



Tetra Tech Inc (HI)
737 Bishop St, Suite 2340
Honolulu, Hawaii 96813
Tel: 808-441-6600
Email: Yvonne.parry@Tetrattech.com
RE: HDOH Red Hill

Work Order No.: 2112237 Rev. 1

Dear Yvonne Parry:

Torrent Laboratory, Inc. received 1 sample(s) on December 18, 2021 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Mukesh Jani
Lab Director

December 29, 2021

Date



Date: 12/29/2021

Client: Tetra Tech Inc(HI)

Project: HDOH Red Hill

Work Order: 2112237

CASE NARRATIVE

Unless otherwise indicated in the following narrative, no issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Unless otherwise indicated in the following narrative, no results have been method and/or field blank corrected.

Reported results relate only to the items/samples tested by the laboratory.

This report shall not be reproduced, except in full, without the written approval of Torrent Laboratory, Inc

Methane analysis was sub-contracted to ELAP certified laboratory AAC. Sub-contract data will follow under a separate cover.

REVISIONS

Report revised to include sub-contracted methane data. Sub-contract data appear as an attachment to the Torrent generated report.

Rev. 1 (1/12/22)



Sample Result Summary

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date Received: 12/18/21

Date Reported: 12/29/21

2112237-001

ERH2199 / RHMW11 (Zone 5)

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
TOC	A5310B	1	0.40	2.0	22.5	mg/L
Styrene	SW8260B	1	0.11	0.50	0.79	ug/L



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 3510_BNASIM	Prep Batch Date/Time: 12/22/21 12:29:00PM
Prep Batch ID: 1137907	Prep Analyst: NDUM

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Pyridine	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
N-Nitrosdimethylamine	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Aniline	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Phenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Bis(2-chloroethyl) ether	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2-Chlorophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,3-Dichlorobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,4-Dichlorobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Benzyl Alcohol	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,2-Dichlorobenzene	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2-Methylphenol (o-Cresol)	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Bis(2-chloroisopropyl)ether	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
3-/4-Methylphenol (p-/m-Cresol)	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
N-nitroso-di-n-propylamine	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Hexachloroethane	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Nitrobenzene	SW8270	1	0.900	18	ND		ug/L	12/22/21	14:15	TA	462453
Isophorone	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2-Nitrophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,4-Dimethylphenol	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Benzoic Acid	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Bis(2-Chloroethoxy)methane	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,4-Dichlorophenol	SW8270	1	0.180	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,2,4-Trichlorobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,6-Dichlorophenol	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Naphthalene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
4-Chloroaniline	SW8270	1	0.180	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Hexachloro-1,3-butadiene	SW8270	1	0.450	18	ND		ug/L	12/22/21	14:15	TA	462453
4-Chloro-3-methylphenol	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2-Methylnaphthalene	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1-Methylnaphthalene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Hexachlorocyclopentadiene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,4,6-Trichlorophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,4,5-Trichlorophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2-Chloronaphthalene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
2-Nitroaniline	SW8270	1	0.900	9.0	ND		ug/L	12/22/21	14:15	TA	462453
1,4-Dinitrobenzene	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Dimethyl phthalate	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,3-Dinitrobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Acenaphthylene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 3510_BNASIM	Prep Batch Date/Time: 12/22/21	12:29:00PM
Prep Batch ID: 1137907	Prep Analyst: NDUM	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,6-Dinitrotoluene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
1,2-Dinitrobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
3-Nitroaniline	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Acenaphthene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,4-Dinitrophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
4-Nitrophenol	SW8270	1	0.900	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Dibenzofuran	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
2,4-Dinitrotoluene	SW8270	1	0.180	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,3,5,6-Tetrachlorophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
2,3,4,6-Tetrachlorophenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Diethylphthalate	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Fluorene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
4-Chlorophenyl phenyl ether	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
4-Nitroaniline	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
4,6-Dinitro-2-methylphenol	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Diphenylamine	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Azobenzene	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
4-Bromophenyl phenyl ether	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Hexachlorobenzene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Pentachlorophenol	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Phenanthrene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Anthracene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Carbazole	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Di-n-butylphthalate	SW8270	1	0.450	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Fluoranthene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzidine	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Pyrene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzyl butyl phthalate	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benz[a]anthracene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
3,3-Dichlorobenzidine	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Chrysene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Bis(2-Ethylhexyl)phthalate	SW8270	1	0.180	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Di-n-octyl phthalate	SW8270	1	0.180	3.6	ND		ug/L	12/22/21	14:15	TA	462453
Benzo[b]fluoranthene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzo[k]fluoranthene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzo[a]pyrene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Indeno[1,2,3-cd]pyrene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzo[a,h]anthracene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453
Benzo[g,h,i]perylene	SW8270	1	0.180	0.54	ND		ug/L	12/22/21	14:15	TA	462453



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 3510_BNASIM	Prep Batch Date/Time: 12/22/21	12:29:00PM
Prep Batch ID: 1137907	Prep Analyst: NDUM	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Acceptance Limits											
2-Fluorophenol (S)	SW8270		15 - 105		17.6		%	12/22/21	14:15	TA	462453
Phenol-d6 (S)	SW8270		15 - 100		11.2	S	%	12/22/21	14:15	TA	462453
Nitrobenzene-d5 (S)	SW8270		30 - 100		68.7		%	12/22/21	14:15	TA	462453
2-Fluorobiphenyl (S)	SW8270		30 - 105		71.8		%	12/22/21	14:15	TA	462453
2,4,6-Tribromophenol (S)	SW8270		15 - 125		77.5		%	12/22/21	14:15	TA	462453
p-Terphenyl-d14 (S)	SW8270		30 - 125		91.8		%	12/22/21	14:15	TA	462453

NOTE: S-surrogate outside of control limits due to possible matrix interference



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 3510_TPH	Prep Batch Date/Time: 12/22/21	10:46:00AM
Prep Batch ID: 1137901	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	1	0.037	0.10	ND		mg/L	12/22/21	22:02	SN	462384
TPH as Motor Oil	SW8015B	1	0.11	0.40	ND		mg/L	12/22/21	22:02	SN	462384
			Acceptance Limits								
Pentacosane (S)	SW8015B		59 - 129		87.1		%	12/22/21	22:02	SN	462384



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 3510_TPH SG	Prep Batch Date/Time: 12/22/21	12:53:00PM
Prep Batch ID: 1137908	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel (SG)	SW8015B	1	0.037	0.10	ND		mg/L	12/28/21	10:58	SN	462460
TPH as Motor Oil (SG)	SW8015B	1	0.11	0.40	ND		mg/L	12/28/21	10:58	SN	462460
			Acceptance Limits								
Pentacosane (S)	SW8015B		40 - 129		93.7		%	12/28/21	10:58	SN	462460



SAMPLE RESULTS

Report prepared for: Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm
Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001B
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: TOC-W-P	Prep Batch Date/Time: 12/23/21	11:00:00AM
Prep Batch ID: 1138001	Prep Analyst:	BJAY

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TOC	A5310B	1	0.40	2.0	22.5		mg/L	12/23/21	20:22	BJAY	462450



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001C
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 5030VOC	Prep Batch Date/Time: 12/21/21	10:45:00AM
Prep Batch ID: 1137889	Prep Analyst:	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Dichlorodifluoromethane	SW8260B	1	0.26	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Chloromethane	SW8260B	1	0.17	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Vinyl Chloride	SW8260B	1	0.21	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Bromomethane	SW8260B	1	0.21	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Chloroethane	SW8260B	1	0.11	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Trichlorofluoromethane	SW8260B	1	0.19	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1-Dichloroethene	SW8260B	1	0.14	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Freon 113	SW8260B	1	0.34	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Methylene Chloride	SW8260B	1	0.13	1.0	ND		ug/L	12/21/21	14:43	BP	462336
trans-1,2-Dichloroethene	SW8260B	1	0.16	0.50	ND		ug/L	12/21/21	14:43	BP	462336
MTBE	SW8260B	1	0.077	0.50	ND		ug/L	12/21/21	14:43	BP	462336
tert-Butanol	SW8260B	1	2.9	5.0	ND		ug/L	12/21/21	14:43	BP	462336
DIPE	SW8260B	1	0.12	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1-Dichloroethane	SW8260B	1	0.12	0.50	ND		ug/L	12/21/21	14:43	BP	462336
ETBE	SW8260B	1	0.064	0.50	ND		ug/L	12/21/21	14:43	BP	462336
cis-1,2-Dichloroethene	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
2,2-Dichloropropane	SW8260B	1	0.094	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Bromochloromethane	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Chloroform	SW8260B	1	0.12	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Carbon Tetrachloride	SW8260B	1	0.16	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1,1-Trichloroethane	SW8260B	1	0.16	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1-Dichloropropene	SW8260B	1	0.19	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Benzene	SW8260B	1	0.065	0.50	ND		ug/L	12/21/21	14:43	BP	462336
TAME	SW8260B	1	0.072	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2-Dichloroethane	SW8260B	1	0.11	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Trichloroethylene	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Dibromomethane	SW8260B	1	0.11	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2-Dichloropropane	SW8260B	1	0.089	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Bromodichloromethane	SW8260B	1	0.076	0.50	ND		ug/L	12/21/21	14:43	BP	462336
cis-1,3-Dichloropropene	SW8260B	1	0.078	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Toluene	SW8260B	1	0.14	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Tetrachloroethylene	SW8260B	1	0.24	0.50	ND		ug/L	12/21/21	14:43	BP	462336
trans-1,3-Dichloropropene	SW8260B	1	0.22	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1,2-Trichloroethane	SW8260B	1	0.076	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Dibromochloromethane	SW8260B	1	0.18	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,3-Dichloropropane	SW8260B	1	0.22	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2-Dibromoethane	SW8260B	1	0.079	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Chlorobenzene	SW8260B	1	0.16	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Ethylbenzene	SW8260B	1	0.20	0.50	ND		ug/L	12/21/21	14:43	BP	462336



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001C
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 5030VOC	Prep Batch Date/Time: 12/21/21	10:45:00AM
Prep Batch ID: 1137889	Prep Analyst:	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
1,1,1,2-Tetrachloroethane	SW8260B	1	0.087	0.50	ND		ug/L	12/21/21	14:43	BP	462336
m,p-Xylene	SW8260B	1	0.39	1.0	ND		ug/L	12/21/21	14:43	BP	462336
o-Xylene	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Styrene	SW8260B	1	0.11	0.50	0.79		ug/L	12/21/21	14:43	BP	462336
Bromoform	SW8260B	1	0.076	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Isopropyl Benzene	SW8260B	1	0.22	0.50	ND		ug/L	12/21/21	14:43	BP	462336
n-Propylbenzene	SW8260B	1	0.30	0.50	ND		ug/L	12/21/21	14:43	BP	462336
Bromobenzene	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,1,2,2-Tetrachloroethane	SW8260B	1	0.079	0.50	ND		ug/L	12/21/21	14:43	BP	462336
2-Chlorotoluene	SW8260B	1	0.25	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,3,5-Trimethylbenzene	SW8260B	1	0.24	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2,3-Trichloropropane	SW8260B	1	0.15	0.50	ND		ug/L	12/21/21	14:43	BP	462336
4-Chlorotoluene	SW8260B	1	0.22	0.50	ND		ug/L	12/21/21	14:43	BP	462336
tert-Butylbenzene	SW8260B	1	0.26	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2,4-Trimethylbenzene	SW8260B	1	0.23	0.50	ND		ug/L	12/21/21	14:43	BP	462336
sec-Butyl Benzene	SW8260B	1	0.30	0.50	ND		ug/L	12/21/21	14:43	BP	462336
p-Isopropyltoluene	SW8260B	1	0.27	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,3-Dichlorobenzene	SW8260B	1	0.17	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,4-Dichlorobenzene	SW8260B	1	0.18	0.50	ND		ug/L	12/21/21	14:43	BP	462336
n-Butylbenzene	SW8260B	1	0.27	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2-Dichlorobenzene	SW8260B	1	0.16	0.50	ND		ug/L	12/21/21	14:43	BP	462336
1,2-Dibromo-3-Chloropropane	SW8260B	1	0.76	2.0	ND		ug/L	12/21/21	14:43	BP	462336
Hexachlorobutadiene	SW8260B	1	0.62	2.0	ND		ug/L	12/21/21	14:43	BP	462336
1,2,4-Trichlorobenzene	SW8260B	1	0.93	2.0	ND		ug/L	12/21/21	14:43	BP	462336
Naphthalene	SW8260B	1	1.2	2.0	ND		ug/L	12/21/21	14:43	BP	462336
1,2,3-Trichlorobenzene	SW8260B	1	1.2	2.0	ND		ug/L	12/21/21	14:43	BP	462336
(S) Dibromofluoromethane	SW8260B		61.2 - 131		130		%	12/21/21	14:43	BP	462336
(S) Toluene-d8	SW8260B		75.1 - 127		98.9		%	12/21/21	14:43	BP	462336
(S) 4-Bromofluorobenzene	SW8260B		64.1 - 120		108		%	12/21/21	14:43	BP	462336



SAMPLE RESULTS

Report prepared for:

Yvonne Parry
Tetra Tech Inc (HI)

Date/Time Received: 12/18/21, 1:00 pm

Date Reported: 12/29/21

Client Sample ID:	ERH2199 / RHMW11 (Zone 5)	Lab Sample ID:	2112237-001C
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:	103S518817512		
Date/Time Sampled:	12/16/21 / 11:40		
SDG:			

Prep Method: 5030GRO	Prep Batch Date/Time: 12/21/21	10:45:00AM
Prep Batch ID: 1137890	Prep Analyst:	BPATEL

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH(Gasoline)	8260TPH	1	29	50	ND		ug/L	12/21/21	14:43	BP	462336
(S) 4-Bromofluorobenzene	8260TPH		41.5 - 125		96.9		%	12/21/21	14:43	BP	462336



MB Summary Report

Work Order:	2112237	Prep Method:	5030VOC	Prep Date:	12/21/21	Prep Batch:	1137889
Matrix:	Water	Analytical Method:	SW8260B	Analyzed Date:	12/21/2021	Analytical Batch:	462336
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dichlorodifluoromethane	0.26	0.50	ND		
Chloromethane	0.17	0.50	ND		
Vinyl Chloride	0.21	0.50	ND		
Bromomethane	0.21	0.50	ND		
Chloroethane	0.11	0.50	ND		
Trichlorofluoromethane	0.19	0.50	ND		
1,1-Dichloroethene	0.14	0.50	ND		
Freon 113	0.34	0.50	ND		
Methylene Chloride	0.13	1.0	ND		
trans-1,2-Dichloroethene	0.16	0.50	ND		
MTBE	0.077	0.50	ND		
tert-Butanol	2.9	5.0	ND		
DIPE	0.12	0.50	ND		
1,1-Dichloroethane	0.12	0.50	ND		
ETBE	0.064	0.50	ND		
cis-1,2-Dichloroethene	0.15	0.50	ND		
2,2-Dichloropropane	0.094	0.50	ND		
Bromochloromethane	0.15	0.50	ND		
Chloroform	0.12	0.50	ND		
Carbon Tetrachloride	0.16	0.50	ND		
1,1,1-Trichloroethane	0.16	0.50	ND		
1,1-Dichloropropene	0.19	0.50	ND		
Benzene	0.065	0.50	ND		
TAME	0.072	0.50	ND		
1,2-Dichloroethane	0.11	0.50	ND		
Trichloroethylene	0.15	0.50	ND		
Dibromomethane	0.11	0.50	ND		
1,2-Dichloropropane	0.089	0.50	ND		
Bromodichloromethane	0.076	0.50	ND		
cis-1,3-Dichloropropene	0.078	0.50	ND		
Toluene	0.14	0.50	ND		
Tetrachloroethylene	0.24	0.50	ND		
trans-1,3-Dichloropropene	0.22	0.50	ND		
1,1,2-Trichloroethane	0.076	0.50	ND		
Dibromochloromethane	0.18	0.50	ND		
1,3-Dichloropropane	0.22	0.50	ND		
1,2-Dibromoethane	0.079	0.50	ND		
Chlorobenzene	0.16	0.50	ND		
Ethylbenzene	0.20	0.50	ND		
1,1,1,2-Tetrachloroethane	0.087	0.50	ND		
m,p-Xylene	0.39	1.0	ND		
o-Xylene	0.15	0.50	ND		
Styrene	0.11	0.50	ND		
Bromoform	0.076	0.50	ND		
Isopropyl Benzene	0.22	0.50	ND		



MB Summary Report

Work Order:	2112237	Prep Method:	5030VOC	Prep Date:	12/21/21	Prep Batch:	1137889
Matrix:	Water	Analytical Method:	SW8260B	Analyzed Date:	12/21/2021	Analytical Batch:	462336
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
n-Propylbenzene	0.30	0.50	ND		
Bromobenzene	0.15	0.50	ND		
1,1,2,2-Tetrachloroethane	0.079	0.50	ND		
2-Chlorotoluene	0.25	0.50	ND		
1,3,5-Trimethylbenzene	0.24	0.50	ND		
1,2,3-Trichloropropane	0.15	0.50	ND		
4-Chlorotoluene	0.22	0.50	ND		
tert-Butylbenzene	0.26	0.50	ND		
1,2,4-Trimethylbenzene	0.23	0.50	ND		
sec-Butyl Benzene	0.30	0.50	ND		
p-Isopropyltoluene	0.27	0.50	ND		
1,3-Dichlorobenzene	0.17	0.50	ND		
1,4-Dichlorobenzene	0.18	0.50	ND		
n-Butylbenzene	0.27	0.50	0.27		
1,2-Dichlorobenzene	0.16	0.50	ND		
1,2-Dibromo-3-Chloropropane	0.76	2.0	ND		
Hexachlorobutadiene	0.62	2.0	ND		
1,2,4-Trichlorobenzene	0.93	2.0	ND		
Naphthalene	1.2	2.0	ND		
1,2,3-Trichlorobenzene	1.2	2.0	ND		
(S) Dibromofluoromethane			111		
(S) Toluene-d8			98.7		
(S) 4-Bromofluorobenzene			104		

Work Order:	2112237	Prep Method:	5030GRO	Prep Date:	12/21/21	Prep Batch:	1137890
Matrix:	Water	Analytical Method:	SW8260B	Analyzed Date:	12/21/2021	Analytical Batch:	462336
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH(Gasoline)	29	50	33		
(S) 4-Bromofluorobenzene			90.0		

Work Order:	2112237	Prep Method:	3510_TPH	Prep Date:	12/22/21	Prep Batch:	1137901
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/22/2021	Analytical Batch:	462384
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH as Diesel	0.037	0.10	ND		
TPH as Motor Oil	0.11	0.40	ND		
Pentacosane (S)			73.6		



MB Summary Report

Work Order:	2112237	Prep Method:	3510_BNASIM	Prep Date:	12/22/21	Prep Batch:	1137907
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/22/2021	Analytical Batch:	462453
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Pyridine	0.45	3.6	ND		
N-Nitrosodimethylamine	0.45	3.6	ND		
Aniline	0.90	3.6	ND		
Phenol	0.45	3.6	ND		
Bis(2-chloroethyl) ether	0.90	3.6	ND		
2-Chlorophenol	0.45	3.6	ND		
1,3-Dichlorobenzene	0.45	3.6	ND		
1,4-Dichlorobenzene	0.45	3.6	ND		
Benzyl Alcohol	0.90	3.6	ND		
1,2-Dichlorobenzene	0.90	3.6	ND		
2-Methylphenol (o-Cresol)	0.90	3.6	ND		
Bis(2-chloroisopropyl)ether	0.45	3.6	ND		
3-/4-Methylphenol (p-/m-Cresol)	0.45	3.6	ND		
N-nitroso-di-n-propylamine	0.90	3.6	ND		
Hexachloroethane	0.45	3.6	ND		
Nitrobenzene	0.90	18	ND		
Isophorone	0.90	3.6	ND		
2-Nitrophenol	0.45	3.6	ND		
2,4-Dimethylphenol	0.90	3.6	ND		
Benzoic Acid	0.45	3.6	ND		
Bis(2-Chloroethoxy)methane	0.90	3.6	ND		
2,4-Dichlorophenol	0.18	3.6	ND		
1,2,4-Trichlorobenzene	0.45	3.6	ND		
2,6-Dichlorophenol	0.90	3.6	ND		
Naphthalene	0.18	0.54	ND		
4-Chloroaniline	0.18	3.6	ND		
Hexachloro-1,3-butadiene	0.45	18	ND		
4-Chloro-3-methylphenol	0.90	3.6	ND		
2-Methylnaphthalene	0.90	3.6	ND		
1-Methylnaphthalene	0.45	3.6	ND		
Hexachlorocyclopentadiene	0.45	3.6	ND		
2,4,6-Trichlorophenol	0.45	3.6	ND		
2,4,5-Trichlorophenol	0.45	3.6	ND		
2-Chloronaphthalene	0.18	0.54	ND		
2-Nitroaniline	0.90	9.0	ND		
1,4-Dinitrobenzene	0.90	3.6	ND		
Dimethyl phthalate	0.90	3.6	ND		
1,3-Dinitrobenzene	0.45	3.6	ND		
Acenaphthylene	0.18	0.54	ND		
2,6-Dinitrotoluene	0.45	3.6	ND		
1,2-Dinitrobenzene	0.45	3.6	ND		
3-Nitroaniline	0.45	3.6	ND		
Acenaphthene	0.45	3.6	ND		
2,4-Dinitrophenol	0.45	3.6	ND		
4-Nitrophenol	0.90	3.6	ND		



MB Summary Report

Work Order:	2112237	Prep Method:	3510_BNASIM	Prep Date:	12/22/21	Prep Batch:	1137907
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/22/2021	Analytical Batch:	462453
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Dibenzofuran	0.18	0.54	ND	
2,4-Dinitrotoluene	0.18	3.6	ND	
2,3,5,6-Tetrachlorophenol	0.45	3.6	ND	
2,3,4,6-Tetrachlorophenol	0.45	3.6	ND	
Diethylphthalate	0.45	3.6	ND	
Fluorene	0.45	3.6	ND	
4-Chlorophenyl phenyl ether	0.45	3.6	ND	
4-Nitroaniline	0.45	3.6	ND	
4,6-Dinitro-2-methylphenol	0.45	3.6	ND	
Diphenylamine	0.45	3.6	ND	
Azobenzene	0.45	3.6	ND	
4-Bromophenyl phenyl ether	0.45	3.6	ND	
Hexachlorobenzene	0.18	0.54	ND	
Pentachlorophenol	0.18	0.54	ND	
Phenanthrene	0.18	0.54	ND	
Anthracene	0.18	0.54	ND	
Carbazole	0.18	0.54	ND	
Di-n-butylphthalate	0.45	3.6	ND	
Fluoranthene	0.18	0.54	ND	
Benzidine	0.18	0.54	ND	
Pyrene	0.18	0.54	ND	
Benzyl butyl phthalate	0.18	0.54	ND	
Benz[a]anthracene	0.18	0.54	ND	
3,3-Dichlorobenzidine	0.18	0.54	ND	
Chrysene	0.18	0.54	ND	
Bis(2-Ethylhexyl)phthalate	0.18	3.6	ND	
Di-n-octyl phthalate	0.18	3.6	ND	
Benzo[b]fluoranthene	0.18	0.54	ND	
Benzo[k]fluoranthene	0.18	0.54	ND	
Benzo[a]pyrene	0.18	0.54	ND	
Indeno[1,2,3-cd]pyrene	0.18	0.54	ND	
Dibenz[a,h]anthracene	0.18	0.54	ND	
Benzo[g,h,i]perylene	0.18	0.54	ND	
2-Fluorophenol (S)			45.1	
Phenol-d6 (S)			27.3	
Nitrobenzene-d5 (S)			79.3	
2-Fluorobiphenyl (S)			86.4	
2,4,6-Tribromophenol (S)			112	
p-Terphenyl-d14 (S)			95.7	



MB Summary Report

Work Order:	2112237	Prep Method:	3510_TPH SG	Prep Date:	12/22/21	Prep Batch:	1137908
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/28/2021	Analytical Batch:	462460
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel (SG)	0.037	0.10	ND	
TPH as Motor Oil (SG)	0.11	0.40	0.165	
Pentacosane (S)			66.7	

Work Order:	2112237	Prep Method:	TOC-W-P	Prep Date:	12/23/21	Prep Batch:	1138001
Matrix:	Water	Analytical Method:	A5310B	Analyzed Date:	12/23/2021	Analytical Batch:	462450
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TOC	0.40	2.0	ND	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2112237	Prep Method:	5030VOC	Prep Date:	12/21/21	Prep Batch:	1137889
Matrix:	Water	Analytical Method:	SW8260B	Analyzed Date:	12/21/2021	Analytical Batch:	462336
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.14	0.50	ND	17.9	95.1	93.7	1.78	61.4 - 129	30	
Benzene	0.16	0.50	ND	17.9	102	102	0.548	66.9 - 140	30	
Trichloroethylene	0.15	0.50	ND	17.9	97.3	98.4	1.14	69.3 - 144	30	
Toluene	0.14	0.50	ND	17.9	106	105	1.06	76.6 - 123	30	
Chlorobenzene	0.16	0.50	ND	17.9	99.6	101	1.12	73.9 - 137	30	
(S) Dibromofluoromethane				17.9	98.5	101		61.2 - 131		
(S) Toluene-d8				17.9	103	101		75.1 - 127		
(S) 4-Bromofluorobenzene				17.9	98.8	96.6		64.1 - 120		

Work Order:	2112237	Prep Method:	5030GRO	Prep Date:	12/21/21	Prep Batch:	1137890
Matrix:	Water	Analytical Method:	SW8260B	Analyzed Date:	12/21/2021	Analytical Batch:	462336
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH(Gasoline)	29	50	33	238	111	93.2	16.9	52.4 - 127	30	
(S) 4-Bromofluorobenzene				11.9	102	96.7		41.5 - 125		

Work Order:	2112237	Prep Method:	3510_TPH	Prep Date:	12/22/21	Prep Batch:	1137901
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/22/2021	Analytical Batch:	462384
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.037	0.10	ND	1.0	70.5	78.4	10.6	52 - 115	30	
Pentacosane (S)				200	92.5	91.3		59 - 129		



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2112237	Prep Method:	3510_BNASIM	Prep Date:	12/22/21	Prep Batch:	1137907
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/22/2021	Analytical Batch:	462453
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	0.45	3.6	ND	2.000	26.8	32.2	18.6	15 - 95	30	
2-Chlorophenol	0.45	3.6	ND	2.000	60.0	76.5	24.2	15 - 105	30	
1,4-Dichlorobenzene	0.45	3.6	ND	2.000	68.5	69.4	1.45	35 - 105	30	
N-nitroso-di-n-propylamine	0.90	3.6	ND	2.000	95.5	101	5.60	40 - 115	30	
1,2,4-Trichlorobenzene	0.45	3.6	ND	2.000	73.4	75.2	2.02	45 - 110	30	
4-Chloro-3-methylphenol	0.90	3.6	ND	2.000	70.2	82.9	17.0	15 - 110	30	
Acenaphthene	0.18	0.54	ND	2.000	84.8	86.6	18.6	45 - 110	30	
4-Nitrophenol	0.90	3.6	ND	2.000	71.7	87.9	20.7	15 - 140	30	
2,4-Dinitrotoluene	0.18	0.54	ND	2.000	91.8	93.0	1.08	40 - 115	30	
Pentachlorophenol	0.18	0.54	ND	2.000	106	117	9.40	15 - 120	30	
Pyrene	0.18	0.54	ND	2.000	94.9	93.8	1.06	45 - 125	30	
2-Fluorophenol (S)				1111	41.9	51.7		15 - 105		
Phenol-d6 (S)				1111	26.2	31.9		15 - 100		
Nitrobenzene-d5 (S)				555.6	89.7	89.0		30 - 100		
2-Fluorobiphenyl (S)				555.6	92.4	93.0		30 - 105		
2,4,6-Tribromophenol (S)				1111	114	120		15 - 125		
p-Terphenyl-d14 (S)				555.6	96.3	93.8		30 - 125		

Work Order:	2112237	Prep Method:	3510_TPH SG	Prep Date:	12/22/21	Prep Batch:	1137908
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/28/2021	Analytical Batch:	462460
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel (SG)	0.037	0.10	ND	1.0	61.0	61.3	0.491	42 - 115	30	
TPH as Motor Oil (SG)			0.165	200				40 - 129		

Work Order:	2112237	Prep Method:	TOC-W-P	Prep Date:	12/23/21	Prep Batch:	1138001
Matrix:	Water	Analytical Method:	A5310B	Analyzed Date:	12/23/2021	Analytical Batch:	462450
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TOC	0.40	2.0	ND	10	100	99.8	0.200	80 - 120	20	



Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit/Reporting Limit/Limit of Quantitation (PQL/RL/LOQ) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs/RLs/LODs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - mg/L and mg/Kg (equivalent to PPM - parts per million in liquid and solid), ug/L and ug/Kg (equivalent to PPB - parts per billion in liquid and solid), ug/m³ , mg/m³ , ppbv and ppmv (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), ug/Wipe (concentration found on the surface of a single Wipe usually taken over a 100cm ² surface)

LABORATORY QUALIFIERS

<p>B - Indicates when the analyte is found in the associated method or preparation blank</p> <p>D - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p>E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p>H- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p>J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p>NA - Not Analyzed</p> <p>N/A - Not Applicable</p> <p>ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.</p> <p>NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p>R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p>S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p>X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>



Sample Receipt Checklist

Client Name: Tetra Tech Inc (HI)

Date and Time Received: 12/18/2021 1:00:00PM

Project Name: HDOH Red Hill

Received By: Helena Ueng

Work Order No.: 2112237

Physically Logged By: Helena Ueng

Checklist Completed By: Helena Ueng

Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present? Yes
Chain of custody signed when relinquished and received? Yes
Chain of custody agrees with sample labels? Yes
Custody seals intact on sample bottles? Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler? Not Present
Shipping Container/Cooler In Good Condition? Yes
Samples in proper container/bottle? Yes
Samples containers intact? Yes
Sufficient sample volume for indicated test? Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes
Container/Temp Blank temperature in compliance? Yes Temperature: 4.0 °C
Water-VOA vials have zero headspace? Yes
Water-pH acceptable upon receipt? N/A
pH Checked by: N/A pH Adjusted by: N/A

Comments:



Login Summary Report

Client ID: TL5162 Tetra Tech Inc (HI)
Project Name: HDOH Red Hill
Project # : 103S518817512
Report Due Date: 12/28/2021

QC Level: II
TAT Requested: 5+ day:5
Date Received: 12/18/2021
Time Received: 1:00 pm

Comments:
Work Order # : **2112237**

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
2112237-001A	ERH2199 / RHMW11 (Zone 5)	12/16/21 11:40	Water	01/30/22			SVOC_W_SIMFull TPHDOSG_W_8015B TPHDO_W_8015B(M)	
<u>Sample Note:</u>	TPHd/o with & w/o sgc							
2112237-001B	ERH2199 / RHMW11 (Zone 5)	12/16/21 11:40	Water	01/30/22			TOC_5310B	
2112237-001C	ERH2199 / RHMW11 (Zone 5)	12/16/21 11:40	Water	01/30/22			VOC_W_8260B VOC_W_GRO	
<u>Sample Note:</u>	VOCs & TPHg (1 HCL voa & 2 N/P voas available per sample) *watch hold times!*							
2112237-001D	ERH2199 / RHMW11 (Zone 5)	12/16/21 11:40	Water	01/30/22			Sub_RSK-175	Yes



CHAIN-OF-CUSTODY RECORD

2112237



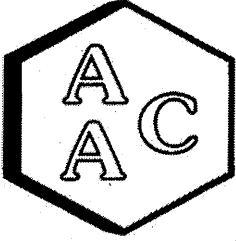
Client Name/Account #: TetraTech, Inc.
Address: 737 Bishop St., Suite 2340
City/State/Zip: Honolulu, HI 96813
Project Manager: Yvonne Parry
Telephone Number: (808)441-6617 Fax No.: (808) 836-1689
Sampler Name: (Print) Anay Shinde (split sampler)
Sampler Signature: Ashwin Shinde

Report To: Yvonne Parry
Invoice To: Yvonne Parry
Project ID: HDOH Red Hill
Project #:

Table with columns for Sample ID / Description, Date Sampled, Time Sampled, No. of Containers Shipped, Grab, Composite, Multi-incremental Sample, Preservative (Ice, HNO3, HCl, NaOH, H2SO4, None, Other), Matrix (Groundwater, Wastewater, Drinking Water, Sludge, Soil), Analyze For (TPH, TSS, VOC, etc.), RUSH TAT (Pre-Schedule Standard TAT). Includes handwritten entries and a signature.

Special Instructions: 3 preserved HCL VOAs, 2 unpreserved VOAs, 4x1 lit amber bottles.
Method of Shipment: FEDEX
Relinquished by: Anay Shinde (signature) Date: 12/16/21 Time: 05:30 (PM)
Received by: (signature) Date: 12/16/21 Time: 17:50
Relinquished by: (signature) Date: 12/17/21 Time: 11:00
Received by Laboratory: (signature) Date: 12/18/21 Time: 13:00

Laboratory Comments:
Temperature Upon Receipt:
VOCs Free of Headspace? Y N
Page 1 of 1



Atmospheric Analysis & Consulting, Inc.

CLIENT : Torrent Laboratory, Inc.
PROJECT NO. : CoC211220001
AAC PROJECT NO. : 212431
REPORT DATE : 01/06/2022

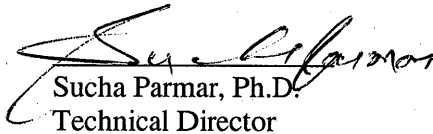
On December 21, 2021, Atmospheric Analysis & Consulting, Inc. received one (1) liquid sample for dissolved Methane analysis by EPA RSK-175. Upon receipt, the sample was assigned a unique Laboratory ID numbers as follows:

Client ID	Lab No.
2112237-001D	212431-26804

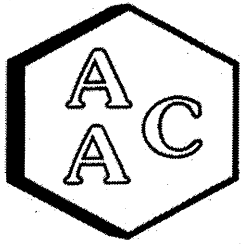
This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at www.aaclab.com.

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of this sample. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.


Sucha Parmar, Ph.D.
Technical Director

This report consists of 4 pages.



Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

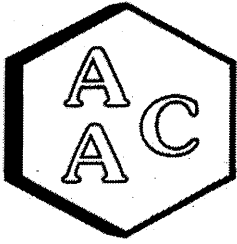
Client : Torrent Laboratory, Inc.
AAC Project No. : 212431
Matrix : Liquid
Units : ug/ml

Sampling Date : 12/16/2021
Receiving Date : 12/21/2021
Analysis Date : 12/22/2021
Report Date : 01/06/2022

EPA RSK-175

Client Sample ID	2112237-001D	Sample Reporting Limit
AAC ID	212431-26804	
Analyte	Result	
Methane	0.00018	0.00011

All samples were blank corrected for Methane using the Method Blank value.



Atmospheric Analysis & Consulting, Inc

Quality Control/Quality Assurance Report

Date Analyzed : 12/22/2021
 Analyst : DL/MR
 Units : ppmv

Instrument ID : FID #3
 Calb Date : 12/06/21
 Reporting Limit : 0.5 ppmv

I - Opening Continuing Calibration Verification - EPA RSK-175

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
CCV	Spike Conc	98.9	99.1	98.7	98.1	98.1	99.7
	Result	97.2	95.9	95.6	97.5	94.1	93.1
	% Rec *	98.3	96.8	96.8	99.4	95.9	93.4

II - Instrument Blank - EPA RSK-175

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
MB	Concentration	ND	ND	ND	ND	ND	ND

III - Laboratory Control Spike & Duplicate - EPA RSK-175

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0	0.0
	Spike Conc	98.9	99.1	98.7	98.1	98.1	99.7
	LCS Result	95.0	93.7	93.8	95.1	93.5	91.7
	LCSD Result	98.5	97.2	96.7	99.3	96.3	95.5
	LCS % Rec *	96.1	94.5	95.0	97.0	95.3	91.9
	LCSD % Rec *	99.7	98.0	98.0	101.2	98.1	95.7
	% RPD ***	3.6	3.6	3.1	4.3	2.9	4.0

IV - Sample & Sample Duplicate - EPA RSK-175

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
212047-25186	Sample	15.1	0.0	0.0	0.0	0.0	0.0
	Sample Dup	14.4	0.0	0.0	0.0	0.0	0.0
	Mean	14.8	0.0	0.0	0.0	0.0	0.0
	% RPD ***	5.1	0.0	0.0	0.0	0.0	0.0

V - Closing Continuing Calibration Verification - EPA RSK-175

AAC ID	Analyte	Methane	Ethane	Propane	Butane	Pentane	Hexane
CCV	Spike Conc	98.9	99.1	98.7	98.1	98.1	99.7
	Result	95.0	94.5	94.9	96.9	96.7	100.6
	% Rec *	96.1	95.3	96.1	98.8	98.6	100.8

* Must be 85-115%

** Must be 75-125%

*** Must be < 25%

ND = Not Detected

<RL = less than Reporting Limit



483 Sinclair Frontage Road
 Milpitas, CA 95035
 Phone: 408.263.5258
 FAX: 408.263.8293
 www.torrentlab.com

212 431

CHAIN OF CUSTODY

NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY

LAB WORK ORDER NO
 CoC211220001

Company Name: Torrent Laboratory, Inc.	Company Name: Atmospheric Analysis & Consulting, Inc.
Address: 483 Sinclair Frontage Road	Address: 1534 Eastman Avenue, Suite A
City: Milpitas State: CA	City: Ventura State: California
Telephone: 408.263.5258 FAX: 408.263.8293	Telephone: (805) 650-1642 FAX: 408.263.8293
Contact: Kathie Evans	Contact Name: Sample Receiving
Contact Email: Report to: pm@torrentlaboratory.com; Bill to: ap@torrentlaboratory.com	Special Instructions/Comments: Please analyze for Methane (RSK-175) on a standard TAT. Thanks! *HCL-preserved vials*
	P.O. #: 2112237 EMAIL:

TURNAROUND TIME:

10 Work Days 3 Work Days Noon-Nxt Day
 7 Work Days 2 Work Days 2 - 8 Hours
 5 Work Days 1 Work Days Other

SAMPLE TYPE: Water

REPORT FORMAT:

QC Level IV
 EDF
 Excel/EDD

ANALYSIS REQUESTED

Sub_RSK-175
 (CH4 only)

REMARKS

LAB ID	CLIENT'S SAMPLE I.D.	DATE/TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	RECEIVED BY:	DATE:	TIME:
26804	2112237-001D	12/16/2021/11:40	Water	2	HCL VDA	ASL	12/16/21	1526

Were Samples Received in Good Condition? YES NO

Samples on Ice? YES NO

Method of Shipment _____

Sample seals intact? YES NO N/A

Relinquished By: *ASL* Date: *12/16/21* Time: *1526*

Relinquished By: *ASL* Date: *12/16/21* Time: *1526*