

## ANALYTICAL REPORT

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Laboratory Job ID: 580-111029-1  
Client Project/Site: Red Hill GW CV18F0126  
Revision: 1

For:  
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Attn: Alethea Ramos

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Authorized for release by:  
3/28/2022 9:31:46 PM

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*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 GW CV18F0126

Job ID: 580-111029-1

**Job ID: 580-111029-1**

**Laboratory: Eurofins Seattle**

**Narrative**

## CASE NARRATIVE

**Client: AECOM**

**Project: Red Hill GW CV18F0126**

**Report Number: 580-111029-1**

### **REVISION 1: MARCH 28, 2022**

This revision was required to change the 8270E SVOC result of 4-Chlorophenyl ether ether for sample ERH2657 (RHMW02) (580-111029-1), which should be ND after further review.

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

Following DoD QSM guidelines, manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure, Acceptable Manual Integration Practices, SOP No.: Q-S-002. The reason(s) for manual integration have been documented on the affected chromatogram(s), which is/are provided in the raw data package. The raw data also includes the original chromatogram(s) prior to any manual integration being performed. Manual integrations are detailed in the manual integration summary forms following this narrative.

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

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

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

### **RECEIPT**

Two samples were received on 3/4/2022 9:35 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.9° C.

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

### **SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)**

**Samples ERH2657 (RHMW02) (580-111029-1) and ERH2658 (RHMW03) (580-111029-2) were analyzed for semivolatile organic compounds (GC-MS) in accordance with 8270E.** The samples were prepared on 03/09/2022 and analyzed on 03/10/2022.

The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-383442 was outside criteria for the following analyte: N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-383282 and analytical batch 580-383442 recovered outside control limits for the following analytes: Phenol, Pentachlorophenol, 2,4-Dimethylphenol, Hexachloroethane, 1,2-Dichlorobenzene, Nitrobenzene, 2-Chloronaphthalene, Bis(2-chloroethyl)ether, 2,4,6-Trichlorophenol, 1,2,4-Trichlorobenzene, Isophorone, 1,3-Dichlorobenzene, N-Nitrosodi-n-propylamine, 2-Methylphenol, 2,4-Dichlorophenol, Hexachlorocyclopentadiene, 2-Chlorophenol, Bis(2-chloroethoxy)methane, Bis(2-chloroisopropyl)ether, 1,4-Dichlorobenzene, Hexachlorobutadiene, 3 & 4 Methylphenol and 2-Nitrophenol.

# Case Narrative

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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## Job ID: 580-111029-1 (Continued)

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### Laboratory: Eurofins Seattle (Continued)

The following analytes have been identified in the reference method and/or via historical data to be poor and/or erratic performers and have been flagged in the associated samples: 2,4-Dinitrophenol and 4,6-Dinitro-2-methylphenol.

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

#### **SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS SIM)**

**Samples ERH2657 (RHMW02) (580-111029-1) and ERH2658 (RHMW03) (580-111029-2) were analyzed for semivolatile organic compounds (GC-MS SIM) in accordance with 8270E SIM.** The samples were prepared on 03/09/2022 and analyzed on 03/10/2022.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-383282 and analytical batch 580-383445 recovered outside control limits for the following analytes: Naphthalene, Acenaphthene, 2-Methylnaphthalene, 1-Methylnaphthalene and Acenaphthylene.

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

# Definitions/Glossary

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.
U	Undetected at the Limit of Detection.

## 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
CFI	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 GW CV18F0126

Job ID: 580-111029-1

**Client Sample ID: ERH2657 (RHMW02)**

**Lab Sample ID: 580-111029-1**

Date Collected: 03/02/22 13:55

Matrix: Water

Date Received: 03/04/22 09:35

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	9.6	Q	0.10	0.019	ug/L		03/09/22 09:28	03/10/22 12:24	1
2-Methylnaphthalene	5.0	Q	0.20	0.040	ug/L		03/09/22 09:28	03/10/22 12:24	1
Acenaphthene	0.40	M Q	0.10	0.014	ug/L		03/09/22 09:28	03/10/22 12:24	1
Acenaphthylene	0.033	U M Q	0.051	0.0092	ug/L		03/09/22 09:28	03/10/22 12:24	1
Anthracene	0.082	U	0.10	0.023	ug/L		03/09/22 09:28	03/10/22 12:24	1
Benzo[a]anthracene	0.033	U M	0.051	0.014	ug/L		03/09/22 09:28	03/10/22 12:24	1
Benzo[a]pyrene	0.033	U	0.10	0.011	ug/L		03/09/22 09:28	03/10/22 12:24	1
Benzo[b]fluoranthene	0.033	U	0.051	0.011	ug/L		03/09/22 09:28	03/10/22 12:24	1
Benzo[g,h,i]perylene	0.033	U	0.051	0.012	ug/L		03/09/22 09:28	03/10/22 12:24	1
Benzo[k]fluoranthene	0.033	U	0.051	0.012	ug/L		03/09/22 09:28	03/10/22 12:24	1
Chrysene	0.033	U M	0.10	0.016	ug/L		03/09/22 09:28	03/10/22 12:24	1
Dibenz(a,h)anthracene	0.033	U	0.10	0.027	ug/L		03/09/22 09:28	03/10/22 12:24	1
Fluoranthene	0.033	U	0.20	0.018	ug/L		03/09/22 09:28	03/10/22 12:24	1
Fluorene	0.18	M	0.10	0.017	ug/L		03/09/22 09:28	03/10/22 12:24	1
Indeno[1,2,3-cd]pyrene	0.033	U	0.051	0.014	ug/L		03/09/22 09:28	03/10/22 12:24	1
Naphthalene	12	Q	0.10	0.032	ug/L		03/09/22 09:28	03/10/22 12:24	1
Phenanthrene	0.082	U	0.10	0.032	ug/L		03/09/22 09:28	03/10/22 12:24	1
Pyrene	0.082	U	0.10	0.034	ug/L		03/09/22 09:28	03/10/22 12:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-methylnaphthalene-d10	59	M	40 - 140	03/09/22 09:28	03/10/22 12:24	1
Fluoranthene-d10 (Surr)	78		40 - 140	03/09/22 09:28	03/10/22 12:24	1
Terphenyl-d14	84		58 - 132	03/09/22 09:28	03/10/22 12:24	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.31	U Q	0.41	0.092	ug/L		03/09/22 09:28	03/10/22 13:48	1
1,2-Dichlorobenzene	0.15	U Q	0.41	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
1,3-Dichlorobenzene	0.092	U Q	0.41	0.041	ug/L		03/09/22 09:28	03/10/22 13:48	1
1,4-Dichlorobenzene	0.092	U Q	0.41	0.041	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4,5-Trichlorophenol	0.31	U M	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4,6-Trichlorophenol	0.31	U Q	0.61	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4-Dichlorophenol	0.51	U Q	1.0	0.20	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4-Dimethylphenol	0.51	U M Q	4.1	0.16	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4-Dinitrophenol	3.3	U Q	5.1	1.6	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,4-Dinitrotoluene	0.31	U M	1.0	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
2,6-Dinitrotoluene	0.31	U M	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
2-Chloronaphthalene	0.15	U M Q	1.0	0.072	ug/L		03/09/22 09:28	03/10/22 13:48	1
2-Chlorophenol	0.15	U M Q	1.0	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
2-Nitrophenol	0.15	U Q	1.0	0.072	ug/L		03/09/22 09:28	03/10/22 13:48	1
3,3'-Dichlorobenzidine	0.61	U M	1.0	0.27	ug/L		03/09/22 09:28	03/10/22 13:48	1
4,6-Dinitro-2-methylphenol	1.2	U Q	2.0	0.56	ug/L		03/09/22 09:28	03/10/22 13:48	1
4-Bromophenyl phenyl ether	0.15	U M	0.61	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
4-Chloro-3-methylphenol	0.31	U M	0.61	0.13	ug/L		03/09/22 09:28	03/10/22 13:48	1
4-Chlorophenyl phenyl ether	0.15	U	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
4-Nitrophenol	6.1	U	10	1.7	ug/L		03/09/22 09:28	03/10/22 13:48	1
Azobenzene	0.15	U M	2.0	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
Bis(2-chloroethoxy)methane	0.15	U M Q	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
Bis(2-chloroethyl)ether	0.092	U M Q	0.10	0.031	ug/L		03/09/22 09:28	03/10/22 13:48	1
Bis(2-ethylhexyl) phthalate	1.6	U	3.1	0.76	ug/L		03/09/22 09:28	03/10/22 13:48	1

Eurofins Seattle

# Client Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

**Client Sample ID: ERH2657 (RHMW02)**

**Lab Sample ID: 580-111029-1**

**Date Collected: 03/02/22 13:55**

**Matrix: Water**

**Date Received: 03/04/22 09:35**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
bis (2-chloroisopropyl) ether	0.15	U M Q	0.26	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
Butyl benzyl phthalate	0.61	U	4.1	0.28	ug/L		03/09/22 09:28	03/10/22 13:48	1
Diethyl phthalate	0.31	U	1.0	0.15	ug/L		03/09/22 09:28	03/10/22 13:48	1
Dimethyl phthalate	0.15	U	0.61	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
Di-n-butyl phthalate	0.51	U	3.1	0.19	ug/L		03/09/22 09:28	03/10/22 13:48	1
Di-n-octyl phthalate	0.31	U M	1.0	0.13	ug/L		03/09/22 09:28	03/10/22 13:48	1
Hexachlorobenzene	0.092	U	0.61	0.041	ug/L		03/09/22 09:28	03/10/22 13:48	1
Hexachlorobutadiene	0.15	U Q	1.0	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
Hexachlorocyclopentadiene	0.31	U Q	1.0	0.14	ug/L		03/09/22 09:28	03/10/22 13:48	1
Hexachloroethane	0.15	U Q	1.0	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
Isophorone	0.31	U M Q	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
m+p-Cresol	0.31	U M Q	0.61	0.10	ug/L		03/09/22 09:28	03/10/22 13:48	1
Nitrobenzene	0.092	U M Q	1.0	0.041	ug/L		03/09/22 09:28	03/10/22 13:48	1
N-Nitrosodimethylamine	0.61	U	2.0	0.27	ug/L		03/09/22 09:28	03/10/22 13:48	1
N-Nitrosodi-n-propylamine	0.092	U M Q	0.41	0.061	ug/L		03/09/22 09:28	03/10/22 13:48	1
N-Nitrosodiphenylamine	0.15	U M	1.0	0.072	ug/L		03/09/22 09:28	03/10/22 13:48	1
o-Cresol	0.15	U M Q	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 13:48	1
Pentachlorophenol	1.0	U M Q	10	0.52	ug/L		03/09/22 09:28	03/10/22 13:48	1
Phenol	0.61	U M Q	1.0	0.37	ug/L		03/09/22 09:28	03/10/22 13:48	1
Pyrene	0.092	U M	1.0	0.041	ug/L		03/09/22 09:28	03/10/22 13:48	1
Pyridine	3.3	U	10	1.1	ug/L		03/09/22 09:28	03/10/22 13:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	93		43 - 140	03/09/22 09:28	03/10/22 13:48	1
2-Fluorobiphenyl	57		44 - 119	03/09/22 09:28	03/10/22 13:48	1
2-Fluorophenol (Surr)	44		19 - 119	03/09/22 09:28	03/10/22 13:48	1
Nitrobenzene-d5 (Surr)	61		44 - 120	03/09/22 09:28	03/10/22 13:48	1
Phenol-d5 (Surr)	30		10 - 120	03/09/22 09:28	03/10/22 13:48	1
Terphenyl-d14	97		50 - 134	03/09/22 09:28	03/10/22 13:48	1

# Client Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

**Client Sample ID: ERH2658 (RHMW03)**

**Lab Sample ID: 580-111029-2**

**Date Collected: 03/02/22 15:10**

**Matrix: Water**

**Date Received: 03/04/22 09:35**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.033	U M Q	0.10	0.019	ug/L		03/09/22 09:28	03/10/22 12:43	1
2-Methylnaphthalene	0.082	U M Q	0.20	0.040	ug/L		03/09/22 09:28	03/10/22 12:43	1
Acenaphthene	0.033	U M Q	0.10	0.014	ug/L		03/09/22 09:28	03/10/22 12:43	1
Acenaphthylene	0.033	U Q	0.051	0.0092	ug/L		03/09/22 09:28	03/10/22 12:43	1
Anthracene	0.082	U M	0.10	0.022	ug/L		03/09/22 09:28	03/10/22 12:43	1
Benzo[a]anthracene	0.033	U M	0.051	0.014	ug/L		03/09/22 09:28	03/10/22 12:43	1
Benzo[a]pyrene	0.033	U	0.10	0.011	ug/L		03/09/22 09:28	03/10/22 12:43	1
Benzo[b]fluoranthene	0.033	U	0.051	0.011	ug/L		03/09/22 09:28	03/10/22 12:43	1
Benzo[g,h,i]perylene	0.033	U	0.051	0.012	ug/L		03/09/22 09:28	03/10/22 12:43	1
Benzo[k]fluoranthene	0.033	U	0.051	0.012	ug/L		03/09/22 09:28	03/10/22 12:43	1
Chrysene	0.033	U	0.10	0.016	ug/L		03/09/22 09:28	03/10/22 12:43	1
Dibenz(a,h)anthracene	0.033	U	0.10	0.027	ug/L		03/09/22 09:28	03/10/22 12:43	1
Fluoranthene	0.033	U	0.20	0.018	ug/L		03/09/22 09:28	03/10/22 12:43	1
Fluorene	0.033	U	0.10	0.017	ug/L		03/09/22 09:28	03/10/22 12:43	1
Indeno[1,2,3-cd]pyrene	0.033	U	0.051	0.014	ug/L		03/09/22 09:28	03/10/22 12:43	1
Naphthalene	0.082	U M Q	0.10	0.032	ug/L		03/09/22 09:28	03/10/22 12:43	1
Phenanthrene	0.082	U M	0.10	0.032	ug/L		03/09/22 09:28	03/10/22 12:43	1
Pyrene	0.082	U M	0.10	0.034	ug/L		03/09/22 09:28	03/10/22 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-methylnaphthalene-d10	57		40 - 140	03/09/22 09:28	03/10/22 12:43	1
Fluoranthene-d10 (Surr)	84		40 - 140	03/09/22 09:28	03/10/22 12:43	1
Terphenyl-d14	94		58 - 132	03/09/22 09:28	03/10/22 12:43	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.31	U Q	0.41	0.092	ug/L		03/09/22 09:28	03/10/22 14:11	1
1,2-Dichlorobenzene	0.15	U Q	0.41	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
1,3-Dichlorobenzene	0.092	U Q	0.41	0.041	ug/L		03/09/22 09:28	03/10/22 14:11	1
1,4-Dichlorobenzene	0.092	U Q	0.41	0.041	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4,5-Trichlorophenol	0.31	U	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4,6-Trichlorophenol	0.31	U Q	0.61	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4-Dichlorophenol	0.51	U Q	1.0	0.20	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4-Dimethylphenol	0.51	U M Q	4.1	0.16	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4-Dinitrophenol	3.3	U Q	5.1	1.6	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,4-Dinitrotoluene	0.31	U M	1.0	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
2,6-Dinitrotoluene	0.31	U M	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
2-Chloronaphthalene	0.15	U Q	1.0	0.071	ug/L		03/09/22 09:28	03/10/22 14:11	1
2-Chlorophenol	0.15	U Q	1.0	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
2-Nitrophenol	0.15	U Q	1.0	0.071	ug/L		03/09/22 09:28	03/10/22 14:11	1
3,3'-Dichlorobenzidine	0.61	U M	1.0	0.27	ug/L		03/09/22 09:28	03/10/22 14:11	1
4,6-Dinitro-2-methylphenol	1.2	U Q	2.0	0.56	ug/L		03/09/22 09:28	03/10/22 14:11	1
4-Bromophenyl phenyl ether	0.15	U	0.61	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
4-Chloro-3-methylphenol	0.31	U M	0.61	0.13	ug/L		03/09/22 09:28	03/10/22 14:11	1
4-Chlorophenyl phenyl ether	0.15	U	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
4-Nitrophenol	6.1	U	10	1.7	ug/L		03/09/22 09:28	03/10/22 14:11	1
Azobenzene	0.15	U M	2.0	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
Bis(2-chloroethoxy)methane	0.15	U M Q	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
Bis(2-chloroethyl)ether	0.092	U M Q	0.10	0.031	ug/L		03/09/22 09:28	03/10/22 14:11	1
Bis(2-ethylhexyl) phthalate	1.6	U	3.1	0.75	ug/L		03/09/22 09:28	03/10/22 14:11	1

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# Client Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

**Client Sample ID: ERH2658 (RHMW03)**

**Lab Sample ID: 580-111029-2**

**Date Collected: 03/02/22 15:10**

**Matrix: Water**

**Date Received: 03/04/22 09:35**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
bis (2-chloroisopropyl) ether	0.15	U M Q	0.25	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
Butyl benzyl phthalate	0.61	U M	4.1	0.28	ug/L		03/09/22 09:28	03/10/22 14:11	1
Diethyl phthalate	0.31	U	1.0	0.15	ug/L		03/09/22 09:28	03/10/22 14:11	1
Dimethyl phthalate	0.15	U	0.61	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
Di-n-butyl phthalate	0.51	U	3.1	0.19	ug/L		03/09/22 09:28	03/10/22 14:11	1
Di-n-octyl phthalate	0.31	U M	1.0	0.13	ug/L		03/09/22 09:28	03/10/22 14:11	1
Hexachlorobenzene	0.092	U	0.61	0.041	ug/L		03/09/22 09:28	03/10/22 14:11	1
Hexachlorobutadiene	0.15	U Q	1.0	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
Hexachlorocyclopentadiene	0.31	U Q	1.0	0.14	ug/L		03/09/22 09:28	03/10/22 14:11	1
Hexachloroethane	0.15	U Q	1.0	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
Isophorone	0.31	U M Q	0.41	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
m+p-Cresol	0.31	U M Q	0.61	0.10	ug/L		03/09/22 09:28	03/10/22 14:11	1
Nitrobenzene	0.092	U M Q	1.0	0.041	ug/L		03/09/22 09:28	03/10/22 14:11	1
N-Nitrosodimethylamine	0.61	U	2.0	0.27	ug/L		03/09/22 09:28	03/10/22 14:11	1
N-Nitrosodi-n-propylamine	0.092	U Q	0.41	0.061	ug/L		03/09/22 09:28	03/10/22 14:11	1
N-Nitrosodiphenylamine	0.15	U M	1.0	0.071	ug/L		03/09/22 09:28	03/10/22 14:11	1
o-Cresol	0.15	U M Q	0.61	0.051	ug/L		03/09/22 09:28	03/10/22 14:11	1
Pentachlorophenol	1.0	U Q	10	0.52	ug/L		03/09/22 09:28	03/10/22 14:11	1
Phenol	0.61	U M Q	1.0	0.37	ug/L		03/09/22 09:28	03/10/22 14:11	1
Pyrene	0.092	U	1.0	0.041	ug/L		03/09/22 09:28	03/10/22 14:11	1
Pyridine	3.3	U	10	1.1	ug/L		03/09/22 09:28	03/10/22 14:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	83		43 - 140	03/09/22 09:28	03/10/22 14:11	1
2-Fluorobiphenyl	70		44 - 119	03/09/22 09:28	03/10/22 14:11	1
2-Fluorophenol (Surr)	46		19 - 119	03/09/22 09:28	03/10/22 14:11	1
Nitrobenzene-d5 (Surr)	69		44 - 120	03/09/22 09:28	03/10/22 14:11	1
Phenol-d5 (Surr)	31		10 - 120	03/09/22 09:28	03/10/22 14:11	1
Terphenyl-d14	102		50 - 134	03/09/22 09:28	03/10/22 14:11	1

# QC Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: MB 580-383282/1-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,4-Trichlorobenzene	0.30	U	0.40	0.090	ug/L		03/09/22 09:28	03/10/22 11:53	1
1,2-Dichlorobenzene	0.15	U	0.40	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
1,3-Dichlorobenzene	0.090	U	0.40	0.040	ug/L		03/09/22 09:28	03/10/22 11:53	1
1,4-Dichlorobenzene	0.090	U	0.40	0.040	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4,5-Trichlorophenol	0.30	U	0.40	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4,6-Trichlorophenol	0.30	U	0.60	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4-Dichlorophenol	0.50	U	1.0	0.20	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4-Dimethylphenol	0.50	U	4.0	0.16	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4-Dinitrophenol	3.2	U	5.0	1.6	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,4-Dinitrotoluene	0.30	U	1.0	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
2,6-Dinitrotoluene	0.30	U	0.40	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
2-Chloronaphthalene	0.15	U	1.0	0.070	ug/L		03/09/22 09:28	03/10/22 11:53	1
2-Chlorophenol	0.15	U	1.0	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
2-Nitrophenol	0.15	U	1.0	0.070	ug/L		03/09/22 09:28	03/10/22 11:53	1
3,3'-Dichlorobenzidine	0.60	U	1.0	0.26	ug/L		03/09/22 09:28	03/10/22 11:53	1
4,6-Dinitro-2-methylphenol	1.2	U	2.0	0.55	ug/L		03/09/22 09:28	03/10/22 11:53	1
4-Bromophenyl phenyl ether	0.15	U	0.60	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
4-Chloro-3-methylphenol	0.30	U	0.60	0.13	ug/L		03/09/22 09:28	03/10/22 11:53	1
4-Chlorophenyl phenyl ether	0.15	U	0.60	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
4-Nitrophenol	6.0	U	10	1.7	ug/L		03/09/22 09:28	03/10/22 11:53	1
Azobenzene	0.15	U M	2.0	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
Bis(2-chloroethoxy)methane	0.15	U	0.60	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
Bis(2-chloroethyl)ether	0.090	U	0.10	0.030	ug/L		03/09/22 09:28	03/10/22 11:53	1
Bis(2-ethylhexyl) phthalate	1.6	U	3.0	0.74	ug/L		03/09/22 09:28	03/10/22 11:53	1
bis (2-chloroisopropyl) ether	0.15	U	0.25	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
Butyl benzyl phthalate	0.60	U	4.0	0.27	ug/L		03/09/22 09:28	03/10/22 11:53	1
Diethyl phthalate	0.30	U	1.0	0.15	ug/L		03/09/22 09:28	03/10/22 11:53	1
Dimethyl phthalate	0.15	U	0.60	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
Di-n-butyl phthalate	0.50	U	3.0	0.19	ug/L		03/09/22 09:28	03/10/22 11:53	1
Di-n-octyl phthalate	0.30	U M	1.0	0.13	ug/L		03/09/22 09:28	03/10/22 11:53	1
Hexachlorobenzene	0.090	U	0.60	0.040	ug/L		03/09/22 09:28	03/10/22 11:53	1
Hexachlorobutadiene	0.15	U	1.0	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
Hexachlorocyclopentadiene	0.30	U	1.0	0.14	ug/L		03/09/22 09:28	03/10/22 11:53	1
Hexachloroethane	0.15	U	1.0	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
Isophorone	0.30	U	0.40	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
m+p-Cresol	0.30	U	0.60	0.10	ug/L		03/09/22 09:28	03/10/22 11:53	1
Nitrobenzene	0.090	U	1.0	0.040	ug/L		03/09/22 09:28	03/10/22 11:53	1
N-Nitrosodimethylamine	0.60	U	2.0	0.26	ug/L		03/09/22 09:28	03/10/22 11:53	1
N-Nitrosodi-n-propylamine	0.090	U	0.40	0.060	ug/L		03/09/22 09:28	03/10/22 11:53	1
N-Nitrosodiphenylamine	0.15	U	1.0	0.070	ug/L		03/09/22 09:28	03/10/22 11:53	1
o-Cresol	0.15	U	0.60	0.050	ug/L		03/09/22 09:28	03/10/22 11:53	1
Pentachlorophenol	1.0	U	10	0.51	ug/L		03/09/22 09:28	03/10/22 11:53	1
Phenol	0.60	U M	1.0	0.36	ug/L		03/09/22 09:28	03/10/22 11:53	1
Pyrene	0.090	U	1.0	0.040	ug/L		03/09/22 09:28	03/10/22 11:53	1
Pyridine	3.2	U	10	1.1	ug/L		03/09/22 09:28	03/10/22 11:53	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	70		43 - 140	03/09/22 09:28	03/10/22 11:53	1

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# QC Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: MB 580-383282/1-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl	73		44 - 119	03/09/22 09:28	03/10/22 11:53	1
2-Fluorophenol (Surr)	51	M	19 - 119	03/09/22 09:28	03/10/22 11:53	1
Nitrobenzene-d5 (Surr)	79		44 - 120	03/09/22 09:28	03/10/22 11:53	1
Phenol-d5 (Surr)	31	M	10 - 120	03/09/22 09:28	03/10/22 11:53	1
Terphenyl-d14	105		50 - 134	03/09/22 09:28	03/10/22 11:53	1

**Lab Sample ID: LCS 580-383282/2-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,4-Trichlorobenzene	2.00	1.57		ug/L		79	29 - 116
1,2-Dichlorobenzene	2.00	1.63		ug/L		81	32 - 111
1,3-Dichlorobenzene	2.00	1.59		ug/L		79	28 - 110
1,4-Dichlorobenzene	2.00	1.58		ug/L		79	29 - 112
2,4,5-Trichlorophenol	2.00	1.52		ug/L		76	53 - 123
2,4,6-Trichlorophenol	2.00	1.48		ug/L		74	50 - 125
2,4-Dichlorophenol	2.00	1.62		ug/L		81	47 - 121
2,4-Dimethylphenol	2.00	1.53	J	ug/L		77	31 - 124
2,4-Dinitrophenol	4.00	2.18	J M	ug/L		55	23 - 143
2,4-Dinitrotoluene	2.00	1.69		ug/L		84	57 - 128
2,6-Dinitrotoluene	2.00	1.63		ug/L		81	57 - 124
2-Chloronaphthalene	2.00	1.59		ug/L		79	40 - 116
2-Chlorophenol	2.00	1.67		ug/L		83	38 - 117
2-Nitrophenol	2.00	1.71		ug/L		86	47 - 123
3,3'-Dichlorobenzidine	4.00	4.19		ug/L		105	27 - 129
4,6-Dinitro-2-methylphenol	4.00	3.28		ug/L		82	44 - 137
4-Bromophenyl phenyl ether	2.00	1.68		ug/L		84	55 - 124
4-Chloro-3-methylphenol	2.00	1.58		ug/L		79	52 - 119
4-Chlorophenyl phenyl ether	2.00	1.54		ug/L		77	53 - 121
4-Nitrophenol	4.00	6.0	U	ug/L		38	35 - 145
Azobenzene	2.00	1.59	J	ug/L		80	61 - 116
Bis(2-chloroethoxy)methane	2.00	1.65		ug/L		83	48 - 120
Bis(2-chloroethyl)ether	2.00	1.63		ug/L		82	43 - 118
Bis(2-ethylhexyl) phthalate	2.00	2.18	J	ug/L		109	55 - 135
bis (2-chloroisopropyl) ether	2.00	1.60		ug/L		80	37 - 130
Butyl benzyl phthalate	2.00	2.06	J	ug/L		103	53 - 134
Diethyl phthalate	2.00	1.71		ug/L		86	56 - 125
Dimethyl phthalate	2.00	1.71		ug/L		86	45 - 127
Di-n-butyl phthalate	2.00	1.98	J	ug/L		99	59 - 127
Di-n-octyl phthalate	2.00	1.90		ug/L		95	51 - 140
Hexachlorobenzene	2.00	1.63		ug/L		81	53 - 125
Hexachlorobutadiene	2.00	1.55		ug/L		77	22 - 124
Hexachlorocyclopentadiene	2.00	1.44		ug/L		72	20 - 125
Hexachloroethane	2.00	1.49		ug/L		74	21 - 115
Isophorone	2.00	1.60		ug/L		80	42 - 124
m+p-Cresol	2.00	1.38		ug/L		69	29 - 110
Nitrobenzene	2.00	1.61		ug/L		80	45 - 121

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# QC Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: LCS 580-383282/2-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
N-Nitrosodimethylamine	2.00	1.22	J	ug/L		61	45 - 125	
N-Nitrosodi-n-propylamine	2.00	1.63		ug/L		82	49 - 119	
N-Nitrosodiphenylamine	2.00	1.71		ug/L		86	51 - 123	
o-Cresol	2.00	1.42		ug/L		71	30 - 117	
Pentachlorophenol	4.00	2.20	J	ug/L		55	35 - 138	
Phenol	2.00	0.847	J M	ug/L		42	13 - 120	
Pyrene	2.00	1.91		ug/L		95	57 - 126	
Pyridine	4.00	1.89	J	ug/L		47	20 - 125	

  

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	77		43 - 140
2-Fluorobiphenyl	65		44 - 119
2-Fluorophenol (Surr)	53	M	19 - 119
Nitrobenzene-d5 (Surr)	75		44 - 120
Phenol-d5 (Surr)	35		10 - 120
Terphenyl-d14	91		50 - 134

**Lab Sample ID: LCSD 580-383282/3-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	
									RPD	Limit
1,2,4-Trichlorobenzene	2.00	1.20	Q	ug/L		60	29 - 116	26	20	
1,2-Dichlorobenzene	2.00	1.20	Q	ug/L		60	32 - 111	30	20	
1,3-Dichlorobenzene	2.00	1.15	Q	ug/L		58	28 - 110	32	20	
1,4-Dichlorobenzene	2.00	1.20	Q	ug/L		60	29 - 112	27	20	
2,4,5-Trichlorophenol	2.00	1.40		ug/L		70	53 - 123	8	20	
2,4,6-Trichlorophenol	2.00	1.19	Q	ug/L		60	50 - 125	21	20	
2,4-Dichlorophenol	2.00	1.20	Q	ug/L		60	47 - 121	30	20	
2,4-Dimethylphenol	2.00	1.15	J Q	ug/L		58	31 - 124	28	20	
2,4-Dinitrophenol	4.00	2.43	J M	ug/L		61	23 - 143	10	20	
2,4-Dinitrotoluene	2.00	1.57		ug/L		78	57 - 128	8	20	
2,6-Dinitrotoluene	2.00	1.40		ug/L		70	57 - 124	15	20	
2-Chloronaphthalene	2.00	1.25	Q	ug/L		62	40 - 116	24	20	
2-Chlorophenol	2.00	1.23	Q	ug/L		62	38 - 117	30	20	
2-Nitrophenol	2.00	1.29	Q	ug/L		64	47 - 123	28	20	
3,3'-Dichlorobenzidine	4.00	3.93		ug/L		98	27 - 129	6	20	
4,6-Dinitro-2-methylphenol	4.00	3.10		ug/L		78	44 - 137	5	20	
4-Bromophenyl phenyl ether	2.00	1.42		ug/L		71	55 - 124	17	20	
4-Chloro-3-methylphenol	2.00	1.37		ug/L		68	52 - 119	14	20	
4-Chlorophenyl phenyl ether	2.00	1.29		ug/L		64	53 - 121	17	20	
4-Nitrophenol	4.00	6.0	U	ug/L		42	35 - 145	10	20	
Azobenzene	2.00	1.34	J	ug/L		67	61 - 116	17	20	
Bis(2-chloroethoxy)methane	2.00	1.20	Q	ug/L		60	48 - 120	31	20	
Bis(2-chloroethyl)ether	2.00	1.20	Q	ug/L		60	43 - 118	30	20	
Bis(2-ethylhexyl) phthalate	2.00	2.20	J	ug/L		110	55 - 135	1	20	
bis (2-chloroisopropyl) ether	2.00	1.14	Q	ug/L		57	37 - 130	34	20	
Butyl benzyl phthalate	2.00	2.02	J	ug/L		101	53 - 134	2	20	

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# QC Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: LCSD 580-383282/3-A**  
**Matrix: Water**  
**Analysis Batch: 383442**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	RPD Limit
							Limits	RPD		
Diethyl phthalate	2.00	1.67		ug/L		83	56 - 125	3	20	
Dimethyl phthalate	2.00	1.53		ug/L		76	45 - 127	11	20	
Di-n-butyl phthalate	2.00	1.91	J	ug/L		96	59 - 127	3	20	
Di-n-octyl phthalate	2.00	1.92		ug/L		96	51 - 140	1	20	
Hexachlorobenzene	2.00	1.42		ug/L		71	53 - 125	14	20	
Hexachlorobutadiene	2.00	1.16	Q	ug/L		58	22 - 124	29	20	
Hexachlorocyclopentadiene	2.00	1.09	Q	ug/L		55	20 - 125	27	20	
Hexachloroethane	2.00	1.09	Q	ug/L		54	21 - 115	31	20	
Isophorone	2.00	1.23	Q	ug/L		61	42 - 124	27	20	
m+p-Cresol	2.00	1.08	M Q	ug/L		54	29 - 110	24	20	
Nitrobenzene	2.00	1.25	Q	ug/L		62	45 - 121	25	20	
N-Nitrosodimethylamine	2.00	0.998	J	ug/L		50	45 - 125	20	20	
N-Nitrosodi-n-propylamine	2.00	1.26	Q	ug/L		63	49 - 119	26	20	
N-Nitrosodiphenylamine	2.00	1.59		ug/L		80	51 - 123	7	20	
o-Cresol	2.00	1.08	Q	ug/L		54	30 - 117	27	20	
Pentachlorophenol	4.00	2.76	J Q	ug/L		69	35 - 138	23	20	
Phenol	2.00	0.662	J Q	ug/L		33	13 - 120	25	20	
Pyrene	2.00	1.81		ug/L		90	57 - 126	5	20	
Pyridine	4.00	1.65	J	ug/L		41	20 - 125	13	20	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
2,4,6-Tribromophenol (Surr)	70		43 - 140
2-Fluorobiphenyl	55		44 - 119
2-Fluorophenol (Surr)	44	M	19 - 119
Nitrobenzene-d5 (Surr)	59		44 - 120
Phenol-d5 (Surr)	27		10 - 120
Terphenyl-d14	91		50 - 134

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

**Lab Sample ID: MB 580-383282/1-A**  
**Matrix: Water**  
**Analysis Batch: 383445**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	MB MB		LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1-Methylnaphthalene	0.032	U	0.10	0.019	ug/L		03/09/22 09:28	03/10/22 11:27	1
2-Methylnaphthalene	0.080	U	0.20	0.039	ug/L		03/09/22 09:28	03/10/22 11:27	1
Acenaphthene	0.032	U	0.10	0.014	ug/L		03/09/22 09:28	03/10/22 11:27	1
Acenaphthylene	0.032	U	0.050	0.0090	ug/L		03/09/22 09:28	03/10/22 11:27	1
Anthracene	0.080	U	0.10	0.022	ug/L		03/09/22 09:28	03/10/22 11:27	1
Benzo[a]anthracene	0.032	U	0.050	0.014	ug/L		03/09/22 09:28	03/10/22 11:27	1
Benzo[a]pyrene	0.032	U	0.10	0.011	ug/L		03/09/22 09:28	03/10/22 11:27	1
Benzo[b]fluoranthene	0.032	U	0.050	0.011	ug/L		03/09/22 09:28	03/10/22 11:27	1
Benzo[g,h,i]perylene	0.032	U	0.050	0.012	ug/L		03/09/22 09:28	03/10/22 11:27	1
Benzo[k]fluoranthene	0.032	U	0.050	0.012	ug/L		03/09/22 09:28	03/10/22 11:27	1
Chrysene	0.032	U	0.10	0.016	ug/L		03/09/22 09:28	03/10/22 11:27	1
Dibenz(a,h)anthracene	0.032	U	0.10	0.026	ug/L		03/09/22 09:28	03/10/22 11:27	1
Fluoranthene	0.032	U	0.20	0.018	ug/L		03/09/22 09:28	03/10/22 11:27	1
Fluorene	0.032	U	0.10	0.017	ug/L		03/09/22 09:28	03/10/22 11:27	1

Eurofins Seattle

# QC Sample Results

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: MB 580-383282/1-A**  
**Matrix: Water**  
**Analysis Batch: 383445**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	MB MB		LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Indeno[1,2,3-cd]pyrene	0.032	U	0.050	0.014	ug/L		03/09/22 09:28	03/10/22 11:27	1
Naphthalene	0.080	U M	0.10	0.031	ug/L		03/09/22 09:28	03/10/22 11:27	1
Phenanthrene	0.080	U M	0.10	0.031	ug/L		03/09/22 09:28	03/10/22 11:27	1
Pyrene	0.080	U M	0.10	0.033	ug/L		03/09/22 09:28	03/10/22 11:27	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-methylnaphthalene-d10	57		40 - 140	03/09/22 09:28	03/10/22 11:27	1
Fluoranthene-d10 (Surr)	96		40 - 140	03/09/22 09:28	03/10/22 11:27	1
Terphenyl-d14	105		58 - 132	03/09/22 09:28	03/10/22 11:27	1

**Lab Sample ID: LCS 580-383282/2-A**  
**Matrix: Water**  
**Analysis Batch: 383445**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec.	Limits
		Result	Qualifier					
1-Methylnaphthalene	2.00	1.37		ug/L		69	41 - 115	
2-Methylnaphthalene	2.00	1.33		ug/L		66	39 - 114	
Acenaphthene	2.00	1.47		ug/L		74	48 - 114	
Acenaphthylene	2.00	1.37		ug/L		69	35 - 121	
Anthracene	2.00	1.61		ug/L		81	53 - 119	
Benzo[a]anthracene	2.00	1.64		ug/L		82	59 - 120	
Benzo[a]pyrene	2.00	1.47		ug/L		74	53 - 120	
Benzo[b]fluoranthene	2.00	1.53		ug/L		76	53 - 126	
Benzo[g,h,i]perylene	2.00	1.75		ug/L		88	44 - 128	
Benzo[k]fluoranthene	2.00	1.73		ug/L		86	54 - 125	
Chrysene	2.00	1.67		ug/L		83	57 - 120	
Dibenz(a,h)anthracene	2.00	1.77	M	ug/L		88	44 - 131	
Fluoranthene	2.00	1.70		ug/L		85	58 - 120	
Fluorene	2.00	1.58		ug/L		79	50 - 118	
Indeno[1,2,3-cd]pyrene	2.00	1.61	M	ug/L		81	48 - 130	
Naphthalene	2.00	1.41		ug/L		70	43 - 114	
Phenanthrene	2.00	1.49		ug/L		75	53 - 115	
Pyrene	2.00	1.69		ug/L		85	53 - 121	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-methylnaphthalene-d10	58		40 - 140
Fluoranthene-d10 (Surr)	81		40 - 140
Terphenyl-d14	91		58 - 132

**Lab Sample ID: LCSD 580-383282/3-A**  
**Matrix: Water**  
**Analysis Batch: 383445**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec.	Limits	RPD	Limit
		Result	Qualifier							
1-Methylnaphthalene	2.00	1.01	Q	ug/L		50	41 - 115	31	20	
2-Methylnaphthalene	2.00	0.985	Q	ug/L		49	39 - 114	29	20	
Acenaphthene	2.00	1.14	Q	ug/L		57	48 - 114	26	20	
Acenaphthylene	2.00	1.07	Q	ug/L		53	35 - 121	25	20	

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# QC Sample Results

Client: AECOM  
 Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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

**Lab Sample ID: LCSD 580-383282/3-A**  
**Matrix: Water**  
**Analysis Batch: 383445**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 383282**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	2.00	1.50		ug/L		75	53 - 119	7	20
Benzo[a]anthracene	2.00	1.53		ug/L		76	59 - 120	7	20
Benzo[a]pyrene	2.00	1.45		ug/L		72	53 - 120	2	20
Benzo[b]fluoranthene	2.00	1.45		ug/L		72	53 - 126	5	20
Benzo[g,h,i]perylene	2.00	1.69		ug/L		84	44 - 128	4	20
Benzo[k]fluoranthene	2.00	1.69		ug/L		85	54 - 125	2	20
Chrysene	2.00	1.62		ug/L		81	57 - 120	3	20
Dibenz(a,h)anthracene	2.00	1.70	M	ug/L		85	44 - 131	4	20
Fluoranthene	2.00	1.62		ug/L		81	58 - 120	5	20
Fluorene	2.00	1.31		ug/L		65	50 - 118	19	20
Indeno[1,2,3-cd]pyrene	2.00	1.53	M	ug/L		76	48 - 130	5	20
Naphthalene	2.00	1.07	Q	ug/L		54	43 - 114	27	20
Phenanthrene	2.00	1.38		ug/L		69	53 - 115	7	20
Pyrene	2.00	1.62		ug/L		81	53 - 121	4	20

  

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-methylnaphthalene-d10	46		40 - 140
Fluoranthene-d10 (Surr)	80		40 - 140
Terphenyl-d14	89		58 - 132

# Lab Chronicle

Client: AECOM  
 Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

**Client Sample ID: ERH2657 (RHMW02)**

**Lab Sample ID: 580-111029-1**

**Date Collected: 03/02/22 13:55**

**Matrix: Water**

**Date Received: 03/04/22 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			383282	03/09/22 09:28	JJY	FGS SEA
Total/NA	Analysis	8270E		1	383442	03/10/22 13:48	W1T	FGS SEA
Total/NA	Prep	3510C			383282	03/09/22 09:28	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	383445	03/10/22 12:24	W1T	FGS SEA

**Client Sample ID: ERH2658 (RHMW03)**

**Lab Sample ID: 580-111029-2**

**Date Collected: 03/02/22 15:10**

**Matrix: Water**

**Date Received: 03/04/22 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			383282	03/09/22 09:28	JJY	FGS SEA
Total/NA	Analysis	8270E		1	383442	03/10/22 14:11	W1T	FGS SEA
Total/NA	Prep	3510C			383282	03/09/22 09:28	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	383445	03/10/22 12:43	W1T	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 GW CV18F0126

Job ID: 580-111029-1

## 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	01-19-25



# Sample Summary

Client: AECOM  
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111029-1

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Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111029-1	ERH2657 (RHMW02)	Water	03/02/22 13:55	03/04/22 09:35
580-111029-2	ERH2658 (RHMW03)	Water	03/02/22 15:10	03/04/22 09:35

1

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# Eurofins FGS, Seattle

5755 8th Street East  
Tacoma, WA 98424

## Chain of Custody Record

**eurofins** | Environment Testing  
America

<b>Client Information</b> Client Contact: Alethea Ramos (alternate: Margie Pascua)			Sampler: <u>Gavin Moran</u> Phone: <u>808 787-3201</u>			Lab PM: Elaine Walker E-Mail: M.Elaine.Walker@EurofinsET.com			Carrier Tracking No(s): FedEx State of Origin: Hawaii			COC No: Euro202203-6 Page: Page 1 of 1																						
Company: AECOM					PWSID:					Job #: <u>111029</u>																								
Address: 1001 Bishop St. Suite 1600 City: Honolulu State, Zip: Hawaii 96813 Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373) Email: alethea.ramos@aecom.com (alternate: marge.pascua@aecom.com)					Due Date Requested: see subcontract TAT Requested (days): <u>Rush - ASAP</u> Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No					<b>Analysis Requested</b>					Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)																			
Project Name: CV18F0126 Site: RH					Project #: 60571032 SSOW#:					<table border="1"> <tr> <th>Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=Comp, G=grab)</th> <th>Matrix (W=water, G=solid, O=wastewat, T=Toxic, A=Air)</th> <th>Field Filtered Sample (Yes or No)</th> <th>Performs MS/MSD (Yes or No)</th> <th>SVOcs (full suite) by 8270D (Nap, 1,2Methylnap,PAH) by 8270D SIM</th> <th>Total Number of Containers</th> <th>Special Instructions/Note:</th> </tr> <tr> <td>ERH2657 (RHMW02)</td> <td>03/02/22</td> <td>1355</td> <td>G</td> <td>W</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>2</td> <td></td> </tr> </table>					Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, G=solid, O=wastewat, T=Toxic, A=Air)	Field Filtered Sample (Yes or No)	Performs MS/MSD (Yes or No)	SVOcs (full suite) by 8270D (Nap, 1,2Methylnap,PAH) by 8270D SIM	Total Number of Containers	Special Instructions/Note:	ERH2657 (RHMW02)	03/02/22	1355	G	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, G=solid, O=wastewat, T=Toxic, A=Air)	Field Filtered Sample (Yes or No)	Performs MS/MSD (Yes or No)	SVOcs (full suite) by 8270D (Nap, 1,2Methylnap,PAH) by 8270D SIM	Total Number of Containers	Special Instructions/Note:																									
ERH2657 (RHMW02)	03/02/22	1355	G	W	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2																										
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																													
Deliverable Requested: I, II, III, IV, Other (specify)					Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT AECOM EQUIS EDD.					Special Instructions/QC Requirements: DOD QSM project.																								
Empty Kit Relinquished by: Relinquished by: <u>Zaldermie / yodin</u> Date/Time: <u>3-3-22 / 0854</u> Company: AECOM					Date: _____ Time: _____ Method of Shipment: _____					Relinquished by: <u>[Signature]</u> Date/Time: <u>3/4/22 0935</u> Company: EF48																								
Relinquished by: _____ Date/Time: _____					Relinquished by: _____ Date/Time: _____					Relinquished by: _____ Date/Time: _____																								
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No					Custody Seal No.:					Barcode: 580-111029																								



**Chain of Custody Record**

<b>Client Information</b>		Sampler: <i>Geina Murn</i>	Lab PM: Elaine Walker	Carrier Tracking No(s): FedEx	COC No: Euro202203-7						
Client Contact: Alethea Ramos (alternate: Margie Pascua)		Phone: (808) 987-3201	E-Mail: M.Elaine.Walker@EurofinsET.com	State of Origin: Hawaii	Page: Page 1 of 1						
Company: AECOM		PWSID:	<b>Analysis Requested</b>								
Address: 1001 Bishop St. Suite 1600		Due Date Requested: see subcontract	<p><i>3-3-22</i></p> <p><i>3-3-22</i></p> <p><i>3-3-22</i></p> <p><b>Field Filtered Sample (Yes or No)</b></p> <p><b>Perform HHS/MSD (Yes or No)</b></p> <p><b>SVOCs (full suite) by 8270D (Nap, 1-2 Methylinap, PAH) by 8270D SIM</b></p> <p><b>Total Number of Containers</b></p>								
City: Honolulu		TAT Requested (days): <b>Rush - ASAP</b>									
State, Zip: Hawaii 96813		Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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: CV18F0126		Project #: 60571032	<p><b>Preservation Codes:</b></p> <p>A - HCL M - Hexane</p> <p>B - NaOH N - None</p> <p>C - Zn Acetate O - AsNaO2</p> <p>D - Nitric Acid P - Na2O4S</p> <p>E - NaHSO4 Q - Na2SO3</p> <p>F - MeOH R - Na2S2O3</p> <p>G - Amchlor S - H2SO4</p> <p>H - Ascorbic Acid T - TSP Dodecahydrate</p> <p>I - Ice U - Acetone</p> <p>J - DI Water V - MCAA</p> <p>K - EDTA W - pH 4-5</p> <p>L - EDA Z - other (specify)</p>								
Site: RH		SSOW#:									
<b>Sample Identification</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=comp, G=grab)</b>	<b>Matrix (N=Water, S=solid, G=waste/oil, BT=Tissue, A=Air)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform HHS/MSD (Yes or No)</b>	<b>SVOCs (full suite) by 8270D (Nap, 1-2 Methylinap, PAH) by 8270D SIM</b>	<b>Total Number of Containers</b>	<b>Special Instructions/Note:</b>	
ERH2658 (RHMW03)		03/02/22	1510	G	W	N	x		2		
<b>Possible Hazard Identification</b>		<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>									
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Deliverable Requested: I, II, III, IV, Other (specify)		Prelim data (Level 1or2)=see TAT above. DoD Stage 4 report standard TAT. AECOM EQUIS EDD.			Special Instructions/QC Requirements: DOD QSM project.						
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:							
Relinquished by: <i>Zoe Diermier / Geina Murn</i>		Date/Time: 3-3-22 / 0854	Company: AECOM	Received by: <i>[Signature]</i>	Date/Time: 3/4/22 0935	Company: EFWS					
Relinquished by:		Date/Time:	Company:	Received by:	Date/Time:	Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:								

- 2

*3-3-22*

*3-3-22*

Therm. ID: *A3* Cor: *0.9* ° Unc: *0.9* °

Cooler Dsc: *LB*

Packing: *Bub* FedEx: *P.O*

Cust. Seal: Yes  No

Blue Ice,  Wet,  Dry, None Other:

# Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-111029-1

**Login Number: 111029**

**List Source: Eurofins Seattle**

**List Number: 1**

**Creator: Blankinship, Tom X**

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