

Exhibit D37



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.: 2112083

Dear Yvonne Parry:

Torrent Laboratory, Inc. received 2 sample(s) on December 08, 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.

A handwritten signature in blue ink that reads "Kathie Evans". The signature is written in a cursive, flowing style.

Kathie Evans
Project Manager

December 10, 2021

Date



Date: 12/10/2021

Client: Tetra Tech Inc (HI)

Project: HDOH Red Hill

Work Order: 2112083

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.

No 2-(2-butoxyethoxy)ethanol was found by TIC in any of the samples.

Analytical comments for Method 8270SIM, Although the Method Blank associated with QC Batch ID 1137555 had a reportable level of several phthalates, no batch associated field samples had detectable levels of phthalates present. No corrective action is required.



Sample Result Summary

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

Date Received: 12/08/21

Date Reported: 12/10/21

32/Red Hill Upper Storage Tank

2112083-001

<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	16.7	mg/L

33/Red Hill Shaft (aqueous)

2112083-002

<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	55.6	mg/L
TPH as Diesel	SW8015B	50	1.9	5.3	88.2	mg/L
TPH as Diesel (SG)	SW8015B	50	1.9	5.3	49.6	mg/L
Naphthalene	SW8270	1	0.189	0.57	58.6	ug/L
2-Methylnaphthalene	SW8270	1	0.947	3.8	93.8	ug/L
1-Methylnaphthalene	SW8270	1	0.474	3.8	176	ug/L
Dibenzofuran	SW8270	1	0.189	0.57	1.83	ug/L

33/Red Hill Shaft (product)

2112083-003

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Total Organic Carbon	A5310B	1	40	400	608000	mg/Kg
TPH as Diesel	SW8015B	40	27000	64000	1000000	mg/Kg
TPH as Diesel (SG)	SW8015B	40	27000	64000	987000	mg/Kg
Naphthalene	SW8270C	100	37	230	1440	mg/Kg
Isophorone	SW8270C	100	32	230	647	mg/Kg
2-Methylnaphthalene	SW8270C	100	41	230	3960	mg/Kg
1-Methylnaphthalene	SW8270C	100	44	230	2760	mg/Kg
Acenaphthene	SW8270C	100	32	230	76.3	mg/Kg
Fluoranthene	SW8270C	100	0.032	230	4.06	mg/Kg



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	32/Red Hill Upper Storage Tank	Lab Sample ID:	2112083-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 15:28		
SDG:			

Prep Method:	3510_BNASIM	Prep Batch Date/Time:	12/9/21 10:50:00AM
Prep Batch ID:	1137555	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Pyridine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
N-Nitrosodimethylamine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Aniline	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Phenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Bis(2-chloroethyl) ether	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2-Chlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,3-Dichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,4-Dichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Benzyl Alcohol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,2-Dichlorobenzene	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2-Methylphenol (o-Cresol)	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Bis(2-chloroisopropyl)ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
3-/4-Methylphenol (p-/m-Cresol)	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
N-nitroso-di-n-propylamine	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Hexachloroethane	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Nitrobenzene	SW8270	1	0.947	19	ND		ug/L	12/09/21	15:27	TA	462110
Isophorone	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2-Nitrophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,4-Dimethylphenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Benzoic Acid	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Bis(2-Chloroethoxy)methane	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,4-Dichlorophenol	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,2,4-Trichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,6-Dichlorophenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Naphthalene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
4-Chloroaniline	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Hexachloro-1,3-butadiene	SW8270	1	0.474	19	ND		ug/L	12/09/21	15:27	TA	462110
4-Chloro-3-methylphenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2-Methylnaphthalene	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1-Methylnaphthalene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Hexachlorocyclopentadiene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,4,6-Trichlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,4,5-Trichlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2-Chloronaphthalene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
2-Nitroaniline	SW8270	1	0.947	9.5	ND		ug/L	12/09/21	15:27	TA	462110
1,4-Dinitrobenzene	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Dimethyl phthalate	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,3-Dinitrobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Acenaphthylene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID: 32/Red Hill Upper Storage Tank
Project Name/Location: HDOH Red Hill
Project Number:
Date/Time Sampled: 12/05/21 / 15:28
SDG:

Lab Sample ID: 2112083-001A
Sample Matrix: Water

Prep Method: 3510_BNASIM
Prep Batch ID: 1137555

Prep Batch Date/Time: 12/9/21 10:50:00AM
Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,6-Dinitrotoluene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
1,2-Dinitrobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
3-Nitroaniline	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Acenaphthene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,4-Dinitrophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
4-Nitrophenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Dibenzofuran	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
2,4-Dinitrotoluene	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,3,5,6-Tetrachlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
2,3,4,6-Tetrachlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Diethylphthalate	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Fluorene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
4-Chlorophenyl phenyl ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
4-Nitroaniline	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
4,6-Dinitro-2-methylphenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Diphenylamine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Azobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
4-Bromophenyl phenyl ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Hexachlorobenzene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Pentachlorophenol	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Phenanthrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Carbazole	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Di-n-butylphthalate	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Benzidine	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Benzyl butyl phthalate	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Benz[a]anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
3,3-Dichlorobenzidine	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Chrysene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Bis(2-Ethylhexyl)phthalate	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Di-n-octyl phthalate	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:27	TA	462110
Benzo[b]fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Benzo[k]fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Benzo[a]pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Indeno[1,2,3-cd]pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Dibenz[a,h]anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110
Carbazol[e,g,h,i]perylene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:27	TA	462110



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	32/Red Hill Upper Storage Tank	Lab Sample ID:	2112083-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 15:28		
SDG:			

Prep Method:	3510_BNASIM	Prep Batch Date/Time:	12/9/21 10:50:00AM
Prep Batch ID:	1137555	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Acceptance Limits											
2-Fluorophenol (S)	SW8270		15 - 105		35.8		%	12/09/21	15:27	TA	462110
Phenol-d6 (S)	SW8270		15 - 100		7.49	S	%	12/09/21	15:27	TA	462110
Nitrobenzene-d5 (S)	SW8270		30 - 100		60.8		%	12/09/21	15:27	TA	462110
2-Fluorobiphenyl (S)	SW8270		30 - 105		60.4		%	12/09/21	15:27	TA	462110
2,4,6-Tribromophenol (S)	SW8270		15 - 125		38.9		%	12/09/21	15:27	TA	462110
p-Terphenyl-d14 (S)	SW8270		30 - 125		96.6		%	12/09/21	15:27	TA	462110

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: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	32/Red Hill Upper Storage Tank	Lab Sample ID:	2112083-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 15:28		
SDG:			

Prep Method:	3510_TPH	Prep Batch Date/Time:	12/9/21	11:01:00AM
Prep Batch ID:	1137557	Prep Analyst:	AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	1	0.039	0.11	ND		mg/L	12/09/21	15:46		462092
TPH as Motor Oil	SW8015B	1	0.12	0.42	ND		mg/L	12/09/21	15:46		462092
			Acceptance Limits								
Pentacosane (S)	SW8015B		59 - 129		91.4		%	12/09/21	15:46		462092



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	32/Red Hill Upper Storage Tank	Lab Sample ID:	2112083-001A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 15:28		
SDG:			

Prep Method:	3510_TPH SG	Prep Batch Date/Time:	12/9/21 1:48:00PM
Prep Batch ID:	1137566	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel (SG)	SW8015B	1	0.039	0.11	ND		mg/L	12/10/21	11:12	SN	462095
TPH as Motor Oil (SG)	SW8015B	1	0.12	0.42	ND		mg/L	12/10/21	11:12	SN	462095
			Acceptance Limits								
Pentacosane (S)	SW8015B		40 - 129		94.0		%	12/10/21	11:12	SN	462095



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	32/Red Hill Upper Storage Tank	Lab Sample ID:	2112083-001B
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 15:28		
SDG:			

Prep Method:	TOC-W-P	Prep Batch Date/Time:	12/9/21	4:12:00PM
Prep Batch ID:	1137614	Prep Analyst:	BJAY	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TOC	A5310B	1	0.40	2.0	16.7		mg/L	12/09/21	16:12	BJAY	462097



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (aqueous)	Lab Sample ID:	2112083-002A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method: 3510_BNASIM	Prep Batch Date/Time: 12/9/21 10:50:00AM
Prep Batch ID: 1137555	Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Pyridine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
N-Nitrosdimethylamine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Aniline	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Phenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Bis(2-chloroethyl) ether	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2-Chlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,3-Dichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,4-Dichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Benzyl Alcohol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,2-Dichlorobenzene	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2-Methylphenol (o-Cresol)	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Bis(2-chloroisopropyl)ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
3-/4-Methylphenol (p-/m-Cresol)	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
N-nitroso-di-n-propylamine	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Hexachloroethane	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Nitrobenzene	SW8270	1	0.947	19	ND		ug/L	12/09/21	15:58	TA	462110
Isophorone	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2-Nitrophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,4-Dimethylphenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Benzoic Acid	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Bis(2-Chloroethoxy)methane	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,4-Dichlorophenol	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,2,4-Trichlorobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,6-Dichlorophenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Naphthalene	SW8270	1	0.189	0.57	58.6		ug/L	12/09/21	15:58	TA	462110
4-Chloroaniline	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Hexachloro-1,3-butadiene	SW8270	1	0.474	19	ND		ug/L	12/09/21	15:58	TA	462110
4-Chloro-3-methylphenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2-Methylnaphthalene	SW8270	1	0.947	3.8	93.8		ug/L	12/09/21	15:58	TA	462110
1-Methylnaphthalene	SW8270	1	0.474	3.8	176		ug/L	12/09/21	15:58	TA	462110
Hexachlorocyclopentadiene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,4,6-Trichlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,4,5-Trichlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2-Chloronaphthalene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
2-Nitroaniline	SW8270	1	0.947	9.5	ND		ug/L	12/09/21	15:58	TA	462110
1,4-Dinitrobenzene	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Dimethyl phthalate	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,3-Dinitrobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Acenaphthylene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am

Date Reported: 12/10/21

Client Sample ID: 33/Red Hill Shaft (aqueous)
Project Name/Location: HDOH Red Hill
Project Number:
Date/Time Sampled: 12/05/21 / 14:00
SDG:

Lab Sample ID: 2112083-002A
Sample Matrix: Water

Prep Method: 3510_BNASIM
Prep Batch ID: 1137555

Prep Batch Date/Time: 12/9/21 10:50:00AM
Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,6-Dinitrotoluene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
1,2-Dinitrobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
3-Nitroaniline	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Acenaphthene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,4-Dinitrophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
4-Nitrophenol	SW8270	1	0.947	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Dibenzofuran	SW8270	1	0.189	0.57	1.83		ug/L	12/09/21	15:58	TA	462110
2,4-Dinitrotoluene	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,3,5,6-Tetrachlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
2,3,4,6-Tetrachlorophenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Diethylphthalate	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Fluorene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
4-Chlorophenyl phenyl ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
4-Nitroaniline	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
4,6-Dinitro-2-methylphenol	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Diphenylamine	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Azobenzene	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
4-Bromophenyl phenyl ether	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Hexachlorobenzene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Pentachlorophenol	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Phenanthrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Carbazole	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Di-n-butylphthalate	SW8270	1	0.474	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Benzidine	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Benzyl butyl phthalate	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Benz[a]anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
3,3-Dichlorobenzidine	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Chrysene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Bis(2-Ethylhexyl)phthalate	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Di-n-octyl phthalate	SW8270	1	0.189	3.8	ND		ug/L	12/09/21	15:58	TA	462110
Benzo[b]fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Benzo[k]fluoranthene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Benzo[a]pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Indeno[1,2,3-cd]pyrene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Dibenz[a,h]anthracene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110
Carbazol[g,h,i]perylene	SW8270	1	0.189	0.57	ND		ug/L	12/09/21	15:58	TA	462110



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID: 33/Red Hill Shaft (aqueous)
Project Name/Location: HDOH Red Hill
Project Number:
Date/Time Sampled: 12/05/21 / 14:00
SDG:

Lab Sample ID: 2112083-002A
Sample Matrix: Water

Prep Method: 3510_BNASIM
Prep Batch ID: 1137555

Prep Batch Date/Time: 12/9/21 10:50:00AM
Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Acceptance Limits											
2-Fluorophenol (S)	SW8270		15 - 105		34.7		%	12/09/21	15:58	TA	462110
Phenol-d6 (S)	SW8270		15 - 100		34.6		%	12/09/21	15:58	TA	462110
Nitrobenzene-d5 (S)	SW8270		30 - 100		0.000	S	%	12/09/21	15:58	TA	462110
2-Fluorobiphenyl (S)	SW8270		30 - 105		84.3		%	12/09/21	15:58	TA	462110
2,4,6-Tribromophenol (S)	SW8270		15 - 125		0.000	S	%	12/09/21	15:58	TA	462110
p-Terphenyl-d14 (S)	SW8270		30 - 125		77.6		%	12/09/21	15:58	TA	462110

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: 12/08/21, 10:33 am

Date Reported: 12/10/21

Client Sample ID: 33/Red Hill Shaft (aqueous)
Project Name/Location: HDOH Red Hill
Project Number:
Date/Time Sampled: 12/05/21 / 14:00
SDG:

Lab Sample ID: 2112083-002A
Sample Matrix: Water

Prep Method: 3510_TPH
Prep Batch ID: 1137557

Prep Batch Date/Time: 12/9/21 11:01:00AM
Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	50	1.9	5.3	88.2	x	mg/L	12/09/21	16:33		462092
TPH as Motor Oil	SW8015B	50	5.9	21	ND		mg/L	12/09/21	16:33		462092
Acceptance Limits											
Pentacosane (S)	SW8015B		59 - 129		0.000	D	%	12/09/21	16:33		462092

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range slightly lighter than diesel quantified as diesel (possibly other type of fuel).



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (aqueous)	Lab Sample ID:	2112083-002A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3510_TPH SG	Prep Batch Date/Time:	12/9/21 1:48:00PM
Prep Batch ID:	1137566	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel (SG)	SW8015B	50	1.9	5.3	49.6	x	mg/L	12/10/21	11:36	SN	462095
TPH as Motor Oil (SG)	SW8015B	50	5.9	21	ND		mg/L	12/10/21	11:36	SN	462095
Acceptance Limits											
Pentacosane (S)	SW8015B		40 - 129		0.000	D	%	12/10/21	11:36	SN	462095

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range slightly lighter than diesel quantified as diesel (possibly other type of fuel).



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (aqueous)	Lab Sample ID:	2112083-002B
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Water
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	TOC-W-P	Prep Batch Date/Time:	12/9/21	4:12:00PM
Prep Batch ID:	1137614	Prep Analyst:	BJAY	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TOC	A5310B	1	0.40	2.0	55.6		mg/L	12/09/21	16:12	BJAY	462097



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3546-BNASIM	Prep Batch Date/Time:	12/9/21 7:35:00PM
Prep Batch ID:	1137618	Prep Analyst:	TOMA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
-------------	-----------------	----	-----	-----	---------	---	-------	----------	------	----	------------------

The results shown below are reported using their MDL.

N-Nitrosodimethylamine	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Phenol	SW8270C	100	51	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Bis(2-chloroethyl) ether	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2-Chlorophenol	SW8270C	100	29	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,3-Dichlorobenzene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,4-Dichlorobenzene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,2-Dichlorobenzene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2-Methylphenol (o-Cresol)	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Bis(2-chloroisopropyl)ether	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
3-/4-Methylphenol (p-/m-Cresol)	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
NMP	SW8270C	100	32	922	ND		mg/Kg	12/09/21	21:09	TA	462111
Hexachloroethane	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Nitrobenzene	SW8270C	100	14	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2-Nitrophenol	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,4-Dimethylphenol	SW8270C	100	35	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Bis(2-Chloroethoxy)methane	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,4-Dichlorophenol	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,2,4-Trichlorobenzene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Naphthalene	SW8270C	100	37	230	1440		mg/Kg	12/09/21	21:09	TA	462111
Isophorone	SW8270C	100	32	230	647		mg/Kg	12/09/21	21:09	TA	462111
2,6-Dichlorophenol	SW8270C	100	45	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Hexachloro-1,3-butadiene	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
4-Chloro-3-methylphenol	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2-Methylnaphthalene	SW8270C	100	41	230	3960		mg/Kg	12/09/21	21:09	TA	462111
1-Methylnaphthalene	SW8270C	100	44	230	2760		mg/Kg	12/09/21	21:09	TA	462111
2,4,6-Trichlorophenol	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,4,5-Trichlorophenol	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2-Chloronaphthalene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,4-Dinitrobenzene	SW8270C	100	25	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Dimethyl phthalate	SW8270C	100	32	461	ND		mg/Kg	12/09/21	21:09	TA	462111
1,3-Dinitrobenzene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Acenaphthylene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,6-Dinitrotoluene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
1,2-Dinitrobenzene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Acenaphthene	SW8270C	100	32	230	76.3	J	mg/Kg	12/09/21	21:09	TA	462111
Dibenzofuran	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,4-Dinitrotoluene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,3,5,6-Tetrachlorophenol	SW8270C	100	37	230	ND		mg/Kg	12/09/21	21:09	TA	462111



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3546-BNASIM	Prep Batch Date/Time:	12/9/21 7:35:00PM
Prep Batch ID:	1137618	Prep Analyst:	TOMA

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
-------------	-----------------	----	-----	-----	---------	---	-------	----------	------	----	------------------

The results shown below are reported using their MDL.

2,3,4,6-Tetrachlorophenol	SW8270C	100	37	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Diethylphthalate	SW8270C	100	32	461	ND		mg/Kg	12/09/21	21:09	TA	462111
Fluorene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
4-Chlorophenyl phenyl ether	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
4-Bromophenyl phenyl ether	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Hexachlorobenzene	SW8270C	100	46	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Pentachlorophenol	SW8270C	100	46	461	ND		mg/Kg	12/09/21	21:09	TA	462111
Phenanthrene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Anthracene	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Carbazole	SW8270C	100	37	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Di-n-butylphthalate	SW8270C	100	37	461	ND		mg/Kg	12/09/21	21:09	TA	462111
Fluoranthene	SW8270C	100	0.032	230	4.06	J	mg/Kg	12/09/21	21:09	TA	462111
Pyrene	SW8270C	100	32	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzyl butyl phthalate	SW8270C	100	28	461	ND		mg/Kg	12/09/21	21:09	TA	462111
Benz[a]anthracene	SW8270C	100	37	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Chrysene	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Bis(2-Ethylhexyl)phthalate	SW8270C	100	32	922	ND		mg/Kg	12/09/21	21:09	TA	462111
Di-n-octyl phthalate	SW8270C	100	23	461	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzo[b]fluoranthene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzo[k]fluoranthene	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzo[a]pyrene	SW8270C	100	51	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Indeno[1,2,3-cd]pyrene	SW8270C	100	120	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Dibenz[a,h]anthracene	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzo[g,h,i]perylene	SW8270C	100	37	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Pyridine	SW8270C	100	41	230	ND		mg/Kg	12/09/21	21:09	TA	462111
3,3-Dichlorobenzidine	SW8270C	100	74	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Benzyl Alcohol	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111
4-Nitrophenol	SW8270C	100	14	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Hexachlorocyclopentadiene	SW8270C	100	51	230	ND		mg/Kg	12/09/21	21:09	TA	462111
2,4-Dinitrophenol	SW8270C	100	28	230	ND	J	mg/Kg	12/09/21	21:09	TA	462111
4,6-Dinitro-2-methylphenol	SW8270C	100	51	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Diphenylamine	SW8270C	100	46	230	ND		mg/Kg	12/09/21	21:09	TA	462111
Azobenzene	SW8270C	100	28	230	ND		mg/Kg	12/09/21	21:09	TA	462111

Acceptance Limits

2-Fluorophenol (S)	SW8270C		25 - 125	0.000	D	%	12/09/21	21:09	TA	462111
Phenol-d6 (S)	SW8270C		25 - 125	0.000	D	%	12/09/21	21:09	TA	462111
Nitrobenzene-d5 (S)	SW8270C		35 - 125	0.000	D	%	12/09/21	21:09	TA	462111
2-Fluorobiphenyl (S)	SW8270C		35 - 125	0.000	D	%	12/09/21	21:09	TA	462111



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3546-BNASIM	Prep Batch Date/Time:	12/9/21	7:35:00PM
Prep Batch ID:	1137618	Prep Analyst:	TOMA	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
-------------	-----------------	----	-----	-----	---------	---	-------	----------	------	----	------------------

The results shown below are reported using their MDL.

2,4,6-Tribromophenol (S)	SW8270C	25 - 125	0.000	D	%	12/09/21	21:09	TA	462111
p-Terphenyl-d14 (S)	SW8270C	35 - 125	0.000	D	%	12/09/21	21:09	TA	462111

NOTE: Sample diluted due to nature of the matrix (oily & viscous extract)



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	TOC-S-P	Prep Batch Date/Time:	12/10/21	12:05:00PM
Prep Batch ID:	1137612	Prep Analyst:	BJAY	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Total Organic Carbon	A5310B	1	40	400	608000		mg/Kg	12/10/21	12:05	BJAY	462096



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3546_TPH	Prep Batch Date/Time:	12/9/21 12:57:00PM
Prep Batch ID:	1137563	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	40	27000	64000	1000000	x	mg/Kg	12/09/21	18:41	SN	462098
TPH as Motor Oil	SW8015B	40	100000	320000	ND		mg/Kg	12/09/21	18:41	SN	462098
Acceptance Limits											
Pentacosane (S)	SW8015B		45 - 130		0.000	D	%	12/09/21	18:41	SN	462098

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.(possibly other type of fuel)



SAMPLE RESULTS

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

Date/Time Received: 12/08/21, 10:33 am
Date Reported: 12/10/21

Client Sample ID:	33/Red Hill Shaft (product)	Lab Sample ID:	2112083-003A
Project Name/Location:	HDOH Red Hill	Sample Matrix:	Product
Project Number:			
Date/Time Sampled:	12/05/21 / 14:00		
SDG:			

Prep Method:	3546_TPHSG	Prep Batch Date/Time:	12/9/21 1:53:00PM
Prep Batch ID:	1137567	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel (SG)	SW8015B	40	27000	64000	987000		mg/Kg	12/10/21	11:50	SN	462106
TPH as Motor Oil (SG)	SW8015B	40	100000	320000	ND		mg/Kg	12/10/21	11:50	SN	462106
Acceptance Limits											
Pentacosane (S)	SW8015B		40 - 129		0.000	D	%	12/10/21	11:50	SN	462106

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics within diesel range lighter than diesel quantified as diesel.(possibly other type of fuel)



MB Summary Report

Work Order:	2112083	Prep Method:	3510_BNASIM	Prep Date:	12/09/21	Prep Batch:	1137555
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/9/2021	Analytical Batch:	462110
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Pyridine	0.00045	0.0036	ND	
N-Nitrosodimethylamine	0.00045	0.0036	ND	
Aniline	0.00090	0.0036	ND	
Phenol	0.00045	0.0036	ND	
Bis(2-chloroethyl) ether	0.00090	0.0036	ND	
2-Chlorophenol	0.00045	0.0036	ND	
1,3-Dichlorobenzene	0.00045	0.0036	ND	
1,4-Dichlorobenzene	0.00045	0.0036	ND	
Benzyl Alcohol	0.00090	0.0036	ND	
1,2-Dichlorobenzene	0.00090	0.0036	ND	
2-Methylphenol (o-Cresol)	0.00090	0.0036	ND	
Bis(2-chloroisopropyl)ether	0.00045	0.0036	ND	
3-/4-Methylphenol (p-/m-Cresol)	0.00045	0.0036	ND	
N-nitroso-di-n-propylamine	0.00090	0.0036	ND	
Hexachloroethane	0.00045	0.0036	ND	
Nitrobenzene	0.00090	0.018	ND	
Isophorone	0.00090	0.0036	ND	
2-Nitrophenol	0.00045	0.0036	ND	
2,4-Dimethylphenol	0.00090	0.0036	ND	
Benzoic Acid	0.00045	0.0036	ND	
Bis(2-Chloroethoxy)methane	0.00090	0.0036	ND	
2,4-Dichlorophenol	0.00018	0.00054	ND	
1,2,4-Trichlorobenzene	0.00045	0.0036	ND	
2,6-Dichlorophenol	0.00090	0.0036	ND	
Naphthalene	0.00018	0.00054	ND	
4-Chloroaniline	0.00018	0.00054	ND	
Hexachloro-1,3-butadiene	0.00045	0.018	ND	
4-Chloro-3-methylphenol	0.00090	0.0036	ND	
2-Methylnaphthalene	0.00090	0.0036	ND	
1-Methylnaphthalene	0.00045	0.0036	ND	
Hexachlorocyclopentadiene	0.00045	0.0036	ND	
2,4,6-Trichlorophenol	0.00018	0.00054	ND	
2,4,5-Trichlorophenol	0.00045	0.0036	ND	
2-Chloronaphthalene	0.00018	0.00054	ND	
2-Nitroaniline	0.00090	0.0090	ND	
1,4-Dinitrobenzene	0.00090	0.0036	ND	
Dimethyl phthalate	0.00090	0.0036	ND	
1,3-Dinitrobenzene	0.00045	0.0036	ND	
Acenaphthylene	0.00018	0.00054	ND	
2,6-Dinitrotoluene	0.00045	0.0036	ND	
1,2-Dinitrobenzene	0.00045	0.0036	ND	
3-Nitroaniline	0.00045	0.0036	ND	
Acenaphthene	0.00045	0.0036	ND	
2,4-Dinitrophenol	0.00045	0.0036	ND	
4-Nitrophenol	0.00090	0.0036	ND	



MB Summary Report

Work Order:	2112083	Prep Method:	3510_BNASIM	Prep Date:	12/09/21	Prep Batch:	1137555
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/9/2021	Analytical Batch:	462110
Units:	ug/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Dibenzofuran	0.00018	0.00054	ND		
2,4-Dinitrotoluene	0.00018	0.00054	ND		
2,3,5,6-Tetrachlorophenol	0.00045	0.0036	ND		
2,3,4,6-Tetrachlorophenol	0.00018	0.00054	ND		
Diethylphthalate	0.00018	0.00054	0.0697	B	
Fluorene	0.00045	0.0036	ND		
4-Chlorophenyl phenyl ether	0.00018	0.00054	ND		
4-Nitroaniline	0.00045	0.0036	ND		
4,6-Dinitro-2-methylphenol	0.00018	0.00054	ND		
Diphenylamine	0.00045	0.0036	ND		
Azobenzene	0.00045	0.0036	ND		
4-Bromophenyl phenyl ether	0.00018	0.00054	ND		
Hexachlorobenzene	0.00018	0.00054	ND		
Pentachlorophenol	0.00018	0.00054	ND		
Phenanthrene	0.00018	0.00054	ND		
Anthracene	0.00018	0.00054	ND		
Carbazole	0.00018	0.00054	ND		
Di-n-butylphthalate	0.00018	0.00054	0.286	B	
Fluoranthene	0.00018	0.00054	ND		
Benzidine	0.00018	0.00054	ND		
Pyrene	0.00018	0.00054	ND		
Benzyl butyl phthalate	0.00018	0.00054	0.0748	B	
Benz[a]anthracene	0.00018	0.00054	ND		
3,3-Dichlorobenzidine	0.00018	0.00054	ND		
Chrysene	0.00018	0.00054	ND		
Bis(2-Ethylhexyl)phthalate	0.00018	0.0036	ND		
Di-n-octyl phthalate	0.00018	0.0036	ND		
Benzo[b]fluoranthene	0.00018	0.00054	ND		
Benzo[k]fluoranthene	0.00018	0.00054	ND		
Benzo[a]pyrene	0.00018	0.00054	ND		
Indeno[1,2,3-cd]pyrene	0.00018	0.00054	ND		
Dibenz[a,h]anthracene	0.00018	0.00054	ND		
Benzo[g,h,i]perylene	0.00018	0.00054	ND		
2-Fluorophenol (S)			35.4		
Phenol-d6 (S)			22.4		
Nitrobenzene-d5 (S)			63.7		
2-Fluorobiphenyl (S)			64.1		
2,4,6-Tribromophenol (S)			60.9		
p-Terphenyl-d14 (S)			109		



MB Summary Report

Work Order:	2112083	Prep Method:	3510_TPH	Prep Date:	12/09/21	Prep Batch:	1137557
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/9/2021	Analytical Batch:	462092
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	0.130		
Pentacosane (S)			92.6		

Work Order:	2112083	Prep Method:	3546_TPH	Prep Date:	12/09/21	Prep Batch:	1137563
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	12/9/2021	Analytical Batch:	462098
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH as Diesel	680	1600	ND		
TPH as Motor Oil	2500	8000	ND		
Pentacosane (S)			92.0	D	

Work Order:	2112083	Prep Method:	3510_TPH SG	Prep Date:	12/09/21	Prep Batch:	1137566
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/10/2021	Analytical Batch:	462095
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	0.137		
Pentacosane (S)			95.4		

Work Order:	2112083	Prep Method:	3546_TPHSG	Prep Date:	12/09/21	Prep Batch:	1137567
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	12/10/2021	Analytical Batch:	462106
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH as Diesel (SG)	680	1600	ND		
TPH as Motor Oil (SG)	2500	8000	ND		
Pentacosane (S)			93.3		



MB Summary Report

Work Order:	2112083	Prep Method:	TOC-S-P	Prep Date:	12/10/21	Prep Batch:	1137612
Matrix:	Soil	Analytical Method:	A5310B	Analyzed Date:	12/10/2021	Analytical Batch:	462096
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Total Organic Carbon	20	200	ND		

Work Order:	2112083	Prep Method:	TOC-W-P	Prep Date:	12/09/21	Prep Batch:	1137614
Matrix:	Water	Analytical Method:	A5310B	Analyzed Date:	12/9/2021	Analytical Batch:	462097
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TOC	0.40	2.0	0.41		



MB Summary Report

Work Order:	2112083	Prep Method:	3546-BNASIM	Prep Date:	12/09/21	Prep Batch:	1137618
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	12/9/2021	Analytical Batch:	462111
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
N-Nitrosodimethylamine	0.32	2.3	ND	
Phenol	0.51	2.3	ND	
Bis(2-chloroethyl) ether	0.32	2.3	ND	
2-Chlorophenol	0.28	2.3	ND	
1,3-Dichlorobenzene	0.32	2.3	ND	
1,4-Dichlorobenzene	0.28	2.3	ND	
1,2-Dichlorobenzene	0.32	2.3	ND	
2-Methylphenol (o-Cresol)	0.28	2.3	ND	
Bis(2-chloroisopropyl)ether	0.28	2.3	ND	
3-/4-Methylphenol (p-/m-Cresol)	0.28	2.3	ND	
NMP	0.32	9.2	ND	
Hexachloroethane	0.32	2.3	ND	
Nitrobenzene	0.14	2.3	ND	
2-Nitrophenol	0.28	2.3	ND	
2,4-Dimethylphenol	0.37	2.3	ND	
Bis(2-Chloroethoxy)methane	0.32	2.3	ND	
2,4-Dichlorophenol	0.32	2.3	ND	
1,2,4-Trichlorobenzene	0.32	2.3	ND	
Naphthalene	0.37	2.3	ND	
Isophorone	0.32	2.3	ND	
2,6-Dichlorophenol	0.46	2.3	ND	
Hexachloro-1,3-butadiene	0.41	2.3	ND	
4-Chloro-3-methylphenol	0.32	2.3	ND	
2-Methylnaphthalene	0.41	2.3	ND	
1-Methylnaphthalene	0.46	2.3	ND	
2,4,6-Trichlorophenol	0.32	2.3	ND	
2,4,5-Trichlorophenol	0.28	2.3	ND	
2-Chloronaphthalene	0.32	2.3	ND	
1,4-Dinitrobenzene	0.28	2.3	ND	
Dimethyl phthalate	0.32	4.6	ND	
1,3-Dinitrobenzene	0.28	2.3	ND	
Acenaphthylene	0.32	2.3	ND	
2,6-Dinitrotoluene	0.28	2.3	ND	
1,2-Dinitrobenzene	0.28	2.3	ND	
Acenaphthene	0.32	2.3	ND	
Dibenzofuran	0.32	2.3	ND	
2,4-Dinitrotoluene	0.28	2.3	ND	
2,3,5,6-Tetrachlorophenol	0.37	2.3	ND	
2,3,4,6-Tetrachlorophenol	0.37	2.3	ND	
Diethylphthalate	0.32	4.6	ND	
Fluorene	0.32	2.3	ND	
4-Chlorophenyl phenyl ether	0.32	2.3	ND	
4-Bromophenyl phenyl ether	0.32	2.3	ND	
Hexachlorobenzene	0.46	2.3	ND	
Pentachlorophenol	0.46	2.3	ND	



MB Summary Report

Work Order:	2112083	Prep Method:	3546-BNASIM	Prep Date:	12/09/21	Prep Batch:	1137618
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	12/9/2021	Analytical Batch:	462111
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Phenanthrene	0.32	2.3	ND	
Anthracene	0.41	2.3	ND	
Carbazole	0.37	2.3	ND	
Di-n-butylphthalate	0.37	4.6	ND	
Fluoranthene	0.32	2.3	ND	
Pyrene	0.37	2.3	ND	
Benzyl butyl phthalate	0.28	4.6	ND	
Benz[a]anthracene	0.37	2.3	ND	
Chrysene	0.41	2.3	ND	
Bis(2-Ethylhexyl)phthalate	0.32	9.2	ND	
Di-n-octyl phthalate	0.23	4.6	ND	
Benzo[b]fluoranthene	0.28	2.3	ND	
Benzo[k]fluoranthene	0.41	2.3	ND	
Benzo[a]pyrene	0.51	2.3	ND	
Indeno[1,2,3-cd]pyrene	1.2	2.3	ND	
Dibenz[a,h]anthracene	0.41	2.3	ND	
Benzo[g,h,i]perylene	0.37	2.3	ND	
Pyridine	0.41	2.3	ND	
3,3-Dichlorobenzidine	0.74	2.3	ND	
Benzyl Alcohol	0.28	2.3	ND	
4-Nitrophenol	0.14	2.3	ND	
Hexachlorocyclopentadiene	0.51	2.3	ND	
2,4-Dinitrophenol	0.28	2.3	ND	
4,6-Dinitro-2-methylphenol	0.51	2.3	ND	
Diphenylamine	0.32	2.3	ND	
Azobenzene	0.28	2.3	ND	
2-Fluorophenol (S)			109	
Phenol-d6 (S)			104	
Nitrobenzene-d5 (S)			101	
2-Fluorobiphenyl (S)			96.1	
2,4,6-Tribromophenol (S)			53.0	
p-Terphenyl-d14 (S)			109	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2112083	Prep Method:	3510_BNASIM	Prep Date:	12/09/21	Prep Batch:	1137555
Matrix:	Water	Analytical Method:	SW8270	Analyzed Date:	12/9/2021	Analytical Batch:	462110
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	26.1	22.6	14.6	15 - 95	30	
2-Chlorophenol	0.45	3.6	ND	2.000	58.6	49.5	16.6	15 - 105	30	
1,4-Dichlorobenzene	0.45	3.6	ND	2.000	56.1	52.6	6.45	35 - 105	30	
N-nitroso-di-n-propylamine	0.90	3.6	ND	2.000	54.3	52.5	3.74	40 - 115	30	
1,2,4-Trichlorobenzene	0.45	3.6	ND	2.000	52.9	49.7	6.33	45 - 110	30	
4-Chloro-3-methylphenol	0.90	3.6	ND	2.000	55.9	51.9	7.41	15 - 110	30	
Acenaphthene	0.18	0.54	ND	2.000	62.5	66.0	14.6	45 - 110	30	
4-Nitrophenol	0.90	3.6	ND	2.000	64.5	55.7	15.0	15 - 140	30	
2,4-Dinitrotoluene	0.18	0.54	ND	2.000	68.3	72.1	4.98	40 - 115	30	
Pentachlorophenol	0.18	0.54	ND	2.000	55.9	57.6	2.64	15 - 120	30	
Pyrene	0.18	0.54	ND	2.000	75.5	74.8	0.664	45 - 125	30	
2-Fluorophenol (S)				1111	35.0	27.9		15 - 105		
Phenol-d6 (S)				1111	22.6	18.7		15 - 100		
Nitrobenzene-d5 (S)				555.6	65.1	58.9		30 - 100		
2-Fluorobiphenyl (S)				555.6	63.3	63.4		30 - 105		
2,4,6-Tribromophenol (S)				1111	56.5	49.3		15 - 125		
p-Terphenyl-d14 (S)				555.6	108	97.9		30 - 125		

Work Order:	2112083	Prep Method:	3510_TPH	Prep Date:	12/09/21	Prep Batch:	1137557
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/9/2021	Analytical Batch:	462092
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	99.1	81.3	19.7	52 - 115	30	
Pentacosane (S)				200	109	93.5		59 - 129		

Work Order:	2112083	Prep Method:	3546_TPH	Prep Date:	12/09/21	Prep Batch:	1137563
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	12/9/2021	Analytical Batch:	462098
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	680	1600		20000	104	107		52 - 115	30	
Pentacosane (S)				200	91.4	93.3		45 - 130		D



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2112083	Prep Method:	3510_TPH SG	Prep Date:	12/09/21	Prep Batch:	1137566
Matrix:	Water	Analytical Method:	SW8015B	Analyzed Date:	12/10/2021	Analytical Batch:	462095
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	83.0	77.1	7.37	42 - 115	30	
TPH as Motor Oil (SG)			0.137	200				40 - 129		

Work Order:	2112083	Prep Method:	3546_TPHSG	Prep Date:	12/09/21	Prep Batch:	1137567
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	12/10/2021	Analytical Batch:	462106
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)	680	1600	ND	20000	95.2	93.6		40 - 110	30	
TPH as Motor Oil (SG)			ND	200				40 - 129		

Work Order:	2112083	Prep Method:	TOC-S-P	Prep Date:	12/10/21	Prep Batch:	1137612
Matrix:	Soil	Analytical Method:	SM5310B	Analyzed Date:	12/10/2021	Analytical Batch:	462096
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Total Organic Carbon	20	54	ND	266000	117	128	8.91	60 - 140	20	

Work Order:	2112083	Prep Method:	TOC-W-P	Prep Date:	12/09/21	Prep Batch:	1137614
Matrix:	Water	Analytical Method:	A5310B	Analyzed Date:	12/9/2021	Analytical Batch:	462097
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	0.41	10	100	97.6	2.43	80 - 120	20	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2112083	Prep Method:	3546-BNASIM	Prep Date:	12/09/21	Prep Batch:	1137618
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	12/9/2021	Analytical Batch:	462111
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Phenol	0.51	2.3	ND	50.7	94.0	94.3	0.419	40 - 100	30	
2-Chlorophenol	0.28	2.3	ND	50.7	83.4	84.2	0.941	45 - 105	30	
1,4-Dichlorobenzene	0.28	2.3	ND	50.7	85.0	85.7	0.924	35 - 105	30	
Hexachloroethane	0.28	2.3	ND	50.7	85.8	86.1	0.230	40 - 115	30	
1,2,4-Trichlorobenzene	0.32	2.3	ND	50.7	79.2	79.4	0.249	45 - 110	30	
4-Chloro-3-methylphenol	0.32	2.3	ND	50.7	82.4	82.2	0.480	45 - 110	30	
Acenaphthene	0.32	2.3	ND	50.7	84.9	86.1	1.61	45 - 110	30	
2,4-Dinitrotoluene	0.28	2.3	ND	50.7	86.0	87.6	1.82	50 - 115	30	
Pentachlorophenol	0.46	2.3	ND	50.7	52.7	49.1	6.98	25 - 120	30	
Pyrene	0.37	2.3	ND	50.7	76.0	74.0	2.63	45 - 125	30	
2-Fluorophenol (S)				2000	100	104		25 - 125		
Phenol-d6 (S)				2000	97.5	99.8		25 - 125		
Nitrobenzene-d5 (S)				1000	100	103		35 - 125		
2-Fluorobiphenyl (S)				1000	93.8	95.7		35 - 125		
2,4,6-Tribromophenol (S)				2000	54.4	56.3		25 - 125		
p-Terphenyl-d14 (S)				1000	108	122		35 - 125		



Duplicate QC Summary Report

Work Order:	2112083	Prep Method:	TOC-W-P	Prep Date:	12/9/2021	Prep Batch:	1137614
Matrix:		Analytical Method:	A5310B	Analyzed Date:	12/09/21	Analytical Batch:	462097
Units:						Lab Sample ID: 2112083-001B-DUP-1137614	

Parameters	<u>MDL</u>	<u>PQL</u>	<u>Sample Result</u>	<u>Duplicate Result</u>	<u>% RPD</u>	
TOC	0.40	2.0	16.7	16.1	3.66	

Work Order:	2112083	Prep Method:	TOC-S-P	Prep Date:	12/10/2021	Prep Batch:	1137612
Matrix:		Analytical Method:	A5310B	Analyzed Date:	12/10/21	Analytical Batch:	462096
Units:						Lab Sample ID: 2112083-003A-DUP-1137612	

Parameters	<u>MDL</u>	<u>PQL</u>	<u>Sample Result</u>	<u>Duplicate Result</u>	<u>% RPD</u>	
Total Organic Carbon	40	400	608000	617000	1.47	



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 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the analyte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
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.
H - Indicates that the recommended holding time for the analyte or compound has been exceeded
J - Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
ND - Not Detected at a concentration greater than the PQL/RL or, if reported to the MDL, at greater than the MDL.
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
R - The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
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
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.



Sample Receipt Checklist

Client Name: Tetra Tech Inc (HI)

Date and Time Received: 12/8/2021 10:33:00AM

Project Name: HDOH Red Hill

Received By: Nutan Kabir

Work Order No.: 2112083

Physically Logged By: Helena Ueng

Checklist Completed By: Helena Ueng

Carrier Name: Client Drop Off

Chain of Custody (COC) Information

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

Sample Receipt Information

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

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	<u>Yes</u>	
Container/Temp Blank temperature in compliance?	<u>Yes</u>	Temperature: 6.0 °C
Water-VOA vials have zero headspace?	<u>No VOA vials submitted</u>	
Water-pH acceptable upon receipt?	<u>N/A</u>	
pH Checked by: N/A	pH Adjusted by: N/A	

Comments:

Sample 33/Red Hill Shaft is biphasic--Per client instructions, lab to separate product layer from water in both amber bottles received, then analyze both phases for tests detailed in email dated 12/8/21. Aqueous sample volume aliquoted from ambers into HCL voas for TOC analysis.



Login Summary Report

Client ID: TL5162 Tetra Tech Inc (HI)

QC Level: II

Project Name: HDOH Red Hill

TAT Requested: 2 Day Rush:2

Project # :

Date Received: 12/8/2021

Report Due Date: 12/10/2021

Time Received: 10:33 am

Comments:

Work Order # : 2112083

<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>
2112083-001A	32/Red Hill Upper Storage Tank	12/05/21 15:28	Water	01/19/22			TPHDO_W_8015B(M) SVOC_W_SIMFull TPHDOSG_W_8015B	
Sample Note: Limited volume available-- TPHd/o with & w/o sgc; SVOCs by 8270SIM & Please rerun sample in scan mode to report client-specific TIC compound: 2-(2 butoxyethoxy)ethanol.								
2112083-001B	32/Red Hill Upper Storage Tank	12/05/21 15:28	Water	01/19/22			TOC_5310B	
Sample Note:								
2112083-002A	33/Red Hill Shaft (aqueous)	12/05/21 14:00	Water	01/19/22			TPHDO_W_8015B(M) SVOC_W_SIMFull TPHDOSG_W_8015B	
Sample Note: Sample "33/red hill shaft" is biphasic--per client instructions, separate product layer from water in both ambers rec'd, then analyze both phases (-002=AQ & -003=product)								
2112083-002B	33/Red Hill Shaft (aqueous)	12/05/21 14:00	Water	01/19/22			TOC_5310B	
2112083-003A	33/Red Hill Shaft (product)	12/05/21 14:00	Soil	06/03/22			TPHDO_S_8015(Mod)) TPHDOSG_S_8015B SVO_BNASIM 2021 TOC_S_5310B(M)	
Sample Note: -003=product; TPHd/o with & w/o sgc; SVOCs by 8270SIM & Please rerun sample in scan mode to report client-specific TIC compound: 2-(2 butoxyethoxy)ethanol.								



12/8/21, 5:04 PM

Torrent Laboratory, Inc. Mail - Fwd: Rush analyses Red Hill



Sample Control <sample.control@torrentlaboratory.com>

Fwd: Rush analyses Red Hill

1 message

WO # 2112083

Torrent Laboratory, Inc. <pm@torrentlaboratory.com> Wed, Dec 8, 2021 at 4:53 PM
To: Helena Ueng <helena.ueng@torrentlaboratory.com>, Navin Ghodasara <sample.control@torrentlaboratory.com>, Nutan Kabir <nutan.kabir@torrentlaboratory.com>

----- Forwarded message -----

From: Parry, Yvonne <Yvonne.Parry@tetrattech.com>
Date: Wed, Dec 8, 2021 at 2:22 PM
Subject: Rush analyses Red Hill
To: Torrent Laboratory, Inc. (pm@torrentlaboratory.com) <pm@torrentlaboratory.com>
Cc: Mukesh Jani <mukesh.jani@torrentlaboratory.com>

Good afternoon,

Here is the order for the samples you received today. Mukesh, can you please provide a separate quote for this?

Red Hill Shaft (bottle labeled "33"):

Separate product layer from water and analyze each phase for:

- TPH D/O via 8015
- TPH D/O via 8015 with SGC
- SVOCs via 8270 SIM include 2-(2 butoxyethoxy) Ethanol as TIC
- TOC by 906A

Red Hill Upper Storage Tank (there is only an aqueous phase):

- TPH D/O via 8015
- TPH D/O via 8015 with SGC
- SVOCs via 8270 SIM include 2-(2 butoxyethoxy) Ethanol as TIC
- TOC by 906A

Turnaround time will be around 24 hrs, if possible.

-Yvonne

<https://mail.google.com/mail/u/0/?ik=16e590ba96&view=pt&search=all&permthid=thread-f%3A1718627854201234186%7Cmsg-f%3A1718627854201...> 1/2