

ANALYTICAL REPORT

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Laboratory Job ID: 580-111019-1
Client Project/Site: Red Hill GW CV18F0126

For:
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Authorized for release by:
3/15/2022 4:49:16 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: 580-111019-1

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Laboratory: Eurofins Seattle

Narrative

CASE NARRATIVE

Client: AECOM

Project: Red Hill GW CV18F0126

Report Number: 580-111019-1

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

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

One sample was received on 3/4/2022 9:35 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.1° 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)

Sample ERH2665 (RHMW2254-01 LOW FLOW) (580-111019-1) was analyzed for semivolatile organic compounds (GC-MS) in accordance with 8270E. The sample was prepared on 03/10/2022 and analyzed on 03/11/2022.

The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-383571 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 laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-383431 and analytical batch 580-383571 recovered outside control limits for the following analyte(s): N-Nitrosodiphenylamine and Pyridine. N-Nitrosodiphenylamine and Pyridine has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-383431 and analytical batch 580-383571 recovered outside control limits for the following analytes: N-Nitrosodimethylamine, Phenol, Azobenzene, 2,4-Dimethylphenol, Nitrobenzene, 2-Chloronaphthalene, Bis(2-chloroethyl)ether, Bis(2-chloroisopropyl)ether, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,6-Dinitrotoluene, Isophorone, 4-Chlorophenyl phenyl ether, 4-Chloro-3-methylphenol, N-Nitrosodi-n-propylamine, 2-Chlorophenol, 3 & 4 Methylphenol, 2-Methylphenol, 2,4-Dichlorophenol Bis(2-chloroethoxy)methane, Pyridine and 2-Nitrophenol.

Case Narrative

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

Job ID: 580-111019-1 (Continued)

Laboratory: Eurofins Seattle (Continued)

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)

Sample ERH2665 (RHMW2254-01 LOW FLOW) (580-111019-1) was analyzed for semivolatile organic compounds (GC-MS SIM) in accordance with 8270E SIM. The sample was prepared on 03/10/2022 and analyzed on 03/11/2022.

The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-383431 and analytical batch 580-383574 recovered outside control limits for the following analytes: Naphthalene, 2-Methylnaphthalene, 1-Methylnaphthalene, Acenaphthylene, Acenaphthene and Fluorene.

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: 580-111019-1

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: 580-111019-1

Client Sample ID: ERH2665 (RHMW2254-01 LOW FLOW)

Lab Sample ID: 580-111019-1

Date Collected: 03/03/22 09:10

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	0.032	U M Q	0.10	0.019	ug/L		03/10/22 09:42	03/11/22 13:12	1
2-Methylnaphthalene	0.081	U M Q	0.20	0.039	ug/L		03/10/22 09:42	03/11/22 13:12	1
Acenaphthene	0.032	U Q	0.10	0.014	ug/L		03/10/22 09:42	03/11/22 13:12	1
Acenaphthylene	0.032	U Q	0.050	0.0091	ug/L		03/10/22 09:42	03/11/22 13:12	1
Anthracene	0.081	U	0.10	0.022	ug/L		03/10/22 09:42	03/11/22 13:12	1
Benzo[a]anthracene	0.032	U	0.050	0.014	ug/L		03/10/22 09:42	03/11/22 13:12	1
Benzo[a]pyrene	0.032	U	0.10	0.011	ug/L		03/10/22 09:42	03/11/22 13:12	1
Benzo[b]fluoranthene	0.032	U	0.050	0.011	ug/L		03/10/22 09:42	03/11/22 13:12	1
Benzo[g,h,i]perylene	0.032	U	0.050	0.012	ug/L		03/10/22 09:42	03/11/22 13:12	1
Benzo[k]fluoranthene	0.032	U	0.050	0.012	ug/L		03/10/22 09:42	03/11/22 13:12	1
Chrysene	0.032	U	0.10	0.016	ug/L		03/10/22 09:42	03/11/22 13:12	1
Dibenz(a,h)anthracene	0.032	U	0.10	0.026	ug/L		03/10/22 09:42	03/11/22 13:12	1
Fluoranthene	0.032	U	0.20	0.018	ug/L		03/10/22 09:42	03/11/22 13:12	1
Fluorene	0.032	U Q	0.10	0.017	ug/L		03/10/22 09:42	03/11/22 13:12	1
Indeno[1,2,3-cd]pyrene	0.032	U	0.050	0.014	ug/L		03/10/22 09:42	03/11/22 13:12	1
Naphthalene	0.081	U M Q	0.10	0.031	ug/L		03/10/22 09:42	03/11/22 13:12	1
Phenanthrene	0.081	U	0.10	0.031	ug/L		03/10/22 09:42	03/11/22 13:12	1
Pyrene	0.081	U	0.10	0.033	ug/L		03/10/22 09:42	03/11/22 13:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-methylnaphthalene-d10	43		40 - 140	03/10/22 09:42	03/11/22 13:12	1
Fluoranthene-d10 (Surr)	86		40 - 140	03/10/22 09:42	03/11/22 13:12	1
Terphenyl-d14	97		58 - 132	03/10/22 09:42	03/11/22 13:12	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	0.30	U	0.40	0.091	ug/L		03/10/22 09:42	03/11/22 18:00	1
1,2-Dichlorobenzene	0.15	U	0.40	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
1,3-Dichlorobenzene	0.091	U	0.40	0.040	ug/L		03/10/22 09:42	03/11/22 18:00	1
1,4-Dichlorobenzene	0.091	U	0.40	0.040	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4,5-Trichlorophenol	0.30	U Q	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4,6-Trichlorophenol	0.30	U Q	0.61	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4-Dichlorophenol	0.50	U Q	1.0	0.20	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4-Dimethylphenol	0.50	U Q	4.0	0.16	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4-Dinitrophenol	3.2	U	5.0	1.6	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,4-Dinitrotoluene	0.30	U	1.0	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
2,6-Dinitrotoluene	0.30	U Q	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
2-Chloronaphthalene	0.15	U Q	1.0	0.071	ug/L		03/10/22 09:42	03/11/22 18:00	1
2-Chlorophenol	0.15	U Q	1.0	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
2-Nitrophenol	0.15	U Q	1.0	0.071	ug/L		03/10/22 09:42	03/11/22 18:00	1
3,3'-Dichlorobenzidine	0.61	U	1.0	0.26	ug/L		03/10/22 09:42	03/11/22 18:00	1
4,6-Dinitro-2-methylphenol	1.2	U	2.0	0.55	ug/L		03/10/22 09:42	03/11/22 18:00	1
4-Bromophenyl phenyl ether	0.15	U	0.61	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
4-Chloro-3-methylphenol	0.30	U Q	0.61	0.13	ug/L		03/10/22 09:42	03/11/22 18:00	1
4-Chlorophenyl phenyl ether	0.15	U Q	0.61	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
4-Nitrophenol	6.1	U	10	1.7	ug/L		03/10/22 09:42	03/11/22 18:00	1
Azobenzene	0.15	U Q	2.0	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
Bis(2-chloroethoxy)methane	0.15	U Q	0.61	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
Bis(2-chloroethyl)ether	0.091	U Q	0.10	0.030	ug/L		03/10/22 09:42	03/11/22 18:00	1
Bis(2-ethylhexyl) phthalate	1.6	U	3.0	0.75	ug/L		03/10/22 09:42	03/11/22 18:00	1

Eurofins Seattle

Client Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

Client Sample ID: ERH2665 (RHMW2254-01 LOW FLOW)

Lab Sample ID: 580-111019-1

Date Collected: 03/03/22 09:10

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 Q	0.25	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
Butyl benzyl phthalate	0.61	U	4.0	0.27	ug/L		03/10/22 09:42	03/11/22 18:00	1
Diethyl phthalate	0.30	U	1.0	0.15	ug/L		03/10/22 09:42	03/11/22 18:00	1
Dimethyl phthalate	0.15	U	0.61	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
Di-n-butyl phthalate	0.50	U	3.0	0.19	ug/L		03/10/22 09:42	03/11/22 18:00	1
Di-n-octyl phthalate	0.30	U M	1.0	0.13	ug/L		03/10/22 09:42	03/11/22 18:00	1
Hexachlorobenzene	0.091	U	0.61	0.040	ug/L		03/10/22 09:42	03/11/22 18:00	1
Hexachlorobutadiene	0.15	U	1.0	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
Hexachlorocyclopentadiene	0.30	U	1.0	0.14	ug/L		03/10/22 09:42	03/11/22 18:00	1
Hexachloroethane	0.15	U	1.0	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
Isophorone	0.30	U Q	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
m+p-Cresol	0.30	U M Q	0.61	0.10	ug/L		03/10/22 09:42	03/11/22 18:00	1
Nitrobenzene	0.091	U Q	1.0	0.040	ug/L		03/10/22 09:42	03/11/22 18:00	1
N-Nitrosodimethylamine	0.61	U Q	2.0	0.26	ug/L		03/10/22 09:42	03/11/22 18:00	1
N-Nitrosodi-n-propylamine	0.091	U Q	0.40	0.061	ug/L		03/10/22 09:42	03/11/22 18:00	1
N-Nitrosodiphenylamine	0.15	U	1.0	0.071	ug/L		03/10/22 09:42	03/11/22 18:00	1
o-Cresol	0.15	U M Q	0.61	0.050	ug/L		03/10/22 09:42	03/11/22 18:00	1
Pentachlorophenol	1.0	U	10	0.51	ug/L		03/10/22 09:42	03/11/22 18:00	1
Phenol	0.61	U M Q	1.0	0.36	ug/L		03/10/22 09:42	03/11/22 18:00	1
Pyrene	0.091	U	1.0	0.040	ug/L		03/10/22 09:42	03/11/22 18:00	1
Pyridine	3.2	U M Q	10	1.1	ug/L		03/10/22 09:42	03/11/22 18:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	50		43 - 140	03/10/22 09:42	03/11/22 18:00	1
2-Fluorobiphenyl	53		44 - 119	03/10/22 09:42	03/11/22 18:00	1
2-Fluorophenol (Surr)	36		19 - 119	03/10/22 09:42	03/11/22 18:00	1
Nitrobenzene-d5 (Surr)	54		44 - 120	03/10/22 09:42	03/11/22 18:00	1
Phenol-d5 (Surr)	22		10 - 120	03/10/22 09:42	03/11/22 18:00	1
Terphenyl-d14	92		50 - 134	03/10/22 09:42	03/11/22 18:00	1

QC Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: MB 580-383431/1-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383431

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		03/10/22 09:42	03/11/22 16:05	1
1,2-Dichlorobenzene	0.15	U	0.40	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
1,3-Dichlorobenzene	0.090	U	0.40	0.040	ug/L		03/10/22 09:42	03/11/22 16:05	1
1,4-Dichlorobenzene	0.090	U	0.40	0.040	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4,5-Trichlorophenol	0.30	U	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4,6-Trichlorophenol	0.30	U	0.60	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4-Dichlorophenol	0.50	U	1.0	0.20	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4-Dimethylphenol	0.50	U	4.0	0.16	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4-Dinitrophenol	3.2	U	5.0	1.6	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,4-Dinitrotoluene	0.30	U	1.0	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
2,6-Dinitrotoluene	0.30	U	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
2-Chloronaphthalene	0.15	U	1.0	0.070	ug/L		03/10/22 09:42	03/11/22 16:05	1
2-Chlorophenol	0.15	U	1.0	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
2-Nitrophenol	0.15	U	1.0	0.070	ug/L		03/10/22 09:42	03/11/22 16:05	1
3,3'-Dichlorobenzidine	0.60	U	1.0	0.26	ug/L		03/10/22 09:42	03/11/22 16:05	1
4,6-Dinitro-2-methylphenol	1.2	U	2.0	0.55	ug/L		03/10/22 09:42	03/11/22 16:05	1
4-Bromophenyl phenyl ether	0.15	U	0.60	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
4-Chloro-3-methylphenol	0.30	U	0.60	0.13	ug/L		03/10/22 09:42	03/11/22 16:05	1
4-Chlorophenyl phenyl ether	0.15	U	0.60	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
4-Nitrophenol	6.0	U	10	1.7	ug/L		03/10/22 09:42	03/11/22 16:05	1
Azobenzene	0.15	U M	2.0	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
Bis(2-chloroethoxy)methane	0.15	U	0.60	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
Bis(2-chloroethyl)ether	0.090	U	0.10	0.030	ug/L		03/10/22 09:42	03/11/22 16:05	1
Bis(2-ethylhexyl) phthalate	1.6	U	3.0	0.74	ug/L		03/10/22 09:42	03/11/22 16:05	1
bis (2-chloroisopropyl) ether	0.15	U	0.25	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
Butyl benzyl phthalate	0.60	U	4.0	0.27	ug/L		03/10/22 09:42	03/11/22 16:05	1
Diethyl phthalate	0.30	U	1.0	0.15	ug/L		03/10/22 09:42	03/11/22 16:05	1
Dimethyl phthalate	0.15	U	0.60	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
Di-n-butyl phthalate	0.50	U	3.0	0.19	ug/L		03/10/22 09:42	03/11/22 16:05	1
Di-n-octyl phthalate	0.30	U M	1.0	0.13	ug/L		03/10/22 09:42	03/11/22 16:05	1
Hexachlorobenzene	0.090	U	0.60	0.040	ug/L		03/10/22 09:42	03/11/22 16:05	1
Hexachlorobutadiene	0.15	U	1.0	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
Hexachlorocyclopentadiene	0.30	U	1.0	0.14	ug/L		03/10/22 09:42	03/11/22 16:05	1
Hexachloroethane	0.15	U	1.0	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
Isophorone	0.30	U	0.40	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
m+p-Cresol	0.30	U M	0.60	0.10	ug/L		03/10/22 09:42	03/11/22 16:05	1
Nitrobenzene	0.090	U	1.0	0.040	ug/L		03/10/22 09:42	03/11/22 16:05	1
N-Nitrosodimethylamine	0.60	U	2.0	0.26	ug/L		03/10/22 09:42	03/11/22 16:05	1
N-Nitrosodi-n-propylamine	0.090	U	0.40	0.060	ug/L		03/10/22 09:42	03/11/22 16:05	1
N-Nitrosodiphenylamine	0.15	U	1.0	0.070	ug/L		03/10/22 09:42	03/11/22 16:05	1
o-Cresol	0.15	U	0.60	0.050	ug/L		03/10/22 09:42	03/11/22 16:05	1
Pentachlorophenol	1.0	U	10	0.51	ug/L		03/10/22 09:42	03/11/22 16:05	1
Phenol	0.60	U	1.0	0.36	ug/L		03/10/22 09:42	03/11/22 16:05	1
Pyrene	0.090	U	1.0	0.040	ug/L		03/10/22 09:42	03/11/22 16:05	1
Pyridine	3.2	U	10	1.1	ug/L		03/10/22 09:42	03/11/22 16:05	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2,4,6-Tribromophenol (Surr)	59		43 - 140	03/10/22 09:42	03/11/22 16:05	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: MB 580-383431/1-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383431

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Fluorobiphenyl	70		44 - 119	03/10/22 09:42	03/11/22 16:05	1
2-Fluorophenol (Surr)	46		19 - 119	03/10/22 09:42	03/11/22 16:05	1
Nitrobenzene-d5 (Surr)	75		44 - 120	03/10/22 09:42	03/11/22 16:05	1
Phenol-d5 (Surr)	30		10 - 120	03/10/22 09:42	03/11/22 16:05	1
Terphenyl-d14	105		50 - 134	03/10/22 09:42	03/11/22 16:05	1

Lab Sample ID: LCS 580-383431/2-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1,2,4-Trichlorobenzene	2.00	0.901		ug/L		45	29 - 116
1,2-Dichlorobenzene	2.00	0.896		ug/L		45	32 - 111
1,3-Dichlorobenzene	2.00	0.852		ug/L		43	28 - 110
1,4-Dichlorobenzene	2.00	0.872		ug/L		44	29 - 112
2,4,5-Trichlorophenol	2.00	1.07		ug/L		54	53 - 123
2,4,6-Trichlorophenol	2.00	1.04		ug/L		52	50 - 125
2,4-Dichlorophenol	2.00	1.07		ug/L		53	47 - 121
2,4-Dimethylphenol	2.00	1.03	J	ug/L		52	31 - 124
2,4-Dinitrophenol	4.00	2.18	J M	ug/L		54	23 - 143
2,4-Dinitrotoluene	2.00	1.53		ug/L		77	57 - 128
2,6-Dinitrotoluene	2.00	1.25		ug/L		63	57 - 124
2-Chloronaphthalene	2.00	0.995	J	ug/L		50	40 - 116
2-Chlorophenol	2.00	1.13		ug/L		57	38 - 117
2-Nitrophenol	2.00	1.14		ug/L		57	47 - 123
3,3'-Dichlorobenzidine	4.00	3.82		ug/L		95	27 - 129
4,6-Dinitro-2-methylphenol	4.00	2.87		ug/L		72	44 - 137
4-Bromophenyl phenyl ether	2.00	1.23		ug/L		62	55 - 124
4-Chloro-3-methylphenol	2.00	1.13		ug/L		57	52 - 119
4-Chlorophenyl phenyl ether	2.00	1.13		ug/L		57	53 - 121
4-Nitrophenol	4.00	6.0	U	ug/L		40	35 - 145
Azobenzene	2.00	1.24	J	ug/L		62	61 - 116
Bis(2-chloroethoxy)methane	2.00	1.09		ug/L		55	48 - 120
Bis(2-chloroethyl)ether	2.00	1.10		ug/L		55	43 - 118
Bis(2-ethylhexyl) phthalate	2.00	2.25	J	ug/L		112	55 - 135
bis (2-chloroisopropyl) ether	2.00	0.998		ug/L		50	37 - 130
Butyl benzyl phthalate	2.00	2.14	J	ug/L		107	53 - 134
Diethyl phthalate	2.00	1.60		ug/L		80	56 - 125
Dimethyl phthalate	2.00	1.50		ug/L		75	45 - 127
Di-n-butyl phthalate	2.00	1.95	J	ug/L		98	59 - 127
Di-n-octyl phthalate	2.00	1.88		ug/L		94	51 - 140
Hexachlorobenzene	2.00	1.25		ug/L		63	53 - 125
Hexachlorobutadiene	2.00	0.737	J	ug/L		37	22 - 124
Hexachlorocyclopentadiene	2.00	0.691	J	ug/L		35	20 - 125
Hexachloroethane	2.00	0.770	J	ug/L		39	21 - 115
Isophorone	2.00	1.12		ug/L		56	42 - 124
m+p-Cresol	2.00	0.959		ug/L		48	29 - 110
Nitrobenzene	2.00	1.10		ug/L		55	45 - 121

QC Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: LCS 580-383431/2-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Nitrosodimethylamine	2.00	0.833	J Q	ug/L		42	45 - 125
N-Nitrosodi-n-propylamine	2.00	1.08		ug/L		54	49 - 119
N-Nitrosodiphenylamine	2.00	1.37		ug/L		68	51 - 123
o-Cresol	2.00	0.999		ug/L		50	30 - 117
Pentachlorophenol	4.00	2.24	J	ug/L		56	35 - 138
Phenol	2.00	0.584	J	ug/L		29	13 - 120
Pyrene	2.00	1.82		ug/L		91	57 - 126
Pyridine	4.00	3.2	U Q	ug/L		10	20 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	72		43 - 140
2-Fluorobiphenyl	48		44 - 119
2-Fluorophenol (Surr)	41	M	19 - 119
Nitrobenzene-d5 (Surr)	57		44 - 120
Phenol-d5 (Surr)	25		10 - 120
Terphenyl-d14	95		50 - 134

Lab Sample ID: LCSD 580-383431/3-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	2.00	0.970		ug/L		48	29 - 116	7	20
1,2-Dichlorobenzene	2.00	0.960		ug/L		48	32 - 111	7	20
1,3-Dichlorobenzene	2.00	0.856		ug/L		43	28 - 110	1	20
1,4-Dichlorobenzene	2.00	0.901		ug/L		45	29 - 112	3	20
2,4,5-Trichlorophenol	2.00	1.71	Q	ug/L		85	53 - 123	45	20
2,4,6-Trichlorophenol	2.00	1.52	Q	ug/L		76	50 - 125	37	20
2,4-Dichlorophenol	2.00	1.58	Q	ug/L		79	47 - 121	39	20
2,4-Dimethylphenol	2.00	1.49	J Q	ug/L		75	31 - 124	36	20
2,4-Dinitrophenol	4.00	2.51	J M	ug/L		63	23 - 143	14	20
2,4-Dinitrotoluene	2.00	1.74		ug/L		87	57 - 128	13	20
2,6-Dinitrotoluene	2.00	1.63	Q	ug/L		82	57 - 124	26	20
2-Chloronaphthalene	2.00	1.33	Q	ug/L		66	40 - 116	29	20
2-Chlorophenol	2.00	1.60	Q	ug/L		80	38 - 117	34	20
2-Nitrophenol	2.00	1.68	Q	ug/L		84	47 - 123	38	20
3,3'-Dichlorobenzidine	4.00	4.45		ug/L		111	27 - 129	15	20
4,6-Dinitro-2-methylphenol	4.00	3.27		ug/L		82	44 - 137	13	20
4-Bromophenyl phenyl ether	2.00	1.42		ug/L		71	55 - 124	14	20
4-Chloro-3-methylphenol	2.00	1.59	Q	ug/L		80	52 - 119	34	20
4-Chlorophenyl phenyl ether	2.00	1.46	Q	ug/L		73	53 - 121	25	20
4-Nitrophenol	4.00	1.73	J M	ug/L		43	35 - 145	9	20
Azobenzene	2.00	1.57	J Q	ug/L		78	61 - 116	23	20
Bis(2-chloroethoxy)methane	2.00	1.55	Q	ug/L		77	48 - 120	35	20
Bis(2-chloroethyl)ether	2.00	1.54	Q	ug/L		77	43 - 118	34	20
Bis(2-ethylhexyl) phthalate	2.00	2.33	J	ug/L		117	55 - 135	4	20
bis (2-chloroisopropyl) ether	2.00	1.45	Q	ug/L		73	37 - 130	37	20
Butyl benzyl phthalate	2.00	2.18	J	ug/L		109	53 - 134	2	20

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QC Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: LCSD 580-383431/3-A
Matrix: Water
Analysis Batch: 383571

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diethyl phthalate	2.00	1.79		ug/L		90	56 - 125	11	20
Dimethyl phthalate	2.00	1.76		ug/L		88	45 - 127	16	20
Di-n-butyl phthalate	2.00	2.01	J	ug/L		101	59 - 127	3	20
Di-n-octyl phthalate	2.00	1.99		ug/L		99	51 - 140	6	20
Hexachlorobenzene	2.00	1.43		ug/L		71	53 - 125	13	20
Hexachlorobutadiene	2.00	0.698	J	ug/L		35	22 - 124	5	20
Hexachlorocyclopentadiene	2.00	0.720	J	ug/L		36	20 - 125	4	20
Hexachloroethane	2.00	0.708	J	ug/L		35	21 - 115	8	20
Isophorone	2.00	1.54	Q	ug/L		77	42 - 124	31	20
m+p-Cresol	2.00	1.39	Q	ug/L		70	29 - 110	37	20
Nitrobenzene	2.00	1.54	Q	ug/L		77	45 - 121	33	20
N-Nitrosodimethylamine	2.00	1.14	J Q	ug/L		57	45 - 125	31	20
N-Nitrosodi-n-propylamine	2.00	1.63	Q	ug/L		81	49 - 119	41	20
N-Nitrosodiphenylamine	2.00	1.62		ug/L		81	51 - 123	17	20
o-Cresol	2.00	1.46	Q	ug/L		73	30 - 117	38	20
Pentachlorophenol	4.00	2.04	J	ug/L		51	35 - 138	9	20
Phenol	2.00	0.826	J Q	ug/L		41	13 - 120	34	20
Pyrene	2.00	1.94		ug/L		97	57 - 126	6	20
Pyridine	4.00	1.67	J Q	ug/L		42	20 - 125	123	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2,4,6-Tribromophenol (Surr)	78		43 - 140
2-Fluorobiphenyl	70		44 - 119
2-Fluorophenol (Surr)	56		19 - 119
Nitrobenzene-d5 (Surr)	78		44 - 120
Phenol-d5 (Surr)	36		10 - 120
Terphenyl-d14	98		50 - 134

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

Lab Sample ID: MB 580-383431/1-A
Matrix: Water
Analysis Batch: 383574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383431

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.032	U	0.10	0.019	ug/L		03/10/22 09:42	03/11/22 11:36	1
2-Methylnaphthalene	0.080	U	0.20	0.039	ug/L		03/10/22 09:42	03/11/22 11:36	1
Acenaphthene	0.032	U	0.10	0.014	ug/L		03/10/22 09:42	03/11/22 11:36	1
Acenaphthylene	0.032	U	0.050	0.0090	ug/L		03/10/22 09:42	03/11/22 11:36	1
Anthracene	0.080	U	0.10	0.022	ug/L		03/10/22 09:42	03/11/22 11:36	1
Benzo[a]anthracene	0.032	U	0.050	0.014	ug/L		03/10/22 09:42	03/11/22 11:36	1
Benzo[a]pyrene	0.032	U	0.10	0.011	ug/L		03/10/22 09:42	03/11/22 11:36	1
Benzo[b]fluoranthene	0.032	U	0.050	0.011	ug/L		03/10/22 09:42	03/11/22 11:36	1
Benzo[g,h,i]perylene	0.032	U	0.050	0.012	ug/L		03/10/22 09:42	03/11/22 11:36	1
Benzo[k]fluoranthene	0.032	U	0.050	0.012	ug/L		03/10/22 09:42	03/11/22 11:36	1
Chrysene	0.032	U	0.10	0.016	ug/L		03/10/22 09:42	03/11/22 11:36	1
Dibenz(a,h)anthracene	0.032	U	0.10	0.026	ug/L		03/10/22 09:42	03/11/22 11:36	1
Fluoranthene	0.032	U	0.20	0.018	ug/L		03/10/22 09:42	03/11/22 11:36	1
Fluorene	0.032	U	0.10	0.017	ug/L		03/10/22 09:42	03/11/22 11:36	1

Eurofins Seattle

QC Sample Results

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: MB 580-383431/1-A
Matrix: Water
Analysis Batch: 383574

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 383431

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Indeno[1,2,3-cd]pyrene	0.032	U	0.050	0.014	ug/L		03/10/22 09:42	03/11/22 11:36	1
Naphthalene	0.080	U	0.10	0.031	ug/L		03/10/22 09:42	03/11/22 11:36	1
Phenanthrene	0.080	U	0.10	0.031	ug/L		03/10/22 09:42	03/11/22 11:36	1
Pyrene	0.080	U	0.10	0.033	ug/L		03/10/22 09:42	03/11/22 11:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-methylnaphthalene-d10	57	M	40 - 140	03/10/22 09:42	03/11/22 11:36	1
Fluoranthene-d10 (Surr)	94		40 - 140	03/10/22 09:42	03/11/22 11:36	1
Terphenyl-d14	106		58 - 132	03/10/22 09:42	03/11/22 11:36	1

Lab Sample ID: LCS 580-383431/2-A
Matrix: Water
Analysis Batch: 383574

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	2.00	0.833		ug/L		42	41 - 115
2-Methylnaphthalene	2.00	0.801		ug/L		40	39 - 114
Acenaphthene	2.00	0.978		ug/L		49	48 - 114
Acenaphthylene	2.00	0.929		ug/L		46	35 - 121
Anthracene	2.00	1.43		ug/L		71	53 - 119
Benzo[a]anthracene	2.00	1.49		ug/L		74	59 - 120
Benzo[a]pyrene	2.00	1.38		ug/L		69	53 - 120
Benzo[b]fluoranthene	2.00	1.39		ug/L		69	53 - 126
Benzo[g,h,i]perylene	2.00	1.63		ug/L		81	44 - 128
Benzo[k]fluoranthene	2.00	1.73		ug/L		87	54 - 125
Chrysene	2.00	1.61		ug/L		81	57 - 120
Dibenz(a,h)anthracene	2.00	1.63	M	ug/L		82	44 - 131
Fluoranthene	2.00	1.60		ug/L		80	58 - 120
Fluorene	2.00	1.17		ug/L		58	50 - 118
Indeno[1,2,3-cd]pyrene	2.00	1.40	M	ug/L		70	48 - 130
Naphthalene	2.00	0.876		ug/L		44	43 - 114
Phenanthrene	2.00	1.31		ug/L		66	53 - 115
Pyrene	2.00	1.59		ug/L		80	53 - 121

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-methylnaphthalene-d10	43		40 - 140
Fluoranthene-d10 (Surr)	84		40 - 140
Terphenyl-d14	94		58 - 132

Lab Sample ID: LCSD 580-383431/3-A
Matrix: Water
Analysis Batch: 383574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
1-Methylnaphthalene	2.00	1.06	Q	ug/L		53	41 - 115	24	20
2-Methylnaphthalene	2.00	1.01	Q	ug/L		51	39 - 114	23	20
Acenaphthene	2.00	1.28	Q	ug/L		64	48 - 114	26	20
Acenaphthylene	2.00	1.25	Q	ug/L		62	35 - 121	29	20

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QC Sample Results

Client: AECOM
 Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

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

Lab Sample ID: LCSD 580-383431/3-A
Matrix: Water
Analysis Batch: 383574

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 383431

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Anthracene	2.00	1.54		ug/L		77	53 - 119	7	20
Benzo[a]anthracene	2.00	1.57		ug/L		79	59 - 120	6	20
Benzo[a]pyrene	2.00	1.45		ug/L		73	53 - 120	5	20
Benzo[b]fluoranthene	2.00	1.41		ug/L		70	53 - 126	1	20
Benzo[g,h,i]perylene	2.00	1.73		ug/L		87	44 - 128	6	20
Benzo[k]fluoranthene	2.00	1.90		ug/L		95	54 - 125	9	20
Chrysene	2.00	1.66		ug/L		83	57 - 120	3	20
Dibenz(a,h)anthracene	2.00	1.73	M	ug/L		86	44 - 131	6	20
Fluoranthene	2.00	1.68		ug/L		84	58 - 120	5	20
Fluorene	2.00	1.44	Q	ug/L		72	50 - 118	21	20
Indeno[1,2,3-cd]pyrene	2.00	1.47	M	ug/L		73	48 - 130	5	20
Naphthalene	2.00	1.12	Q	ug/L		56	43 - 114	24	20
Phenanthrene	2.00	1.40		ug/L		70	53 - 115	6	20
Pyrene	2.00	1.67		ug/L		84	53 - 121	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-methylnaphthalene-d10	59		40 - 140
Fluoranthene-d10 (Surr)	86		40 - 140
Terphenyl-d14	96		58 - 132

Lab Chronicle

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

Client Sample ID: ERH2665 (RHMW2254-01 LOW FLOW)

Lab Sample ID: 580-111019-1

Date Collected: 03/03/22 09:10

Matrix: Water

Date Received: 03/04/22 09:35

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	3510C			383431	03/10/22 09:42	JJY	FGS SEA
Total/NA	Analysis	8270E		1	383571	03/11/22 18:00	E1L	FGS SEA
Total/NA	Prep	3510C			383431	03/10/22 09:42	JJY	FGS SEA
Total/NA	Analysis	8270E SIM		1	383574	03/11/22 13:12	E1L	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: 580-111019-1

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

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

Sample Summary

Client: AECOM
Project/Site: Red Hill GW CV18F0126

Job ID: 580-111019-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-111019-1	ERH2665 (RHMW2254-01 LOW FLOW)	Water	03/03/22 09:10	03/04/22 09:35

1

2

3

4

5

6

7

8

9

10

11

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-111019-1

Login Number: 111019

List Number: 1

Creator: Vallelunga, Diana L

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.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <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	

