	60-130			

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Quality Control Results

(Continued)

Semivolatle Organic Compounds by GC/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0884 - EPA 525.2 (Continued)											
LCS (W2A0884-BS1)					Prepared & Analyzed: 01/13/22						
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	4.73			ug/l	5.00		95	70-130			
Perylene-d12	4.93			ug/l	5.00		99	70-130			
Triphenyl phosphate	5.59			ug/l	5.00		112	70-130			
LCS Dup (W2A0884-BSD1)					Prepared & Analyzed: 01/13/22						
1-Methylnaphthalene	0.209	0.00801	0.0500	ug/l	0.250		84	70-130	4	30	
2-Methylnaphthalene	0.207	0.00904	0.0500	ug/l	0.250		83	70-130	4	30	
Alachlor	0.414	0.0110	0.100	ug/l	0.500		83	70-130	0.9	30	
Atrazine	0.238	0.00734	0.100	ug/l	0.250		95	70-130	3	30	
Benzo (a) pyrene	0.140	0.0117	0.100	ug/l	0.250		56	60-130	0.09	30	Q-02
Bis(2-ethylhexyl)adipate	0.208	0.00962	5.00	ug/l	0.250		83	70-130	4	30	J
Bis(2-ethylhexyl)phthalate	0.225	0.00	3.00	ug/l	0.250		90	70-130	2	30	J
Endrin	0.231	0.00991	0.200	ug/l	0.250		92	70-130	1	30	
gamma-BHC (Lindane)	0.287	0.00633	0.100	ug/l	0.250		115	70-130	0.8	30	
Heptachlor	0.184	0.00965	0.100	ug/l	0.250		74	70-130	10	30	
Heptachlor epoxide	0.255	0.0122	0.100	ug/l	0.250		102	70-130	4	30	
Hexachlorobenzene	0.0416	0.00	0.100	ug/l	0.0500		83	70-130	5	30	J
Hexachlorocyclopentadiene	0.178	0.00594	1.00	ug/l	0.250		71	33-106	5	30	J
Methoxychlor	0.230	0.00863	0.200	ug/l	0.250		92	70-130	0.5	30	
Naphthalene	0.213	0.0103	0.0500	ug/l	0.250		85	70-130	6	30	
Pentachlorophenol	0.204	0.0242	1.00	ug/l	0.250		82	50-120	13	30	J
Simazine	0.221	0.00734	0.100	ug/l	0.250		88	60-130	6	30	
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	4.96			ug/l	5.00		99	70-130			
Perylene-d12	4.91			ug/l	5.00		98	70-130			
Triphenyl phosphate	5.41			ug/l	5.00		108	70-130			

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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	Limits	RPD	Limit	Qualifier
Batch: W2A0744 - EPA 524.2											
Blank (W2A0744-BLK1)						Prepared: 01/12/22 Analyzed: 01/13/22					
1,1,1-Trichloroethane	ND	0.256	0.500	ug/l				70-130			U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l				70-130			U
1,1-Dichloroethene	ND	0.160	0.500	ug/l				70-130			U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l				70-130			U
1,2-Dichloroethane	ND	0.243	0.500	ug/l				70-130			U
1,2-Dichloropropane	ND	0.130	0.500	ug/l				70-130			U
Benzene	ND	0.150	0.500	ug/l				70-130			U
Carbon tetrachloride	ND	0.270	0.500	ug/l				70-130			U
Chlorobenzene	ND	0.150	0.500	ug/l				70-130			U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l				70-130			U
Ethylbenzene	ND	0.210	0.500	ug/l				70-130			U
m,p-Xylene	ND	0.330	0.500	ug/l				70-130			U
Methylene chloride	ND	0.303	0.500	ug/l				70-130			U
o-Dichlorobenzene	ND	0.190	0.500	ug/l				70-130			U
o-Xylene	ND	0.200	0.500	ug/l				70-130			U
p-Dichlorobenzene	ND	0.180	0.500	ug/l				70-130			U
Styrene	ND	0.190	0.500	ug/l				70-130			U
Tetrachloroethene	ND	0.180	0.500	ug/l				70-130			U
THMs, Total	ND		0.500	ug/l				70-130			U
Toluene	ND	0.294	0.500	ug/l				70-130			U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l				70-130			U
Trichloroethene	ND	0.180	0.500	ug/l				70-130			U
Vinyl chloride	ND	0.180	0.500	ug/l				70-130			U
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	8.72			ug/l	10.0		87	70-130			
4-Bromofluorobenzene	8.48			ug/l	10.0		85	70-130			
LCS (W2A0744-BS1)						Prepared: 01/12/22 Analyzed: 01/13/22					
1,1,1-Trichloroethane	5.49	0.256	0.500	ug/l	5.00		110	70-130			
1,1,2-Trichloroethane	5.43	0.190	0.500	ug/l	5.00		109	70-130			
1,1-Dichloroethene	5.45	0.160	0.500	ug/l	5.00		109	70-130			
1,2,4-Trichlorobenzene	5.60	0.170	0.500	ug/l	5.00		112	70-130			
1,2-Dichloroethane	5.24	0.243	0.500	ug/l	5.00		105	70-130			
1,2-Dichloropropane	5.23	0.130	0.500	ug/l	5.00		105	70-130			
Benzene	5.21	0.150	0.500	ug/l	5.00		104	70-130			
Carbon tetrachloride	5.70	0.270	0.500	ug/l	5.00		114	70-130			
Chlorobenzene	5.32	0.150	0.500	ug/l	5.00		106	70-130			
cis-1,2-Dichloroethene	5.33	0.250	0.500	ug/l	5.00		107	70-130			
Ethylbenzene	6.29	0.210	0.500	ug/l	5.00		126	70-130			
m,p-Xylene	6.23	0.330	0.500	ug/l	5.00		125	70-130			

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Quality Control Results

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

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0744 - EPA 524.2 (Continued)											
LCS (W2A0744-BS1)						Prepared: 01/12/22 Analyzed: 01/13/22					
Methylene chloride	5.31	0.303	0.500	ug/l	5.00		106	70-130			
o-Dichlorobenzene	5.35	0.190	0.500	ug/l	5.00		107	70-130			
o-Xylene	6.09	0.200	0.500	ug/l	5.00		122	70-130			
p-Dichlorobenzene	5.44	0.180	0.500	ug/l	5.00		109	70-130			
Styrene	6.05	0.190	0.500	ug/l	5.00		121	70-130			
Tetrachloroethene	5.63	0.180	0.500	ug/l	5.00		113	70-130			
Toluene	5.74	0.294	0.500	ug/l	5.00		115	70-130			
trans-1,2-Dichloroethene	5.49	0.259	0.500	ug/l	5.00		110	70-130			
Trichloroethene	5.46	0.180	0.500	ug/l	5.00		109	70-130			
Vinyl chloride	5.29	0.180	0.500	ug/l	5.00		106	70-130			
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	11.3			ug/l	10.0		113	70-130			
4-Bromofluorobenzene	11.3			ug/l	10.0		113	70-130			
LCS Dup (W2A0744-BSD1)						Prepared: 01/12/22 Analyzed: 01/13/22					
1,1,1-Trichloroethane	4.87	0.256	0.500	ug/l	5.00		97	70-130	12	30	
1,1,2-Trichloroethane	5.13	0.190	0.500	ug/l	5.00		103	70-130	6	30	
1,1-Dichloroethene	4.78	0.160	0.500	ug/l	5.00		96	70-130	13	30	
1,2,4-Trichlorobenzene	5.18	0.170	0.500	ug/l	5.00		104	70-130	8	30	
1,2-Dichloroethane	4.98	0.243	0.500	ug/l	5.00		100	70-130	5	30	
1,2-Dichloropropane	5.00	0.130	0.500	ug/l	5.00		100	70-130	4	30	
Benzene	4.84	0.150	0.500	ug/l	5.00		97	70-130	7	30	
Carbon tetrachloride	4.94	0.270	0.500	ug/l	5.00		99	70-130	14	30	
Chlorobenzene	5.02	0.150	0.500	ug/l	5.00		100	70-130	6	30	
cis-1,2-Dichloroethene	4.88	0.250	0.500	ug/l	5.00		98	70-130	9	30	
Ethylbenzene	5.65	0.210	0.500	ug/l	5.00		113	70-130	11	30	
m,p-Xylene	5.68	0.330	0.500	ug/l	5.00		114	70-130	9	30	
Methylene chloride	5.13	0.303	0.500	ug/l	5.00		103	70-130	3	30	
o-Dichlorobenzene	4.88	0.190	0.500	ug/l	5.00		98	70-130	9	30	
o-Xylene	5.54	0.200	0.500	ug/l	5.00		111	70-130	9	30	
p-Dichlorobenzene	4.98	0.180	0.500	ug/l	5.00		100	70-130	9	30	
Styrene	5.52	0.190	0.500	ug/l	5.00		110	70-130	9	30	
Tetrachloroethene	4.89	0.180	0.500	ug/l	5.00		98	70-130	14	30	
Toluene	5.26	0.294	0.500	ug/l	5.00		105	70-130	9	30	
trans-1,2-Dichloroethene	4.95	0.259	0.500	ug/l	5.00		99	70-130	10	30	
Trichloroethene	5.00	0.180	0.500	ug/l	5.00		100	70-130	9	30	
Vinyl chloride	4.88	0.180	0.500	ug/l	5.00		98	70-130	8	30	
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	10.9			ug/l	10.0		109	70-130			
4-Bromofluorobenzene	11.0			ug/l	10.0		110	70-130			

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

Project Number: 60674414, COC #
01122022DW-70/01122022DW-74
Project Manager: Margie Pascua

Reported:
01/16/2022 17:50

Notes and Definitions

Item	Definition
A-01	Sample was acidified to pH < 2 prior to extraction.
A-01a	Sample was acidified to pH<2 prior to extraction.
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.
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.

Work Orders: 2A13084

Project: 60674414, COC # 01122022DW-76

Attn: Margie Pascua

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

Report Date: 1/16/2022

Received Date: 1/13/2022

Turnaround Time: 3 workdays

Phones: (808) 529-7277

Fax: (808) 524-0246

P.O. #: reference number
60571032.02.46.01

Billing Code:

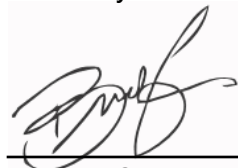
ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP
#CA015 • NV-DEP #NAC 445A • SCAQMD #93LA1006

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 1/13/22 with the Chain-of-Custody document. The samples were received in good condition, at 2.0 °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



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

Project Number: 60674414, COC # 01122022DW-76

Reported:
01/16/2022 14:16

Project Manager: Margie Pascua

Sample Summary

Sample Name	Sampled By	Lab ID	Matrix	Sampled	Qualifiers
220112-H3-ZT07	AECOM	2A13084-01	Water	01/12/22 15:50	

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

Project Number: 60674414, COC # 01122022DW-76

Reported:
01/16/2022 14:16

Project Manager: Margie Pascua

Sample Results

Sample: 220112-H3-ZT07
2A13084-01 (Water) Sampled: 01/12/22 15:50 by AECOM

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Chlorinated Pesticides and/or PCBs by GC/ECD

Method: EPA 508.1

Instr: GC08

Batch ID: W2A0878

Preparation: Method (SPE)

Prepared: 01/13/22 10:12

Analyst: rjg

Aroclor 1016	ND	0.0157	0.100	ug/l	1	01/15/22	U
Aroclor 1221	ND	0.0436	0.100	ug/l	1	01/15/22	U
Aroclor 1232	ND	0.0102	0.100	ug/l	1	01/15/22	U
Aroclor 1242	ND	0.0737	0.100	ug/l	1	01/15/22	U
Aroclor 1248	ND	0.0941	0.100	ug/l	1	01/15/22	U
Aroclor 1254	ND	0.0869	0.100	ug/l	1	01/15/22	U
Aroclor 1260	ND	0.0379	0.100	ug/l	1	01/15/22	U
Chlordane (tech)	ND	0.0669	0.100	ug/l	1	01/15/22	U
PCBs, Total	ND		0.500	ug/l	1	01/15/22	U

Surrogate(s)

4,4-Dibromobiphenyl	74%	Conc: 0.0759	70-130			01/15/22	
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Conventional Chemistry/Physical Parameters by APHA/EPA/ASTM Methods

Method: SM 5310B

Instr: TOC02

Batch ID: W2A0778

Preparation: _NONE (TOC/TOX)

Prepared: 01/13/22 09:57

Analyst: ajc

Total Organic Carbon (TOC)	ND	0.190	0.300	mg/l	1	01/14/22	U
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Metals by EPA 200 Series Methods

Method: EPA 200.8

Instr: ICPMS04

Batch ID: W2A0905

Preparation: EPA 200.2

Prepared: 01/13/22 15:41

Analyst: mpn

Antimony, Total	ND	0.0889	0.500	ug/l	1	01/13/22	U
Arsenic, Total	0.454	0.0741	0.400	ug/l	1	01/13/22	
Barium, Total	2.51	0.142	1.00	ug/l	1	01/13/22	
Beryllium, Total	ND	0.0624	0.100	ug/l	1	01/13/22	U
Cadmium, Total	ND	0.0416	0.200	ug/l	1	01/13/22	U
Chromium, Total	1.58	0.0887	0.200	ug/l	1	01/13/22	
Copper, Total	5.37	0.225	0.500	ug/l	1	01/13/22	
Lead, Total	0.538	0.0827	0.200	ug/l	1	01/13/22	
Selenium, Total	2.20	0.0666	0.400	ug/l	1	01/13/22	
Thallium, Total	ND	0.0210	0.200	ug/l	1	01/13/22	U

Method: EPA 245.1

Instr: HG03

Batch ID: W2A0916

Preparation: EPA 245.1

Prepared: 01/13/22 17:54

Analyst: kvm

Mercury, Total	ND	0.0170	0.0500	ug/l	1	01/14/22	U
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Volatile Organic Compounds by P&T and GC/MS

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0967

Preparation: EPA 5030

Prepared: 01/14/22 13:43

Analyst: cam

1,1,1-Trichloroethane	ND	0.256	0.500	ug/l	1	01/15/22	U
1,1,2-Trichloroethane	ND	0.190	0.500	ug/l	1	01/15/22	U

2A13084

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

Project Number: 60674414, COC # 01122022DW-76

Project Manager: Margie Pascua

Reported:
01/16/2022 14:16

Sample Results

(Continued)

Sample: 220112-H3-ZT07
2A13084-01 (Water)

Sampled: 01/12/22 15:50 by AECOM

(Continued)

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Volatile Organic Compounds by P&T and GC/MS (Continued)

Method: EPA 524.2

Instr: GCMS14

Batch ID: W2A0967

Preparation: EPA 5030

Prepared: 01/14/22 13:43

Analyst: cam

1,1-Dichloroethene	ND	0.160	0.500	ug/l	1	01/15/22	U
1,2,4-Trichlorobenzene	ND	0.170	0.500	ug/l	1	01/15/22	U
1,2-Dichloroethane	ND	0.243	0.500	ug/l	1	01/15/22	U
1,2-Dichloropropane	ND	0.130	0.500	ug/l	1	01/15/22	U
Benzene	ND	0.150	0.500	ug/l	1	01/15/22	U
Carbon tetrachloride	ND	0.270	0.500	ug/l	1	01/15/22	U
Chlorobenzene	ND	0.150	0.500	ug/l	1	01/15/22	U
cis-1,2-Dichloroethene	ND	0.250	0.500	ug/l	1	01/15/22	U
Ethylbenzene	ND	0.210	0.500	ug/l	1	01/15/22	U
m,p-Xylene	ND	0.330	0.500	ug/l	1	01/15/22	U
Methylene chloride	ND	0.303	0.500	ug/l	1	01/15/22	U
o-Dichlorobenzene	ND	0.190	0.500	ug/l	1	01/15/22	U
o-Xylene	ND	0.200	0.500	ug/l	1	01/15/22	U
p-Dichlorobenzene	ND	0.180	0.500	ug/l	1	01/15/22	U
Styrene	ND	0.190	0.500	ug/l	1	01/15/22	U
Tetrachloroethene	ND	0.180	0.500	ug/l	1	01/15/22	U
THMs, Total	ND		0.500	ug/l	1	01/15/22	U
Toluene	ND	0.294	0.500	ug/l	1	01/15/22	U
trans-1,2-Dichloroethene	ND	0.259	0.500	ug/l	1	01/15/22	U
Trichloroethene	ND	0.180	0.500	ug/l	1	01/15/22	U
Vinyl chloride	ND	0.180	0.500	ug/l	1	01/15/22	U

Surrogate(s)

1,2-Dichlorobenzene-d4	93%	Conc: 9.35	70-130	01/15/22
4-Bromofluorobenzene	91%	Conc: 9.06	70-130	01/15/22

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

Project Number: 60674414, COC # 01122022DW-76

Reported:
01/16/2022 14:16

Project Manager: Margie Pascua

Sample Results

(Continued)

Sample: 220112-H3-ZT07
2A13084-01RE1 (Water)

Sampled: 01/12/22 15:50 by AECOM

Analyte	Result	MDL	MRL	Units	Dil	Analyzed	Qualifier
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Semivolatile Organic Compounds by GC/MS

Method: EPA 525.2

Instr: GCMS16

Batch ID: W2A0945

Preparation: Method (LLE)

Prepared: 01/14/22 11:52

Analyst: rmr

1-Methylnaphthalene	ND	0.00801	0.0500	ug/l	1	01/14/22	U
2-Methylnaphthalene	ND	0.00904	0.0500	ug/l	1	01/14/22	U
Alachlor	ND	0.0110	0.100	ug/l	1	01/14/22	U
Atrazine	ND	0.00734	0.100	ug/l	1	01/14/22	U
Benzo (a) pyrene	ND	0.0117	0.100	ug/l	1	01/14/22	U
Bis(2-ethylhexyl)adipate	0.192	0.00962	5.00	ug/l	1	01/14/22	J
Bis(2-ethylhexyl)phthalate	ND	0.437	3.00	ug/l	1	01/14/22	U
Endrin	ND	0.00991	0.200	ug/l	1	01/14/22	U
gamma-BHC (Lindane)	ND	0.00633	0.100	ug/l	1	01/14/22	U
Heptachlor	ND	0.00965	0.100	ug/l	1	01/14/22	U
Heptachlor epoxide	ND	0.0122	0.100	ug/l	1	01/14/22	U
Hexachlorobenzene	ND	0.0980	0.100	ug/l	1	01/14/22	U
Hexachlorocyclopentadiene	ND	0.00594	1.00	ug/l	1	01/14/22	U
Methoxychlor	ND	0.00863	0.200	ug/l	1	01/14/22	U
Naphthalene	ND	0.0103	0.0500	ug/l	1	01/14/22	U
Pentachlorophenol	ND	0.0242	1.00	ug/l	1	01/14/22	U
Simazine	ND	0.00734	0.100	ug/l	1	01/14/22	U

Surrogate(s)

1,3-Dimethyl-2-nitrobenzene	98%	Conc: 4.96	70-130	01/14/22
Perylene-d12	91%	Conc: 4.61	70-130	01/14/22
Triphenyl phosphate	96%	Conc: 4.84	70-130	01/14/22

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

Project Number: 60674414, COC # 01122022DW-76

Reported:
01/16/2022 14:16

Project Manager: Margie Pascua

Quality Control Results

Chlorinated Pesticides and/or PCBs by GC/ECD

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0878 - EPA 508.1											
Blank (W2A0878-BLK1)						Prepared: 01/13/22 Analyzed: 01/14/22					
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
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0759			ug/l	0.100		76	70-130			
LCS (W2A0878-BS1)						Prepared: 01/13/22 Analyzed: 01/14/22					
Chlordane (tech)	0.460	0.0669	0.100	ug/l	0.500		92	70-130			
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0817			ug/l	0.100		82	70-130			
LCS Dup (W2A0878-BSD1)						Prepared: 01/13/22 Analyzed: 01/14/22					
Chlordane (tech)	0.451	0.0669	0.100	ug/l	0.500		90	70-130	2	30	
<i>Surrogate(s)</i>											
4,4-Dibromobiphenyl	0.0789			ug/l	0.100		79	70-130			

Quality Control Results

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

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0778 - SM 5310B											
Blank (W2A0778-BLK1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	ND	0.190	0.300	mg/l							U
LCS (W2A0778-BS1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	0.922	0.190	0.300	mg/l	1.00		92	85-115			
Matrix Spike (W2A0778-MS1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	7.57	0.190	0.300	mg/l	5.00	3.28	86	76-115			
Matrix Spike Dup (W2A0778-MSD1)						Prepared & Analyzed: 01/13/22					
Total Organic Carbon (TOC)	7.61	0.190	0.300	mg/l	5.00	3.28	87	76-115	0.6	20	

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

Project Number: 60674414, COC # 01122022DW-76

Project Manager: Margie Pascua

Reported:
01/16/2022 14:16

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W2A0905 - EPA 200.8											
Blank (W2A0905-BLK1)					Prepared & Analyzed: 01/13/22						
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 (W2A0905-BS1)					Prepared & Analyzed: 01/13/22						
Antimony, Total	45.8	0.0889	0.500	ug/l	50.0		92	85-115			
Arsenic, Total	50.6	0.0741	0.400	ug/l	50.0		101	85-115			
Barium, Total	50.0	0.142	1.00	ug/l	50.0		100	85-115			
Beryllium, Total	46.8	0.0624	0.100	ug/l	50.0		94	85-115			
Cadmium, Total	48.3	0.0416	0.200	ug/l	50.0		97	85-115			
Chromium, Total	50.3	0.0887	0.200	ug/l	50.0		101	85-115			
Copper, Total	51.8	0.225	0.500	ug/l	50.0		104	85-115			
Lead, Total	49.1	0.0827	0.200	ug/l	50.0		98	85-115			
Selenium, Total	48.7	0.0666	0.400	ug/l	50.0		97	85-115			
Thallium, Total	48.7	0.0210	0.200	ug/l	50.0		97	85-115			
Matrix Spike (W2A0905-MS1)					Source: 2A13022-01 Prepared & Analyzed: 01/13/22						
Antimony, Total	51.4	0.0889	0.500	ug/l	50.0	ND	103	70-130			
Arsenic, Total	52.1	0.0741	0.400	ug/l	50.0	0.394	103	70-130			
Barium, Total	55.8	0.142	1.00	ug/l	50.0	3.81	104	70-130			
Beryllium, Total	48.8	0.0624	0.100	ug/l	50.0	ND	98	70-130			
Cadmium, Total	50.0	0.0416	0.200	ug/l	50.0	ND	100	70-130			
Chromium, Total	51.9	0.0887	0.200	ug/l	50.0	1.53	101	70-130			
Copper, Total	53.9	0.225	0.500	ug/l	50.0	2.66	102	70-130			
Lead, Total	50.7	0.0827	0.200	ug/l	50.0	0.254	101	70-130			
Selenium, Total	53.0	0.0666	0.400	ug/l	50.0	2.10	102	70-130			
Thallium, Total	45.5	0.0210	0.200	ug/l	50.0	ND	91	70-130			
Matrix Spike Dup (W2A0905-MSD1)					Source: 2A13022-01 Prepared & Analyzed: 01/13/22						
Antimony, Total	60.5	0.0889	0.500	ug/l	50.0	ND	121	70-130	16	30	
Arsenic, Total	60.5	0.0741	0.400	ug/l	50.0	0.394	120	70-130	15	30	
Barium, Total	63.8	0.142	1.00	ug/l	50.0	3.81	120	70-130	13	30	
Beryllium, Total	56.1	0.0624	0.100	ug/l	50.0	ND	112	70-130	14	30	
Cadmium, Total	58.3	0.0416	0.200	ug/l	50.0	ND	117	70-130	15	30	
Chromium, Total	59.3	0.0887	0.200	ug/l	50.0	1.53	116	70-130	13	30	

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

Project Number: 60674414, COC # 01122022DW-76

Project Manager: Margie Pascua

Reported:
01/16/2022 14:16

Quality Control Results

(Continued)

Metals by EPA 200 Series Methods (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0905 - EPA 200.8 (Continued)											
Matrix Spike Dup (W2A0905-MSD1)			Source: 2A13022-01			Prepared & Analyzed: 01/13/22					
Copper, Total	61.9	0.225	0.500	ug/l	50.0	2.66	118	70-130	14	30	
Lead, Total	58.7	0.0827	0.200	ug/l	50.0	0.254	117	70-130	15	30	
Selenium, Total	61.7	0.0666	0.400	ug/l	50.0	2.10	119	70-130	15	30	
Thallium, Total	51.8	0.0210	0.200	ug/l	50.0	ND	104	70-130	13	30	
Batch: W2A0916 - EPA 245.1											
Blank (W2A0916-BLK1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	ND	0.0170	0.0500	ug/l							U
LCS (W2A0916-BS1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.06	0.0170	0.0500	ug/l	1.00		106	85-115			
Matrix Spike (W2A0916-MS1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.09	0.0170	0.0500	ug/l	1.00	ND	109	70-130			
Matrix Spike Dup (W2A0916-MSD1)			Source: 2A13022-01			Prepared: 01/13/22 Analyzed: 01/14/22					
Mercury, Total	1.07	0.0170	0.0500	ug/l	1.00	ND	107	70-130	2	20	

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Reported:
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Project Manager: Margie Pascua

Quality Control Results

(Continued)

Semivolatile Organic Compounds by GC/MS

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qualifier
Batch: W2A0945 - EPA 525.2											
Blank (W2A0945-BLK1)						Prepared & Analyzed: 01/14/22					
1-Methylnaphthalene	ND	0.00801	0.0500	ug/l							U
2-Methylnaphthalene	ND	0.00904	0.0500	ug/l							U
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	0.0618	0.00962	5.00	ug/l							J
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	5.03			ug/l	5.00		101	70-130			
Perylene-d12	4.97			ug/l	5.00		99	70-130			
Triphenyl phosphate	5.04			ug/l	5.00		101	70-130			
LCS (W2A0945-BS1)						Prepared & Analyzed: 01/14/22					
1-Methylnaphthalene	0.215	0.00801	0.0500	ug/l	0.250		86	70-130			
2-Methylnaphthalene	0.213	0.00904	0.0500	ug/l	0.250		85	70-130			
Alachlor	0.454	0.0110	0.100	ug/l	0.500		91	70-130			
Atrazine	0.262	0.00734	0.100	ug/l	0.250		105	70-130			
Benzo (a) pyrene	0.170	0.0117	0.100	ug/l	0.250		68	60-130			
Bis(2-ethylhexyl)adipate	0.236	0.00962	5.00	ug/l	0.250		94	70-130			J
Bis(2-ethylhexyl)phthalate	0.298	0.00	3.00	ug/l	0.250		119	70-130			J
Endrin	0.284	0.00991	0.200	ug/l	0.250		114	70-130			
gamma-BHC (Lindane)	0.276	0.00633	0.100	ug/l	0.250		111	70-130			
Heptachlor	0.217	0.00965	0.100	ug/l	0.250		87	70-130			
Heptachlor epoxide	0.271	0.0122	0.100	ug/l	0.250		108	70-130			
Hexachlorobenzene	0.0439	0.00	0.100	ug/l	0.0500		88	70-130			J
Hexachlorocyclopentadiene	0.186	0.00594	1.00	ug/l	0.250		75	33-106			J
Methoxychlor	0.265	0.00863	0.200	ug/l	0.250		106	70-130			
Naphthalene	0.218	0.0103	0.0500	ug/l	0.250		87	70-130			
Pentachlorophenol	0.161	0.0242	1.00	ug/l	0.250		64	50-150			J
Simazine	0.222	0.00734	0.100	ug/l	0.250		89	70-130			

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Quality Control Results

(Continued)

Semivolatle Organic Compounds by GC/MS (Continued)

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0945 - EPA 525.2 (Continued)											
LCS (W2A0945-BS1)					Prepared & Analyzed: 01/14/22						
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	5.04			ug/l	5.00		101	70-130			
Perylene-d12	5.00			ug/l	5.00		100	70-130			
Triphenyl phosphate	5.48			ug/l	5.00		110	70-130			
LCS Dup (W2A0945-BSD1)					Prepared & Analyzed: 01/14/22						
1-Methylnaphthalene	0.212	0.00801	0.0500	ug/l	0.250		85	70-130	1	30	
2-Methylnaphthalene	0.209	0.00904	0.0500	ug/l	0.250		84	70-130	2	30	
Alachlor	0.495	0.0110	0.100	ug/l	0.500		99	70-130	9	30	
Atrazine	0.265	0.00734	0.100	ug/l	0.250		106	70-130	1	30	
Benzo (a) pyrene	0.172	0.0117	0.100	ug/l	0.250		69	60-130	0.9	30	
Bis(2-ethylhexyl)adipate	0.307	0.00962	5.00	ug/l	0.250		123	70-130	26	30	J
Bis(2-ethylhexyl)phthalate	0.243	0.00	3.00	ug/l	0.250		97	70-130	20	30	J
Endrin	0.274	0.00991	0.200	ug/l	0.250		110	70-130	4	30	
gamma-BHC (Lindane)	0.287	0.00633	0.100	ug/l	0.250		115	70-130	4	30	
Heptachlor	0.213	0.00965	0.100	ug/l	0.250		85	70-130	2	30	
Heptachlor epoxide	0.265	0.0122	0.100	ug/l	0.250		106	70-130	2	30	
Hexachlorobenzene	0.0460	0.00	0.100	ug/l	0.0500		92	70-130	5	30	J
Hexachlorocyclopentadiene	0.179	0.00594	1.00	ug/l	0.250		72	33-106	4	30	J
Methoxychlor	0.264	0.00863	0.200	ug/l	0.250		106	70-130	0.5	30	
Naphthalene	0.213	0.0103	0.0500	ug/l	0.250		85	70-130	2	30	
Pentachlorophenol	0.131	0.0242	1.00	ug/l	0.250		52	50-150	21	30	J
Simazine	0.247	0.00734	0.100	ug/l	0.250		99	70-130	11	30	
Surrogate(s)											
1,3-Dimethyl-2-nitrobenzene	4.97			ug/l	5.00		99	70-130			
Perylene-d12	5.02			ug/l	5.00		100	70-130			
Triphenyl phosphate	5.47			ug/l	5.00		109	70-130			

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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	Limits	RPD	Limit	Qualifier
Batch: W2A0967 - EPA 524.2											
Blank (W2A0967-BLK1)						Prepared: 01/14/22 Analyzed: 01/15/22					
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
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	9.55			ug/l	10.0		96	70-130			
4-Bromofluorobenzene	9.21			ug/l	10.0		92	70-130			
LCS (W2A0967-BS1)						Prepared: 01/14/22 Analyzed: 01/15/22					
1,1,1-Trichloroethane	5.23	0.256	0.500	ug/l	5.00		105	70-130			
1,1,2-Trichloroethane	5.40	0.190	0.500	ug/l	5.00		108	70-130			
1,1-Dichloroethene	5.50	0.160	0.500	ug/l	5.00		110	70-130			
1,2,4-Trichlorobenzene	5.56	0.170	0.500	ug/l	5.00		111	70-130			
1,2-Dichloroethane	5.20	0.243	0.500	ug/l	5.00		104	70-130			
1,2-Dichloropropane	5.28	0.130	0.500	ug/l	5.00		106	70-130			
Benzene	5.37	0.150	0.500	ug/l	5.00		107	70-130			
Carbon tetrachloride	5.43	0.270	0.500	ug/l	5.00		109	70-130			
Chlorobenzene	6.14	0.150	0.500	ug/l	5.00		123	70-130			
cis-1,2-Dichloroethene	5.29	0.250	0.500	ug/l	5.00		106	70-130			
Ethylbenzene	6.52	0.210	0.500	ug/l	5.00		130	70-130			
m,p-Xylene	6.48	0.330	0.500	ug/l	5.00		130	70-130			

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Quality Control Results

(Continued)

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

Analyte	Result	MDL	MRL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Qualifier
Batch: W2A0967 - EPA 524.2 (Continued)											
LCS (W2A0967-BS1)						Prepared: 01/14/22 Analyzed: 01/15/22					
Methylene chloride	5.07	0.303	0.500	ug/l	5.00		101	70-130			
o-Dichlorobenzene	5.93	0.190	0.500	ug/l	5.00		119	70-130			
o-Xylene	6.37	0.200	0.500	ug/l	5.00		127	70-130			
p-Dichlorobenzene	6.21	0.180	0.500	ug/l	5.00		124	70-130			
Styrene	6.30	0.190	0.500	ug/l	5.00		126	70-130			
Tetrachloroethene	5.31	0.180	0.500	ug/l	5.00		106	70-130			
Toluene	5.95	0.294	0.500	ug/l	5.00		119	70-130			
trans-1,2-Dichloroethene	5.51	0.259	0.500	ug/l	5.00		110	70-130			
Trichloroethene	5.25	0.180	0.500	ug/l	5.00		105	70-130			
Vinyl chloride	5.29	0.180	0.500	ug/l	5.00		106	70-130			
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	12.0			ug/l	10.0		120	70-130			
4-Bromofluorobenzene	12.0			ug/l	10.0		120	70-130			
LCS Dup (W2A0967-BSD1)						Prepared: 01/14/22 Analyzed: 01/15/22					
1,1,1-Trichloroethane	4.99	0.256	0.500	ug/l	5.00		100	70-130	5	30	
1,1,2-Trichloroethane	5.30	0.190	0.500	ug/l	5.00		106	70-130	2	30	
1,1-Dichloroethene	5.34	0.160	0.500	ug/l	5.00		107	70-130	3	30	
1,2,4-Trichlorobenzene	5.36	0.170	0.500	ug/l	5.00		107	70-130	4	30	
1,2-Dichloroethane	5.02	0.243	0.500	ug/l	5.00		100	70-130	3	30	
1,2-Dichloropropane	5.17	0.130	0.500	ug/l	5.00		103	70-130	2	30	
Benzene	5.15	0.150	0.500	ug/l	5.00		103	70-130	4	30	
Carbon tetrachloride	5.20	0.270	0.500	ug/l	5.00		104	70-130	4	30	
Chlorobenzene	5.94	0.150	0.500	ug/l	5.00		119	70-130	3	30	
cis-1,2-Dichloroethene	5.06	0.250	0.500	ug/l	5.00		101	70-130	4	30	
Ethylbenzene	6.16	0.210	0.500	ug/l	5.00		123	70-130	6	30	
m,p-Xylene	6.13	0.330	0.500	ug/l	5.00		123	70-130	6	30	
Methylene chloride	5.07	0.303	0.500	ug/l	5.00		101	70-130	0.005	30	
o-Dichlorobenzene	5.62	0.190	0.500	ug/l	5.00		112	70-130	5	30	
o-Xylene	6.05	0.200	0.500	ug/l	5.00		121	70-130	5	30	
p-Dichlorobenzene	5.84	0.180	0.500	ug/l	5.00		117	70-130	6	30	
Styrene	5.97	0.190	0.500	ug/l	5.00		119	70-130	5	30	
Tetrachloroethene	5.05	0.180	0.500	ug/l	5.00		101	70-130	5	30	
Toluene	5.76	0.294	0.500	ug/l	5.00		115	70-130	3	30	
trans-1,2-Dichloroethene	5.35	0.259	0.500	ug/l	5.00		107	70-130	3	30	
Trichloroethene	5.23	0.180	0.500	ug/l	5.00		105	70-130	0.5	30	
Vinyl chloride	5.10	0.180	0.500	ug/l	5.00		102	70-130	4	30	
<i>Surrogate(s)</i>											
1,2-Dichlorobenzene-d4	11.8			ug/l	10.0		118	70-130			
4-Bromofluorobenzene	11.8			ug/l	10.0		118	70-130			

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Project Number: 60674414, COC # 01122022DW-76

Project Manager: Margie Pascua

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Notes and Definitions

Item	Definition
J	Estimated conc. detected <MRL and >MDL.
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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Standard CHAIN OF CUSTODY RECORD

Hydrant Compliance

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CLIENT NAME: PROJECT: AECOM

ADDRESS: 1001 Bishop St., Ste. 1600

Honolulu, HI 96813

PHONE: 808-364-8050
FAX:
EMAIL: margie.pascua@aecom.com

PROJECT MANAGER
Margie Pascua

ID# DATE SAMPLED TIME SAMPLED SMPL TYPE C₂ V/N

11/22/22 1930 DW Y

SAMPLE IDENTIFICATION/SITE LOCATION

220112-H3-2T15

SAMPLER
AECOM

OF CONT.

4

VOCA (Full Suite) by 524.2
SOCA (Full Suite) by 525.2 (sodium sulfite + HCl)
Metals/ Mercury by 200.8 (nitric acid)
TOC by 5310B (HCl)
Pesticides/ PCBs by 508

ANALYSES REQUESTED

SPECIAL HANDLING

Same Day Rush 150%
24 Hour Rush 100%
48-72 Hour Rush 75%
4-5 Day Rush 30%
Rush Extractions 50%
10 - 15 Business Days
QA/QC Data Package

Charges will apply for weekends/holidays
Method of Shipment: FedEx
COMMENTS

RELINQUISHED BY

11/22/22 1930

DATE / TIME

11/22/22 2000

RECEIVED BY

11/22/22 2000

DATE / TIME

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CLIENT NAME: PROJECT: ANALYSES REQUESTED

AECOM 60674414

ADDRESS: PHONE: 808-364-8050

1001 Bishop St., Ste. 1600 FAX:

Honolulu, HI 96813 EMAIL: margie.pascua@aecom.com

PROJECT MANAGER: SAMPLER

Margie Pascua AECOM

ID# DATE SAMPLED TIME SAMPLED SMPL TYPE O₂ Y/N

(Lab Use Only)

1/12/22 1550 DW Y

220112-H3-ZT07

SAMPLE IDENTIFICATION/SITE LOCATION

OF CONT.

9

VOCS (Full Suite) Acetic Acid + HCl by 524.2

32

SOCS (Full Suite) by 525.2 (sodium sulfite + HCl)

32

Metals/ Mercury by 200.8 (nitric acid)

11

TOC by 5310B (HCl)

11

Pesticides/ PCBs by 508

11

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Standard CHAIN OF CUSTODY RECORD

Hydrant Compliance 2A12084 COC# 01220222DW-76

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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	Lori Herberich, Chemist		
Date	January 19, 2022		

The summary data quality review of 11 water samples collected on January 12, 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) and EPA Method 8015D (diesel range, C9-C25 hydrocarbons, and motor oil range, C24-C40 hydrocarbons); volatile organic compounds (VOCs) by EPA Method 8260D; and/or 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 580-109287-1 and 580-109289-1:

Sample ID	Laboratory IDs	Requested Analyses
220112-H3-ZT15	580-109287-1	TPH
220112-H3-ZT11	580-109287-2	TPH
220112-H3-ZT12	580-109287-3	TPH
220112-H3-ZT07	580-109287-4	TPH
220112-H3-ZT08	580-109287-5	TPH
220112-H3-ZT13	580-109289-1	TPH, VOCs, SVOCs
220112-H3-ZT14	580-109289-2	TPH, VOCs
220112-H3-ZT09	580-109289-3	TPH, VOCs, SVOCs
220112-H3-ZT10	580-109289-4	TPH, VOCs
220112-H3-ZT05	580-109289-5	TPH, VOCs, SVOCs
220112-H3-ZT06	580-109289-6	TPH, VOCs

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 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:

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

Sample	Surrogate	%Recovery	Control Limits
220112-H3-ZT13	Toluene-d8	0.2%	80-120%
220112-H3-ZT09	Toluene-d8	0.5%	80-120%
220112-H3-ZT05	Toluene-d8	0.6%	80-120%

All non-detect results for all VOCs were rejected and flagged 'R' based on the surrogate recoveries.

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

Sample	Surrogate	%Recovery	Control Limits
220112-H3-ZT13	2-Fluorophenol	3%	21-120%
	Phenol-d5	0.4%	10-120%
220112-H3-ZT09	2-Fluorophenol	0%	21-120%
	Phenol-d5	0.3%	10-120%
	2,4,6-Tribromophenol	179	50 – 130%
220112-H3-ZT05	2-Fluorophenol	0.7%	21-120%
	Phenol-d5	0.4%	10-120%
	2,4,6-Tribromophenol	133	50 – 130%

Qualification of the data on the basis of the elevated surrogate recoveries was not required since all acid compounds were nondetect in all samples. The non-detect acid compound results in the samples noted in the table above 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

- Project screening levels were met for all non-detect SVOC results, with the exception of hexachlorobenzene that had a method detection limit of 0.042 ug/L in samples 220112-H3-ZT13, 220112-H3-ZT09, and 220112-H3-ZT05, which exceeded the project screening level of 0.0003 ug/L.



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

- 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 batch 580-378445. The results for n-nitroso-di-n-propylamine in samples 220112-H3-ZT13, 220112-H3-ZT09, and 220112-H3-ZT05 and were qualified as estimated and flagged 'J.'

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	Lori Herberich, Chemist		
Date	January 19, 2022		

The summary data quality review of 11 water samples collected on January 12, 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) and EPA Method 8015D (diesel range, C9-C25 hydrocarbons, and motor oil range, C24-C40 hydrocarbons); volatile organic compounds (VOCs) by EPA Method 8260D; and/or 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 580-109287-1 and 580-109289-1:

Sample ID	Laboratory IDs	Requested Analyses
220112-H3-ZT15	580-109287-1	TPH
220112-H3-ZT11	580-109287-2	TPH
220112-H3-ZT12	580-109287-3	TPH
220112-H3-ZT07	580-109287-4	TPH
220112-H3-ZT08	580-109287-5	TPH
220112-H3-ZT13	580-109289-1	TPH, VOCs, SVOCs
220112-H3-ZT14	580-109289-2	TPH, VOCs
220112-H3-ZT09	580-109289-3	TPH, VOCs, SVOCs
220112-H3-ZT10	580-109289-4	TPH, VOCs
220112-H3-ZT05	580-109289-5	TPH, VOCs, SVOCs
220112-H3-ZT06	580-109289-6	TPH, VOCs

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 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:

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

Sample	Surrogate	%Recovery	Control Limits
220112-H3-ZT13	Toluene-d8	0.2%	80-120%
220112-H3-ZT09	Toluene-d8	0.5%	80-120%
220112-H3-ZT05	Toluene-d8	0.6%	80-120%

All non-detect results for all VOCs were rejected and flagged 'R' based on the surrogate recoveries.

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

Sample	Surrogate	%Recovery	Control Limits
220112-H3-ZT13	2-Fluorophenol	3%	21-120%
	Phenol-d5	0.4%	10-120%
220112-H3-ZT09	2-Fluorophenol	0%	21-120%
	Phenol-d5	0.3%	10-120%
	2,4,6-Tribromophenol	179	50 – 130%
220112-H3-ZT05	2-Fluorophenol	0.7%	21-120%
	Phenol-d5	0.4%	10-120%
	2,4,6-Tribromophenol	133	50 – 130%

Qualification of the data on the basis of the elevated surrogate recoveries was not required since all acid compounds were nondetect in all samples. The non-detect acid compound results in the samples noted in the table above 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

- Project screening levels were met for all non-detect SVOC results, with the exception of hexachlorobenzene that had a method detection limit of 0.042 ug/L in samples 220112-H3-ZT13, 220112-H3-ZT09, and 220112-H3-ZT05, which exceeded the project screening level of 0.0003 ug/L.



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

- 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 batch 580-378445. The results for n-nitroso-di-n-propylamine in samples 220112-H3-ZT13, 220112-H3-ZT09, and 220112-H3-ZT05 and were qualified as estimated and flagged 'J.'

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	Lori Herberich, Chemist		
Date	January 19, 2022		

The summary data quality review of three water samples collected on January 12, 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 by EPA Method 200.8 and total mercury by EPA Method 245.1; PCBs (Aroclors) and chlordane 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 2A13026 and 2A13804:

Sample ID	Laboratory IDs	Requested Analyses
220112-H3-ZT15	2A13026-01	VOCs, SVOCs/Pest, Metals/Mercury, TOC, PCBs
220112-H3-ZT11	2A13026-02	VOCs, SVOCs/Pest, Metals/Mercury, TOC, PCBs
220112-H3-ZT07	2A13804-01	VOCs, SVOCs/Pest, Metals/Mercury, TOC, PCBs

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:

- No data were qualified for VOCs, Metals/Mercury, TOC, or PCBs in association with laboratory groups 2A13026 and 2A13804.
- The bis(2-ethylhexyl)adipate result was qualified as non-detect and flagged 'U' due to method blank contamination in sample 220112-H3-ZT07.
- The following percent recoveries for the SVOC/Pesticide laboratory control sample (LCS) were below the laboratory control limits:

LCS	Analyte	%Recovery	Control Limits
LCS (W2A0884-BS1)	Benzo (a) pyrene	56%	60-130%

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

LCS	Analyte	%Recovery	Control Limits
LCS (W2A0884-BSD1)	Benzo (a) pyrene	56%	60-130%

The non-detect results for benzo(a)pyrene in samples 220112-H3-ZT15 and 220112-H3-ZT11 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
220112-H3-ZT15	Endrin	ND	0.00991	0.0023	µg/L
220112-H3-ZT15	Heptachlor	ND	0.00965	0.0036	µg/L
220112-H3-ZT15	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
220112-H3-ZT15	Hexachlorobenzene	ND	0.098	0.0003	µg/L
220112-H3-ZT11	Endrin	ND	0.00991	0.0023	µg/L
220112-H3-ZT11	Heptachlor	ND	0.00965	0.0036	µg/L
220112-H3-ZT11	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
220112-H3-ZT11	Hexachlorobenzene	ND	0.098	0.0003	µg/L
220112-H3-ZT07	Endrin	ND	0.00991	0.0023	µg/L
220112-H3-ZT07	Heptachlor	ND	0.00965	0.0036	µg/L
220112-H3-ZT07	Heptachlor epoxide	ND	0.0122	0.0036	µg/L
220112-H3-ZT07	Hexachlorobenzene	ND	0.098	0.0003	µg/L