



Tetra Tech Inc (HI)
737 Bishop St, Suite 2340
Honolulu, Hawaii 96813
Tel: 808-441-6600
Email: Yvonne.parry@Tetrattech.com
RE: DOH Maui Wildfire Ash Sample-KULA

Work Order No.: 2309213 Rev: 2

Dear Eric Jensen:

Torrent Laboratory, Inc. received 1 sample(s) on September 27, 2023 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 style and is positioned above a horizontal line.

Kathie Evans
Project Manager

November 22, 2023

Date



Date: 11/22/2023

Client: Tetra Tech Inc(HI)

Project: DOH Maui Wildfire Ash Sample-KULA

Work Order: 2309213

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.

Analytical Comments, General: The samples were processed under Incremental Sampling Procedure/Multi Incremental Sampling SOP SVO-2055 but sieved through a 250 micron sieve

Analytical comment for Bioaccessible Arsenic: Extraction procedure matched guidelines detailed in the SBRC method.

MS/MSD is not recoverable (NR). Sample concentration is greater than 4X the spike concentration. No corrective action is required.

Analytical Comment for method 6010B, Note:Analyses run at a dilution due to the sample matrix. The spikes in the MS/MSD for a number of metals are not recoverable. The sample concentration is greater than 4X the spike concentration. No corrective action is required.

Analytical Comments for method 8270C, 239213-001MS/MSD, QC Preparation Batch ID 1154834, Note:The % recoveries did not meet acceptance criteria. The associated LCS/LCSD is within both % Recovery and % RPD limits. No corrective action required.

Analytical Comments for method 8015B, 2309213-001MS/MSD, QC Preparation Batch ID 1154856, Note:The % recoveries for Diesel are outside of laboratory control limits but % RPD is within limits. The associated LCS/LCSD is within both % Recovery and % RPD limits. No corrective action required.

REVISIONS

Report revised to include SPLP data

SPLP

Note: Extraction of 100 g sample/2000 g SPLP Fluid #2 was performed according to SP Leaching Procedure(SW-846 1312 SPLP) which was rotated in a rotary shaker@ 32 RPM for 18 hours (+/- 2 hours).

Date Prepared: 11/16/23 at 2:00 PM to 11/17/23 at 9:30 AM

Rev. 1 (11/22/23)

REVISIONS



Report revised to include TOC data.

Rev. 2 (12/28/23)



Sample Result Summary

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date Received: 09/27/23

Date Reported: 11/22/23

KULA ASH #1

2309213-001

<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	E9060A	1	20	200	68700	mg/Kg
Arsenic (SPLP)	SW6010B	1	0.20	0.40	0.714	mg/L
Chromium (SPLP)	SW6010B	1	0.010	0.20	10.3	mg/L
Bioaccessible Arsenic	SW6010B	1	0.00200	0.0200	23.1	IVBA %
Antimony	SW6010C	10	0.26	26	110	mg/Kg
Arsenic	SW6010C	10	0.77	6.6	3240	mg/Kg
Barium	SW6010C	10	0.28	26	365	mg/Kg
Beryllium	SW6010C	10	0.28	26	0.510	mg/Kg
Cadmium	SW6010C	10	0.51	26	3.49	mg/Kg
Chromium	SW6010C	10	0.38	26	926	mg/Kg
Cobalt	SW6010C	10	0.36	26	85.7	mg/Kg
Copper	SW6010C	10	1.0	26	3240	mg/Kg
Lead	SW6010C	10	0.51	15	640	mg/Kg
Nickel	SW6010C	10	2.6	26	84.7	mg/Kg
Silver	SW6010C	10	0.77	2.6	17.7	mg/Kg
Vanadium	SW6010C	10	0.51	26	130	mg/Kg
Zinc	SW6010C	10	1.5	26	1890	mg/Kg
Aluminum	SW6010C	10	110	510	28100	mg/Kg
Calcium	SW6010C	10	62	260	181000	mg/Kg
Iron	SW6010C	10	87	260	27800	mg/Kg
Magnesium	SW6010C	10	26	260	15100	mg/Kg
Manganese	SW6010C	10	4.3	26	742	mg/Kg
Potassium	SW6010C	10	24	260	2530	mg/Kg
Sodium	SW6010C	10	690	1500	4340	mg/Kg
Antimony	SW6010C	10	0.25	25	108	mg/Kg
Arsenic	SW6010C	10	0.75	6.5	3260	mg/Kg
Barium	SW6010C	10	0.27	25	602	mg/Kg
Beryllium	SW6010C	10	0.27	25	0.522	mg/Kg
Cadmium	SW6010C	10	0.50	25	3.48	mg/Kg
Chromium	SW6010C	10	0.37	25	908	mg/Kg
Cobalt	SW6010C	10	0.35	25	81.3	mg/Kg
Copper	SW6010C	10	1.00	25	3230	mg/Kg
Lead	SW6010C	10	0.50	15	769	mg/Kg
Nickel	SW6010C	10	2.5	25	79.6	mg/Kg
Silver	SW6010C	10	0.75	2.5	19.0	mg/Kg
Vanadium	SW6010C	10	0.50	25	129	mg/Kg
Zinc	SW6010C	10	1.5	25	1980	mg/Kg
Aluminum	SW6010C	10	100	500	28100	mg/Kg
Calcium	SW6010C	10	60	250	182000	mg/Kg
Iron	SW6010C	10	85	250	27100	mg/Kg
Magnesium	SW6010C	10	25	250	15100	mg/Kg
Manganese	SW6010C	10	4.2	25	746	mg/Kg
Potassium	SW6010C	10	23	250	2510	mg/Kg
Sodium	SW6010C	10	670	1500	4350	mg/Kg
Antimony	SW6010C	10	0.25	25	95.8	mg/Kg
Arsenic	SW6010C	10	0.75	6.5	3080	mg/Kg



Sample Result Summary

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date Received: 09/27/23

Date Reported: 11/22/23

KULA ASH #1 Triplicate

2309213-001

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
Barium	SW6010C	10	0.28	25	613	mg/Kg
Beryllium	SW6010C	10	0.28	25	0.475	mg/Kg
Cadmium	SW6010C	10	0.50	25	3.30	mg/Kg
Chromium	SW6010C	10	0.38	25	850	mg/Kg
Cobalt	SW6010C	10	0.35	25	88.5	mg/Kg
Copper	SW6010C	10	1.0	25	2980	mg/Kg
Lead	SW6010C	10	0.50	15	655	mg/Kg
Nickel	SW6010C	10	2.5	25	82.3	mg/Kg
Silver	SW6010C	10	0.75	2.5	16.5	mg/Kg
Vanadium	SW6010C	10	0.50	25	122	mg/Kg
Zinc	SW6010C	10	1.5	25	1810	mg/Kg
Aluminum	SW6010C	10	110	500	26500	mg/Kg
Calcium	SW6010C	10	61	250	173000	mg/Kg
Iron	SW6010C	10	86	250	25500	mg/Kg
Magnesium	SW6010C	10	25	250	14300	mg/Kg
Manganese	SW6010C	10	4.3	25	713	mg/Kg
Potassium	SW6010C	10	24	250	2380	mg/Kg
Sodium	SW6010C	10	680	1500	4150	mg/Kg
TPH as Diesel	SW8015B	4	4.5	11	80.0	mg/Kg
Naphthalene	SW8270CSIM	1	0.23	3.3	250	ug/Kg
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	57	ug/Kg
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	56	ug/Kg
Acenaphthylene	SW8270CSIM	1	0.23	3.3	8.3	ug/Kg
Acenaphthene	SW8270CSIM	1	0.24	3.3	5.5	ug/Kg
Fluorene	SW8270CSIM	1	0.27	3.3	7.1	ug/Kg
Phenanthrene	SW8270CSIM	1	0.24	3.3	10	ug/Kg
Naphthalene	SW8270CSIM	1	0.23	3.3	200	ug/Kg
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	46	ug/Kg
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	45	ug/Kg
Acenaphthylene	SW8270CSIM	1	0.23	3.3	6.9	ug/Kg
Acenaphthene	SW8270CSIM	1	0.24	3.3	4.3	ug/Kg
Fluorene	SW8270CSIM	1	0.27	3.3	5.0	ug/Kg
Phenanthrene	SW8270CSIM	1	0.24	3.3	8.3	ug/Kg
Naphthalene	SW8270CSIM	1	0.23	3.3	270	ug/Kg
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	63	ug/Kg
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	60	ug/Kg
Acenaphthylene	SW8270CSIM	1	0.23	3.3	8.5	ug/Kg
Acenaphthene	SW8270CSIM	1	0.24	3.3	5.5	ug/Kg
Fluorene	SW8270CSIM	1	0.27	3.3	7.4	ug/Kg
Phenanthrene	SW8270CSIM	1	0.24	3.3	9.6	ug/Kg



Sample Result Summary

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Tetra Tech Inc (HI)

Date Received: 09/27/23

Date Reported: 11/22/23

KULA ASH #1

2309213-001

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
2378-TCDF	SW8290Mod	1	0.21	0.48	152	pg/g
12378-PeCDF	SW8290Mod	1	0.98	4.8	218	pg/g
23478-PeCDF	SW8290Mod	1	0.65	4.8	349	pg/g
123478-HxCDF	SW8290Mod	1	0.48	4.8	308	pg/g
123678-HxCDF	SW8290Mod	1	1.1	4.8	318	pg/g
234678-HxCDF	SW8290Mod	1	1.4	4.8	439	pg/g
123789-HxCDF	SW8290Mod	1	1.8	4.8	122	pg/g
1234678-HpCDF	SW8290Mod	1	1.8	4.8	1410	pg/g
1234789-HpCDF	SW8290Mod	1	1.1	4.8	135	pg/g
OCDF	SW8290Mod	1	1.4	24	650	pg/g
2378-TCDD	SW8290Mod	1	0.20	0.48	18.4	pg/g
12378-PeCDD	SW8290Mod	1	1.1	4.8	72.6	pg/g
123478-HxCDD	SW8290Mod	1	0.90	4.8	53.6	pg/g
123678-HxCDD	SW8290Mod	1	1.3	4.8	80.1	pg/g
123789-HxCDD	SW8290Mod	1	3.1	4.8	78.4	pg/g
1234678-HpCDD	SW8290Mod	1	1.5	4.8	636	pg/g
OCDD	SW8290Mod	1	4.2	24	1160	pg/g
Total-Dioxins	SW8290Mod	1	0.20	0.48	2100	pg/g
Total-Furans	SW8290Mod	1	0.21	0.48	4100	pg/g
Total-TEQ	SW8290Mod	1			380	pg/g
2,3,7,8-TCDF	SW8290Mod	1	0.21	0.48	161	pg/g
1,2,3,7,8-PeCDF	SW8290Mod	1	0.98	4.8	230	pg/g
2,3,4,7,8-PeCDF	SW8290Mod	1	0.65	4.8	357	pg/g
1,2,3,4,7,8-HxCDF	SW8290Mod	1	0.48	4.8	325	pg/g
1,2,3,6,7,8-HxCDF	SW8290Mod	1	1.1	4.8	334	pg/g
2,3,4,6,7,8-HxCDF	SW8290Mod	1	1.4	4.8	435	pg/g
1,2,3,7,8,9-HxCDF	SW8290Mod	1	1.8	4.8	145	pg/g
1,2,3,4,6,7,8-HpCDF	SW8290Mod	1	1.8	4.8	1580	pg/g
1,2,3,4,7,8,9-HpCDF	SW8290Mod	1	1.1	4.8	147	pg/g
OCDF	SW8290Mod	1	1.4	24	720	pg/g
2,3,7,8-TCDD	SW8290Mod	1	0.20	0.48	18.2	pg/g
1,2,3,7,8-PeCDD	SW8290Mod	1	1.1	4.8	75.6	pg/g
1,2,3,4,7,8-HxCDD	SW8290Mod	1	0.89	4.8	55.5	pg/g
1,2,3,6,7,8-HxCDD	SW8290Mod	1	1.3	4.8	85.1	pg/g
1,2,3,7,8,9-HxCDD	SW8290Mod	1	3.1	4.8	86.2	pg/g
1,2,3,4,6,7,8-HpCDD	SW8290Mod	1	1.5	4.8	681	pg/g
OCDD	SW8290Mod	1	4.2	24	1210	pg/g
Total-Dioxins	SW8290Mod	1	0.20	0.48	2210	pg/g
Total-Furans	SW8290Mod	1	0.21	0.48	4440	pg/g
TEQ	SW8290Mod	1			395	pg/g



Sample Result Summary

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date Received: 09/27/23

Date Reported: 11/22/23

KULA ASH #1 Triplicate

2309213-001

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results</u>	<u>Unit</u>
2,3,7,8-TCDF	SW8290Mod	1	0.21	0.48	180	pg/g
1,2,3,7,8-PeCDF	SW8290Mod	1	0.99	4.8	244	pg/g
2,3,4,7,8-PeCDF	SW8290Mod	1	0.65	4.8	385	pg/g
1,2,3,4,7,8-HxCDF	SW8290Mod	1	0.48	4.8	337	pg/g
1,2,3,6,7,8-HxCDF	SW8290Mod	1	1.1	4.8	353	pg/g
2,3,4,6,7,8-HxCDF	SW8290Mod	1	1.4	4.8	459	pg/g
1,2,3,7,8,9-HxCDF	SW8290Mod	1	1.8	4.8	147	pg/g
1,2,3,4,6,7,8-HpCDF	SW8290Mod	1	1.8	4.8	1560	pg/g
1,2,3,4,7,8,9-HpCDF	SW8290Mod	1	1.1	4.8	158	pg/g
OCDF	SW8290Mod	1	1.4	24	760	pg/g
2,3,7,8-TCDD	SW8290Mod	1	0.20	0.48	23.8	pg/g
1,2,3,7,8-PeCDD	SW8290Mod	1	1.1	4.8	81.7	pg/g
1,2,3,4,7,8-HxCDD	SW8290Mod	1	0.90	4.8	62.9	pg/g
1,2,3,6,7,8-HxCDD	SW8290Mod	1	1.3	4.8	97.8	pg/g
1,2,3,7,8,9-HxCDD	SW8290Mod	1	3.1	4.8	99.1	pg/g
1,2,3,4,6,7,8-HpCDD	SW8290Mod	1	1.5	4.8	756	pg/g
OCDD	SW8290Mod	1	4.2	24	1330	pg/g
Total-Dioxins	SW8290Mod	1	0.20	0.48	2450	pg/g
Total-Furans	SW8290Mod	1	0.21	0.48	4590	pg/g
TEQ	SW8290Mod	1			427	pg/g



SAMPLE RESULTS

Report prepared for: Eric Jensen
 Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 7471BP	Prep Batch Date/Time: 10/2/23	12:05:00PM
Prep Batch ID: 1154841	Prep Analyst: AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.050	0.30	ND		mg/Kg	10/03/23	12:07	NK	478461



SAMPLE RESULTS

Report prepared for: Eric Jensen
 Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 1312/7470	Prep Batch Date/Time: 11/17/23 11:30:00AM
Prep Batch ID: 1156202	Prep Analyst: ROME

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury (SPLP)	SW7470A	1	0.00013	0.020	ND		mg/L	11/20/23	11:14	BJAY	479741



SAMPLE RESULTS

Report prepared for: Eric Jensen Date/Time Received: 09/27/23, 10:56 am
 Tetra Tech Inc (HI) Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3050B	Prep Batch Date/Time: 10/2/23	12:05:00PM
Prep Batch ID: 1154839	Prep Analyst: AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
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The results shown below are reported using their MDL.

Antimony	SW6010C	10	0.26	26	110		mg/Kg	10/02/23	20:55	PH	478479
Arsenic	SW6010C	10	0.77	6.6	3240		mg/Kg	10/02/23	20:55	PH	478479
Barium	SW6010C	10	0.28	26	365		mg/Kg	10/02/23	20:55	PH	478479
Beryllium	SW6010C	10	0.28	26	0.510	J	mg/Kg	10/02/23	20:55	PH	478479
Cadmium	SW6010C	10	0.51	26	3.49	J	mg/Kg	10/02/23	20:55	PH	478479
Chromium	SW6010C	10	0.38	26	926		mg/Kg	10/02/23	20:55	PH	478479
Cobalt	SW6010C	10	0.36	26	85.7		mg/Kg	10/02/23	20:55	PH	478479
Copper	SW6010C	10	1.0	26	3240		mg/Kg	10/02/23	20:55	PH	478479
Lead	SW6010C	10	0.51	15	640		mg/Kg	10/02/23	20:55	PH	478479
Nickel	SW6010C	10	2.6	26	84.7		mg/Kg	10/02/23	20:55	PH	478479
Selenium	SW6010C	10	1.8	5.6	ND		mg/Kg	10/02/23	20:55	PH	478479
Silver	SW6010C	10	0.77	2.6	17.7		mg/Kg	10/02/23	20:55	PH	478479
Thallium	SW6010C	10	1.0	26	ND		mg/Kg	10/02/23	20:55	PH	478479
Vanadium	SW6010C	10	0.51	26	130		mg/Kg	10/02/23	20:55	PH	478479
Zinc	SW6010C	10	1.5	26	1890		mg/Kg	10/02/23	20:55	PH	478479
Aluminum	SW6010C	10	110	510	28100		mg/Kg	10/02/23	20:55	PH	478479
Calcium	SW6010C	10	62	260	181000		mg/Kg	10/02/23	20:55	PH	478479
Iron	SW6010C	10	87	260	27800		mg/Kg	10/02/23	20:55	PH	478479
Magnesium	SW6010C	10	26	260	15100		mg/Kg	10/02/23	20:55	PH	478479
Manganese	SW6010C	10	4.3	26	742		mg/Kg	10/02/23	20:55	PH	478479
Potassium	SW6010C	10	24	260	2530		mg/Kg	10/02/23	20:55	PH	478479
Sodium	SW6010C	10	690	1500	4340		mg/Kg	10/02/23	20:55	PH	478479



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 1312/3010A	Prep Batch Date/Time: 11/17/23	11:30:00AM
Prep Batch ID: 1156199	Prep Analyst: ROME	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Antimony (SPLP)	SW6010B	1	0.10	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Arsenic (SPLP)	SW6010B	1	0.20	0.40	0.714		mg/L	11/17/23	18:20	ERR	479721
Barium (SPLP)	SW6010B	1	0.020	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Beryllium (SPLP)	SW6010B	1	0.010	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Cadmium (SPLP)	SW6010B	1	0.040	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Chromium (SPLP)	SW6010B	1	0.010	0.20	10.3		mg/L	11/17/23	18:20	ERR	479721
Cobalt (SPLP)	SW6010B	1	0.010	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Copper (SPLP)	SW6010B	1	0.020	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Lead (SPLP)	SW6010B	1	0.050	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Molybdenum (SPLP)	SW6010B	1	0.020	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Nickel (SPLP)	SW6010B	1	0.010	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Selenium (SPLP)	SW6010B	1	0.090	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Silver (SPLP)	SW6010B	1	0.020	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Thallium (SPLP)	SW6010B	1	0.12	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Vanadium (SPLP)	SW6010B	1	0.020	0.20	ND		mg/L	11/17/23	18:20	ERR	479721
Zinc (SPLP)	SW6010B	1	0.080	0.20	ND		mg/L	11/17/23	18:20	ERR	479721



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546_PAHSIM	Prep Batch Date/Time: 10/3/23	11:40:00AM
Prep Batch ID: 1154834	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Naphthalene	SW8270CSIM	1	0.23	3.3	250		ug/Kg	10/04/23	0:34	MT	478488
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	57		ug/Kg	10/04/23	0:34	MT	478488
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	56		ug/Kg	10/04/23	0:34	MT	478488
Acenaphthylene	SW8270CSIM	1	0.23	3.3	8.3		ug/Kg	10/04/23	0:34	MT	478488
Acenaphthene	SW8270CSIM	1	0.24	3.3	5.5		ug/Kg	10/04/23	0:34	MT	478488
Fluorene	SW8270CSIM	1	0.27	3.3	7.1		ug/Kg	10/04/23	0:34	MT	478488
Phenanthrene	SW8270CSIM	1	0.24	3.3	10		ug/Kg	10/04/23	0:34	MT	478488
Anthracene	SW8270CSIM	1	0.17	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Fluoranthene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Pyrene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Benz[a]anthracene	SW8270CSIM	1	0.24	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Chrysene	SW8270CSIM	1	0.12	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Benzo[b]fluoranthene	SW8270CSIM	1	0.41	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Benzo[k]fluoranthene	SW8270CSIM	1	0.48	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Benzo[a]pyrene	SW8270CSIM	1	0.35	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Indeno[1,2,3-cd]pyrene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Dibenz[a,h]anthracene	SW8270CSIM	1	0.55	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Benzo[g,h,i]perylene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	0:34	MT	478488
Acceptance Limits											
2-Fluorobiphenyl (S)	SW8270CSIM		45 - 125		66		%	10/04/23	0:34	MT	478488
p-Terphenyl-d14 (S)	SW8270CSIM		30 - 125		2.1	S	%	10/04/23	0:34	MT	478488

NOTE: S- outside of control limits due to possible matrix interference (Ash matrix)



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546_PCB	Prep Batch Date/Time: 10/4/23	1:04:00PM
Prep Batch ID: 1154922	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Aroclor1016	SW8082A	1	35.0	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1221	SW8082A	1	5.00	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1232	SW8082A	1	17.0	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1242	SW8082A	1	3.00	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1248	SW8082A	1	2.00	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1254	SW8082A	1	14.0	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Aroclor1260	SW8082A	1	24.0	100	ND		ug/Kg	10/04/23	17:04	AK	478523
Acceptance Limits											
TCMX (S)	SW8082A		48 - 125		17.0	S	%	10/04/23	17:04	AK	478523
DCBP (S)	SW8082A		48 - 135		20.0	S	%	10/04/23	17:04	AK	478523

NOTE: S-surrogate outside of control limits due to possible matrix interference(Ash Sample)



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546MI_OCP	Prep Batch Date/Time: 10/3/23	11:13:00AM
Prep Batch ID: 1154874	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
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The results shown below are reported using their MDL.

alpha-BHC	SW8081B	3	0.38	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
gamma-BHC (Lindane)	SW8081B	3	0.48	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
beta-BHC	SW8081B	3	0.95	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
delta-BHC	SW8081B	3	0.47	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Heptachlor	SW8081B	3	0.32	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Aldrin	SW8081B	3	0.59	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Heptachlor Epoxide	SW8081B	3	0.23	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
gamma-Chlordane	SW8081B	3	0.49	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
alpha-Chlordane	SW8081B	3	0.52	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
4,4-DDE	SW8081B	3	0.58	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endosulfan I	SW8081B	3	0.55	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Dieldrin	SW8081B	3	0.44	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endrin	SW8081B	3	0.56	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
4,4-DDD	SW8081B	3	1.7	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endosulfan II	SW8081B	3	1.7	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
4,4-DDT	SW8081B	3	0.39	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endrin Aldehyde	SW8081B	3	0.45	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Methoxychlor	SW8081B	3	0.60	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endosulfan Sulfate	SW8081B	3	0.35	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Endrin Ketone	SW8081B	3	0.28	6.0	ND		ug/Kg	10/03/23	15:46	MK	478487
Chlordane, Technical	SW8081B	3	6.3	60	ND		ug/Kg	10/03/23	15:46	MK	478487
Toxaphene	SW8081B	3	26	150	ND		ug/Kg	10/03/23	15:46	MK	478487

Acceptance Limits

TCMX (S)	SW8081B		47 - 130	39.1	S	%	10/03/23	15:46	MK	478487
DCBP (S)	SW8081B		54 - 125	40.9	S	%	10/03/23	15:46	MK	478487

NOTE: Sample diluted due to the nature of the sample matrix (dark colored extract)
S-surrogate outside of control limits due to possible matrix interference(Ash matrix).



SAMPLE RESULTS

Report prepared for: Eric Jensen
 Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: TOC-S-P	Prep Batch Date/Time: 12/27/23	10:30:00AM
Prep Batch ID: 1157083	Prep Analyst:	BJAY

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Total Organic Carbon	E9060A	1	20	200	68700		mg/Kg	12/28/23	10:30	BJAY	480536



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546_TPHetraMI	Prep Batch Date/Time: 10/2/23	4:49:00PM
Prep Batch ID: 1154856	Prep Analyst: AKIZ	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
TPH as Diesel	SW8015B	4	4.5	11	80.0	x	mg/Kg	10/03/23	13:13	SN	478454
Acceptance Limits											
Pentacosane (S)	SW8015B		59 - 129		73.1		%	10/03/23	13:13	SN	478454

NOTE: x- Chromatographic pattern does not resemble typical diesel reference standard; unknown organics and over-lapping of oil range organics within diesel range quantified as diesel.

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23	5:20:00PM
Prep Batch ID: 1154859	Prep Analyst: MSAT	
	Units: pg/g	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2378-TCDF	SW8290Mod	1	0.21	0.48	152		pg/g	10/13/23	12:50	TT	478693
12378-PeCDF	SW8290Mod	1	0.98	4.8	218		pg/g	10/13/23	12:50	TT	478693
23478-PeCDF	SW8290Mod	1	0.65	4.8	349		pg/g	10/13/23	12:50	TT	478693
123478-HxCDF	SW8290Mod	1	0.48	4.8	308		pg/g	10/13/23	12:50	TT	478693
123678-HxCDF	SW8290Mod	1	1.1	4.8	318		pg/g	10/13/23	12:50	TT	478693
234678-HxCDF	SW8290Mod	1	1.4	4.8	439		pg/g	10/13/23	12:50	TT	478693
123789-HxCDF	SW8290Mod	1	1.8	4.8	122		pg/g	10/13/23	12:50	TT	478693
1234678-HpCDF	SW8290Mod	1	1.8	4.8	1410		pg/g	10/13/23	12:50	TT	478693
1234789-HpCDF	SW8290Mod	1	1.1	4.8	135		pg/g	10/13/23	12:50	TT	478693
OCDF	SW8290Mod	1	1.4	24	650		pg/g	10/13/23	12:50	TT	478693
2378-TCDD	SW8290Mod	1	0.20	0.48	18.4		pg/g	10/13/23	12:50	TT	478693
12378-PeCDD	SW8290Mod	1	1.1	4.8	72.6		pg/g	10/13/23	12:50	TT	478693
123478-HxCDD	SW8290Mod	1	0.90	4.8	53.6		pg/g	10/13/23	12:50	TT	478693
123678-HxCDD	SW8290Mod	1	1.3	4.8	80.1		pg/g	10/13/23	12:50	TT	478693
123789-HxCDD	SW8290Mod	1	3.1	4.8	78.4		pg/g	10/13/23	12:50	TT	478693
1234678-HpCDD	SW8290Mod	1	1.5	4.8	636		pg/g	10/13/23	12:50	TT	478693
OCDD	SW8290Mod	1	4.2	24	1160		pg/g	10/13/23	12:50	TT	478693
Total-Dioxins	SW8290Mod	1	0.20	0.48	2100		pg/g	10/13/23	12:50	TT	478693
Total-Furans	SW8290Mod	1	0.21	0.48	4100		pg/g	10/13/23	12:50	TT	478693
Total-TEQ	SW8290Mod	1			380		pg/g	10/13/23	12:50	TT	478693
Acceptance Limits											
(LS) 13C-2378-TCDF	SW8290Mod		40 - 135		45.8		%	10/13/23	12:50	TT	478693
(LS) 13C-12378-PeCDF	SW8290Mod		40 - 135		48.3		%	10/13/23	12:50	TT	478693
(LS) 13C-23478-PeCDF	SW8290Mod		40 - 135		53.5		%	10/13/23	12:50	TT	478693
(LS) 13C-123478-HxCDF	SW8290Mod		40 - 135		43.7		%	10/13/23	12:50	TT	478693
(LS) 13C-123678-HxCDF	SW8290Mod		40 - 135		40.8		%	10/13/23	12:50	TT	478693



SAMPLE RESULTS

Report prepared for: Eric Jensen
 Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1	Lab Sample ID:	2309213-001A
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23	5:20:00PM
Prep Batch ID: 1154859	Prep Analyst:	MSAT
	Units:	pg/g

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
(LS) 13C-234678-HxCDF	SW8290Mod		40 - 135		43.0		%	10/13/23	12:50	TT	478693
(LS) 13C-123789-HxCDF	SW8290Mod		40 - 135		40.2		%	10/13/23	12:50	TT	478693
(LS) 13C-1234678-HpCDF	SW8290Mod		40 - 135		37.8	S	%	10/13/23	12:50	TT	478693
(LS) 13C-1234789-HpCDF	SW8290Mod		40 - 135		36.7	S	%	10/13/23	12:50	TT	478693
(LS) 13C-2378-TCDD	SW8290Mod		40 - 135		47.6		%	10/13/23	12:50	TT	478693
(LS) 13C-12378-PeCDD	SW8290Mod		40 - 135		52.1		%	10/13/23	12:50	TT	478693
(LS) 13C-123478-HxCDD	SW8290Mod		40 - 135		44.6		%	10/13/23	12:50	TT	478693
(LS) 13C-123678-HxCDD	SW8290Mod		40 - 135		37.4	S	%	10/13/23	12:50	TT	478693
(LS) 13C-1234678-HpCDD	SW8290Mod		40 - 135		41.2		%	10/13/23	12:50	TT	478693
(LS) 13C-OCDD	SW8290Mod		40 - 135		30.2	S	%	10/13/23	12:50	TT	478693

NOTE: S-Recoveries for labeled compounds out of control limits (low bias) due to matrix effects. Sample was reextracted and reanalyzed yielding similar results.



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Duplicate	Lab Sample ID:	2309213-001B
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: Bioavailable As	Prep Batch Date/Time: 10/10/23	11:45:00AM
Prep Batch ID: 1155069	Prep Analyst: ROME	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Bioaccessible Arsenic	SW6010B	1	0.00200	0.0200	23.1		IVBA %	10/11/23	14:31	AT	478726



SAMPLE RESULTS

Report prepared for: Eric Jensen
 Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Duplicate	Lab Sample ID:	2309213-001B
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 7471BP	Prep Batch Date/Time: 10/2/23	12:05:00PM
Prep Batch ID: 1154841	Prep Analyst: AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.049	0.29	ND		mg/Kg	10/03/23	12:18	NK	478461



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Duplicate	Lab Sample ID:	2309213-001B
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3050B	Prep Batch Date/Time: 10/2/23 12:05:00PM
Prep Batch ID: 1154839	Prep Analyst: AJNG

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
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The results shown below are reported using their MDL.

Antimony	SW6010C	10	0.25	25	108		mg/Kg	10/02/23	21:00	PH	478479
Arsenic	SW6010C	10	0.75	6.5	3260		mg/Kg	10/02/23	21:00	PH	478479
Barium	SW6010C	10	0.27	25	602		mg/Kg	10/02/23	21:00	PH	478479
Beryllium	SW6010C	10	0.27	25	0.522	J	mg/Kg	10/02/23	21:00	PH	478479
Cadmium	SW6010C	10	0.50	25	3.48	J	mg/Kg	10/02/23	21:00	PH	478479
Chromium	SW6010C	10	0.37	25	908		mg/Kg	10/02/23	21:00	PH	478479
Cobalt	SW6010C	10	0.35	25	81.3		mg/Kg	10/02/23	21:00	PH	478479
Copper	SW6010C	10	1.00	25	3230		mg/Kg	10/02/23	21:00	PH	478479
Lead	SW6010C	10	0.50	15	769		mg/Kg	10/02/23	21:00	PH	478479
Nickel	SW6010C	10	2.5	25	79.6		mg/Kg	10/02/23	21:00	PH	478479
Selenium	SW6010C	10	1.7	5.5	ND		mg/Kg	10/02/23	21:00	PH	478479
Silver	SW6010C	10	0.75	2.5	19.0		mg/Kg	10/02/23	21:00	PH	478479
Thallium	SW6010C	10	1.00	25	ND		mg/Kg	10/02/23	21:00	PH	478479
Vanadium	SW6010C	10	0.50	25	129		mg/Kg	10/02/23	21:00	PH	478479
Zinc	SW6010C	10	1.5	25	1980		mg/Kg	10/02/23	21:00	PH	478479
Aluminum	SW6010C	10	100	500	28100		mg/Kg	10/02/23	21:00	PH	478479
Calcium	SW6010C	10	60	250	182000		mg/Kg	10/02/23	21:00	PH	478479
Iron	SW6010C	10	85	250	27100		mg/Kg	10/02/23	21:00	PH	478479
Magnesium	SW6010C	10	25	250	15100		mg/Kg	10/02/23	21:00	PH	478479
Manganese	SW6010C	10	4.2	25	746		mg/Kg	10/02/23	21:00	PH	478479
Potassium	SW6010C	10	23	250	2510		mg/Kg	10/02/23	21:00	PH	478479
Sodium	SW6010C	10	670	1500	4350		mg/Kg	10/02/23	21:00	PH	478479



SAMPLE RESULTS

Report prepared for:

Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am

Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Duplicate	Lab Sample ID:	2309213-001B
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546_PAHSIM	Prep Batch Date/Time: 10/3/23 11:40:00AM
Prep Batch ID: 1154834	Prep Analyst: AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Naphthalene	SW8270CSIM	1	0.23	3.3	200		ug/Kg	10/04/23	1:04	MT	478488
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	46		ug/Kg	10/04/23	1:04	MT	478488
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	45		ug/Kg	10/04/23	1:04	MT	478488
Acenaphthylene	SW8270CSIM	1	0.23	3.3	6.9		ug/Kg	10/04/23	1:04	MT	478488
Acenaphthene	SW8270CSIM	1	0.24	3.3	4.3		ug/Kg	10/04/23	1:04	MT	478488
Fluorene	SW8270CSIM	1	0.27	3.3	5.0		ug/Kg	10/04/23	1:04	MT	478488
Phenanthrene	SW8270CSIM	1	0.24	3.3	8.3		ug/Kg	10/04/23	1:04	MT	478488
Anthracene	SW8270CSIM	1	0.17	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Fluoranthene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Pyrene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Benz[a]anthracene	SW8270CSIM	1	0.24	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Chrysene	SW8270CSIM	1	0.12	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Benzo[b]fluoranthene	SW8270CSIM	1	0.41	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Benzo[k]fluoranthene	SW8270CSIM	1	0.48	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Benzo[a]pyrene	SW8270CSIM	1	0.35	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Indeno[1,2,3-cd]pyrene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Dibenz[a,h]anthracene	SW8270CSIM	1	0.55	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Benzo[g,h,i]perylene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	1:04	MT	478488
Acceptance Limits											
2-Fluorobiphenyl (S)	SW8270CSIM		45 - 125		56		%	10/04/23	1:04	MT	478488
p-Terphenyl-d14 (S)	SW8270CSIM		30 - 125		3.1	S	%	10/04/23	1:04	MT	478488

NOTE: S- outside of control limits due to possible matrix interference (Ash matrix)

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23 5:20:00PM
Prep Batch ID: 1154859	Prep Analyst: MSAT
	Units: pg/g

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,3,7,8-TCDF	SW8290Mod	1	0.21	0.48	161		pg/g	10/13/23	13:54	TT	478693
1,2,3,7,8-PeCDF	SW8290Mod	1	0.98	4.8	230		pg/g	10/13/23	13:54	TT	478693
2,3,4,7,8-PeCDF	SW8290Mod	1	0.65	4.8	357		pg/g	10/13/23	13:54	TT	478693
1,2,3,4,7,8-HxCDF	SW8290Mod	1	0.48	4.8	325		pg/g	10/13/23	13:54	TT	478693
1,2,3,6,7,8-HxCDF	SW8290Mod	1	1.1	4.8	334		pg/g	10/13/23	13:54	TT	478693
2,3,4,6,7,8-HxCDF	SW8290Mod	1	1.4	4.8	435		pg/g	10/13/23	13:54	TT	478693
1,2,3,7,8,9-HxCDF	SW8290Mod	1	1.8	4.8	145		pg/g	10/13/23	13:54	TT	478693
1,2,3,4,6,7,8-HpCDF	SW8290Mod	1	1.8	4.8	1580		pg/g	10/13/23	13:54	TT	478693
1,2,3,4,7,8,9-HpCDF	SW8290Mod	1	1.1	4.8	147		pg/g	10/13/23	13:54	TT	478693



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Duplicate	Lab Sample ID:	2309213-001B
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23 5:20:00PM
Prep Batch ID: 1154859	Prep Analyst: MSAT
	Units: pg/g

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
OCDF	SW8290Mod	1	1.4	24	720		pg/g	10/13/23	13:54	TT	478693
2,3,7,8-TCDD	SW8290Mod	1	0.20	0.48	18.2		pg/g	10/13/23	13:54	TT	478693
1,2,3,7,8-PeCDD	SW8290Mod	1	1.1	4.8	75.6		pg/g	10/13/23	13:54	TT	478693
1,2,3,4,7,8-HxCDD	SW8290Mod	1	0.89	4.8	55.5		pg/g	10/13/23	13:54	TT	478693
1,2,3,6,7,8-HxCDD	SW8290Mod	1	1.3	4.8	85.1		pg/g	10/13/23	13:54	TT	478693
1,2,3,7,8,9-HxCDD	SW8290Mod	1	3.1	4.8	86.2		pg/g	10/13/23	13:54	TT	478693
1,2,3,4,6,7,8-HpCDD	SW8290Mod	1	1.5	4.8	681		pg/g	10/13/23	13:54	TT	478693
OCDD	SW8290Mod	1	4.2	24	1210		pg/g	10/13/23	13:54	TT	478693
Total-Dioxins	SW8290Mod	1	0.20	0.48	2210		pg/g	10/13/23	13:54	TT	478693
Total-Furans	SW8290Mod	1	0.21	0.48	4440		pg/g	10/13/23	13:54	TT	478693
TEQ	SW8290Mod	1			395		pg/g	10/13/23	13:54	TT	478693
Acceptance Limits											
(LS) 13C-2,3,7,8-TCDF	SW8290Mod		40 - 135		65.7		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,7,8-PeCDF	SW8290Mod		40 - 135		74.1		%	10/13/23	13:54	TT	478693
(LS) 13C-2,3,4,7,8-PeCDF	SW8290Mod		40 - 135		87.3		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,4,7,8-HxCDF	SW8290Mod		40 - 135		56.0		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,6,7,8-HxCDF	SW8290Mod		40 - 135		51.3		%	10/13/23	13:54	TT	478693
(LS) 13C-2,3,4,6,7,8-HxCDF	SW8290Mod		40 - 135		56.2		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,7,8,9-HxCDF	SW8290Mod		40 - 135		48.9		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,4,6,7,8-HpCDF	SW8290Mod		40 - 135		52.5		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,4,7,8,9-HpCDF	SW8290Mod		40 - 135		55.6		%	10/13/23	13:54	TT	478693
(LS) 13C-2,3,7,8-TCDD	SW8290Mod		40 - 135		68.0		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,7,8-PeCDD	SW8290Mod		40 - 135		82.6		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,4,7,8-HxCDD	SW8290Mod		40 - 135		58.6		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,6,7,8-HxCDD	SW8290Mod		40 - 135		44.8		%	10/13/23	13:54	TT	478693
(LS) 13C-1,2,3,4,6,7,8-HpCDD	SW8290Mod		40 - 135		62.7		%	10/13/23	13:54	TT	478693
(LS) 13C-OCDD	SW8290Mod		40 - 135		52.0		%	10/13/23	13:54	TT	478693



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Triplicate	Lab Sample ID:	2309213-001C
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 7471BP	Prep Batch Date/Time: 10/2/23	12:05:00PM
Prep Batch ID: 1154841	Prep Analyst: AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Mercury	SW7471B	1	0.049	0.29	ND		mg/Kg	10/03/23	12:20	NK	478461



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Triplicate	Lab Sample ID:	2309213-001C
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3050B	Prep Batch Date/Time: 10/2/23	12:05:00PM
Prep Batch ID: 1154839	Prep Analyst: AJNG	

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
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The results shown below are reported using their MDL.

Antimony	SW6010C	10	0.25	25	95.8		mg/Kg	10/02/23	21:02	PH	478479
Arsenic	SW6010C	10	0.75	6.5	3080		mg/Kg	10/02/23	21:02	PH	478479
Barium	SW6010C	10	0.28	25	613		mg/Kg	10/02/23	21:02	PH	478479
Beryllium	SW6010C	10	0.28	25	0.475	J	mg/Kg	10/02/23	21:02	PH	478479
Cadmium	SW6010C	10	0.50	25	3.30	J	mg/Kg	10/02/23	21:02	PH	478479
Chromium	SW6010C	10	0.38	25	850		mg/Kg	10/02/23	21:02	PH	478479
Cobalt	SW6010C	10	0.35	25	88.5		mg/Kg	10/02/23	21:02	PH	478479
Copper	SW6010C	10	1.0	25	2980		mg/Kg	10/02/23	21:02	PH	478479
Lead	SW6010C	10	0.50	15	655		mg/Kg	10/02/23	21:02	PH	478479
Nickel	SW6010C	10	2.5	25	82.3		mg/Kg	10/02/23	21:02	PH	478479
Selenium	SW6010C	10	1.8	5.5	ND		mg/Kg	10/02/23	21:02	PH	478479
Silver	SW6010C	10	0.75	2.5	16.5		mg/Kg	10/02/23	21:02	PH	478479
Thallium	SW6010C	10	1.0	25	ND		mg/Kg	10/02/23	21:02	PH	478479
Vanadium	SW6010C	10	0.50	25	122		mg/Kg	10/02/23	21:02	PH	478479
Zinc	SW6010C	10	1.5	25	1810		mg/Kg	10/02/23	21:02	PH	478479
Aluminum	SW6010C	10	110	500	26500		mg/Kg	10/02/23	21:02	PH	478479
Calcium	SW6010C	10	61	250	173000		mg/Kg	10/02/23	21:02	PH	478479
Iron	SW6010C	10	86	250	25500		mg/Kg	10/02/23	21:02	PH	478479
Magnesium	SW6010C	10	25	250	14300		mg/Kg	10/02/23	21:02	PH	478479
Manganese	SW6010C	10	4.3	25	713		mg/Kg	10/02/23	21:02	PH	478479
Potassium	SW6010C	10	24	250	2380		mg/Kg	10/02/23	21:02	PH	478479
Sodium	SW6010C	10	680	1500	4150		mg/Kg	10/02/23	21:02	PH	478479



SAMPLE RESULTS

Report prepared for:

Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am

Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Triplicate	Lab Sample ID:	2309213-001C
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 3546_PAHSIM	Prep Batch Date/Time: 10/3/23	11:40:00AM
Prep Batch ID: 1154834	Prep Analyst:	AKIZ

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
Naphthalene	SW8270CSIM	1	0.23	3.3	270		ug/Kg	10/04/23	1:34	MT	478488
2-Methylnaphthalene	SW8270CSIM	1	0.23	3.3	63		ug/Kg	10/04/23	1:34	MT	478488
1-Methylnaphthalene	SW8270CSIM	1	0.21	3.3	60		ug/Kg	10/04/23	1:34	MT	478488
Acenaphthylene	SW8270CSIM	1	0.23	3.3	8.5		ug/Kg	10/04/23	1:34	MT	478488
Acenaphthene	SW8270CSIM	1	0.24	3.3	5.5		ug/Kg	10/04/23	1:34	MT	478488
Fluorene	SW8270CSIM	1	0.27	3.3	7.4		ug/Kg	10/04/23	1:34	MT	478488
Phenanthrene	SW8270CSIM	1	0.24	3.3	9.6		ug/Kg	10/04/23	1:34	MT	478488
Anthracene	SW8270CSIM	1	0.17	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Fluoranthene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Pyrene	SW8270CSIM	1	0.23	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Benz[a]anthracene	SW8270CSIM	1	0.24	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Chrysene	SW8270CSIM	1	0.12	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Benzo[b]fluoranthene	SW8270CSIM	1	0.41	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Benzo[k]fluoranthene	SW8270CSIM	1	0.48	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Benzo[a]pyrene	SW8270CSIM	1	0.35	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Indeno[1,2,3-cd]pyrene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Dibenz[a,h]anthracene	SW8270CSIM	1	0.55	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Benzo[g,h,i]perylene	SW8270CSIM	1	0.50	3.3	ND		ug/Kg	10/04/23	1:34	MT	478488
Acceptance Limits											
2-Fluorobiphenyl (S)	SW8270CSIM		45 - 125		57		%	10/04/23	1:34	MT	478488
p-Terphenyl-d14 (S)	SW8270CSIM		30 - 125		0.99	S	%	10/04/23	1:34	MT	478488

NOTE: S- outside of control limits due to possible matrix interference (Ash matrix)

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23	5:20:00PM
Prep Batch ID: 1154859	Prep Analyst:	MSAT
	Units:	pg/g

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
2,3,7,8-TCDF	SW8290Mod	1	0.21	0.48	180		pg/g	10/13/23	16:27	TT	478693
1,2,3,7,8-PeCDF	SW8290Mod	1	0.99	4.8	244		pg/g	10/13/23	16:27	TT	478693
2,3,4,7,8-PeCDF	SW8290Mod	1	0.65	4.8	385		pg/g	10/13/23	16:27	TT	478693
1,2,3,4,7,8-HxCDF	SW8290Mod	1	0.48	4.8	337		pg/g	10/13/23	16:27	TT	478693
1,2,3,6,7,8-HxCDF	SW8290Mod	1	1.1	4.8	353		pg/g	10/13/23	16:27	TT	478693
2,3,4,6,7,8-HxCDF	SW8290Mod	1	1.4	4.8	459		pg/g	10/13/23	16:27	TT	478693
1,2,3,7,8,9-HxCDF	SW8290Mod	1	1.8	4.8	147		pg/g	10/13/23	16:27	TT	478693
1,2,3,4,6,7,8-HpCDF	SW8290Mod	1	1.8	4.8	1560		pg/g	10/13/23	16:27	TT	478693
1,2,3,4,7,8,9-HpCDF	SW8290Mod	1	1.1	4.8	158		pg/g	10/13/23	16:27	TT	478693



SAMPLE RESULTS

Report prepared for: Eric Jensen
Tetra Tech Inc (HI)

Date/Time Received: 09/27/23, 10:56 am
Date Reported: 11/22/23

Client Sample ID:	KULA ASH #1 Triplicate	Lab Sample ID:	2309213-001C
Project Name/Location:	DOH Maui Wildfire Ash Sample-KULA	Sample Matrix:	Soil
Project Number:	103S864023138		
Date/Time Sampled:	09/21/23 / 17:00		
SDG:			

Prep Method: 8290S-P	Prep Batch Date/Time: 10/2/23 5:20:00PM
Prep Batch ID: 1154859	Prep Analyst: MSAT
	Units: pg/g

Parameters:	Analysis Method	DF	MDL	PQL	Results	Q	Units	Analyzed	Time	By	Analytical Batch
OCDF	SW8290Mod	1	1.4	24	760		pg/g	10/13/23	16:27	TT	478693
2,3,7,8-TCDD	SW8290Mod	1	0.20	0.48	23.8		pg/g	10/13/23	16:27	TT	478693
1,2,3,7,8-PeCDD	SW8290Mod	1	1.1	4.8	81.7		pg/g	10/13/23	16:27	TT	478693
1,2,3,4,7,8-HxCDD	SW8290Mod	1	0.90	4.8	62.9		pg/g	10/13/23	16:27	TT	478693
1,2,3,6,7,8-HxCDD	SW8290Mod	1	1.3	4.8	97.8		pg/g	10/13/23	16:27	TT	478693
1,2,3,7,8,9-HxCDD	SW8290Mod	1	3.1	4.8	99.1		pg/g	10/13/23	16:27	TT	478693
1,2,3,4,6,7,8-HpCDD	SW8290Mod	1	1.5	4.8	756		pg/g	10/13/23	16:27	TT	478693
OCDD	SW8290Mod	1	4.2	24	1330		pg/g	10/13/23	16:27	TT	478693
Total-Dioxins	SW8290Mod	1	0.20	0.48	2450		pg/g	10/13/23	16:27	TT	478693
Total-Furans	SW8290Mod	1	0.21	0.48	4590		pg/g	10/13/23	16:27	TT	478693
TEQ	SW8290Mod	1			427		pg/g	10/13/23	16:27	TT	478693
Acceptance Limits											
(LS) 13C-2,3,7,8-TCDF	SW8290Mod		40 - 135		65.7		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,7,8-PeCDF	SW8290Mod		40 - 135		71.3		%	10/13/23	16:27	TT	478693
(LS) 13C-2,3,4,7,8-PeCDF	SW8290Mod		40 - 135		87.0		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,4,7,8-HxCDF	SW8290Mod		40 - 135		58.0		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,6,7,8-HxCDF	SW8290Mod		40 - 135		53.7		%	10/13/23	16:27	TT	478693
(LS) 13C-2,3,4,6,7,8-HxCDF	SW8290Mod		40 - 135		58.0		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,7,8,9-HxCDF	SW8290Mod		40 - 135		49.3		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,4,6,7,8-HpCDF	SW8290Mod		40 - 135		56.2		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,4,7,8,9-HpCDF	SW8290Mod		40 - 135		57.1		%	10/13/23	16:27	TT	478693
(LS) 13C-2,3,7,8-TCDD	SW8290Mod		40 - 135		66.7		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,7,8-PeCDD	SW8290Mod		40 - 135		79.3		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,4,7,8-HxCDD	SW8290Mod		40 - 135		59.7		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,6,7,8-HxCDD	SW8290Mod		40 - 135		44.6		%	10/13/23	16:27	TT	478693
(LS) 13C-1,2,3,4,6,7,8-HpCDD	SW8290Mod		40 - 135		64.2		%	10/13/23	16:27	TT	478693
(LS) 13C-OCDD	SW8290Mod		40 - 135		53.3		%	10/13/23	16:27	TT	478693

NOTE:



MB Summary Report

Work Order:	2309213	Prep Method:	3546_PAHSIM	Prep Date:	10/03/23	Prep Batch:	1154834
Matrix:	Soil	Analytical Method:	SW8270CSIM	Analyzed Date:	10/3/2023	Analytical Batch:	478488
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Naphthalene	0.43	1.5	ND		
2-Methylnaphthalene	0.19	1.5	ND		
1-Methylnaphthalene	0.15	1.5	ND		
Acenaphthylene	0.15	1.5	ND		
Acenaphthene	0.13	1.5	ND		
Fluorene	0.22	1.5	ND		
Phenanthrene	0.49	1.5	ND		
Anthracene	0.44	1.5	ND		
Fluoranthene	0.44	1.5	ND		
Pyrene	0.46	1.5	ND		
Benzo[a]anthracene	0.39	1.5	1.39		
Chrysene	0.41	1.5	0.676		
Benzo[b]fluoranthene	0.20	1.5	0.667		
Benzo[k]fluoranthene	0.19	1.5	0.569		
Benzo[a]pyrene	0.24	1.5	0.533		
Indeno[1,2,3-cd]pyrene	0.18	1.5	0.310		
Dibenz[a,h]anthracene	0.23	1.5	0.337		
Benzo[g,h,i]perylene	0.22	1.5	0.304		
2-Fluorobiphenyl (S)			73.3		
p-Terphenyl-d14 (S)			97.5		



MB Summary Report

Work Order:	2309213	Prep Method:	3050B	Prep Date:	10/02/23	Prep Batch:	1154839
Matrix:	Soil	Analytical Method:	SW6010C	Analyzed Date:	10/2/2023	Analytical Batch:	478479
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Antimony	0.025	2.50	ND		
Arsenic	0.075	0.650	ND		
Barium	0.028	2.50	ND		
Beryllium	0.028	2.50	ND		
Cadmium	0.050	2.50	ND		
Chromium	0.038	2.50	ND		
Cobalt	0.035	2.50	ND		
Copper	0.10	2.50	ND		
Lead	0.050	1.50	ND		
Nickel	0.25	2.50	ND		
Selenium	0.18	0.550	ND		
Silver	0.075	0.250	ND		
Thallium	0.10	2.50	ND		
Vanadium	0.050	2.50	ND		
Zinc	0.15	2.50	ND		
Aluminum	11	50.0	ND		
Calcium	6.0	25.0	ND		
Iron	8.6	25.0	ND		
Magnesium	2.5	25.0	ND		
Manganese	0.43	2.50	0.57	J	
Potassium	2.4	25.0	ND		
Sodium	68	150	ND		

Work Order:	2309213	Prep Method:	7471BP	Prep Date:	10/02/23	Prep Batch:	1154841
Matrix:	Soil	Analytical Method:	SW7471B	Analyzed Date:	10/3/2023	Analytical Batch:	478461
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Mercury	0.050	0.30	ND		

Work Order:	2309213	Prep Method:	3546_TPH TetraMI	Prep Date:	10/02/23	Prep Batch:	1154856
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	10/3/2023	Analytical Batch:	478454
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
TPH as Diesel	1.1	2.7	2.06		
TPH as Motor Oil	4.2	13	ND		
Pentacosane (S)			115		



MB Summary Report

Work Order:	2309213	Prep Method:	8290S-P	Prep Date:	10/02/23	Prep Batch:	1154859
Matrix:	Soil	Analytical Method:	SW8290	Analyzed Date:	10/13/2023	Analytical Batch:	478693
Units:	pg/g						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
2,3,7,8-TCDF	0.21	0.49	ND		
1,2,3,7,8-PeCDF	1.00	4.9	ND		
2,3,4,7,8-PeCDF	0.66	4.9	ND		
1,2,3,4,7,8-HxCDF	0.49	4.9	ND		
1,2,3,6,7,8-HxCDF	1.1	4.9	ND		
2,3,4,6,7,8-HxCDF	1.4	4.9	ND		
1,2,3,7,8,9-HxCDF	1.9	4.9	ND		
1,2,3,4,6,7,8-HpCDF	1.8	4.9	ND		
1,2,3,4,7,8,9-HpCDF	1.1	4.9	ND		
OCDF	1.5	24	ND		
2,3,7,8-TCDD	0.20	0.49	ND		
1,2,3,7,8-PeCDD	1.1	4.9	ND		
1,2,3,4,7,8-HxCDD	0.91	4.9	ND		
1,2,3,6,7,8-HxCDD	1.3	4.9	ND		
1,2,3,7,8,9-HxCDD	3.2	4.9	ND		
1,2,3,4,6,7,8-HpCDD	1.5	4.9	1.99		
OCDD	4.3	24	13.5		
Total-Dioxins	0.20	4.9	ND		
Total-Furans	0.21	0.49	ND		
OCDD			0.000		
(LS) 13C-2,3,7,8-TCDF			80.0		
(LS) 13C-1,2,3,7,8-PeCDF			96.0		
(LS) 13C-2,3,4,7,8-PeCDF			105		
(LS) 13C-1,2,3,4,7,8-HxCDF			79.4		
(LS) 13C-1,2,3,6,7,8-HxCDF			76.7		
(LS) 13C-2,3,4,6,7,8-HxCDF			82.9		
(LS) 13C-1,2,3,7,8,9-HxCDF			90.8		
(LS) 13C-1,2,3,4,6,7,8-HpCDF			76.9		
(LS) 13C-1,2,3,4,7,8,9-HpCDF			78.6		
(LS) 13C-2,3,7,8-TCDD			87.0		
(LS) 13C-1,2,3,7,8-PeCDD			103		
(LS) 13C-1,2,3,4,7,8-HxCDD			81.7		
(LS) 13C-1,2,3,6,7,8-HxCDD			67.1		
(LS) 13C-1,2,3,4,6,7,8-HpCDD			86.0		
(LS) 13C-OCDD			69.4		



MB Summary Report

Work Order:	2309213	Prep Method:	3546MI_OCP	Prep Date:	10/03/23	Prep Batch:	1154874
Matrix:	Soil	Analytical Method:	SW8081B	Analyzed Date:	10/3/2023	Analytical Batch:	478487
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
alpha-BHC	0.13	2.0	ND		
gamma-BHC (Lindane)	0.16	2.0	ND		
beta-BHC	0.32	2.0	ND		
delta-BHC	0.16	2.0	ND		
Heptachlor	0.11	2.0	ND		
Aldrin	0.20	2.0	ND		
Heptachlor Epoxide	0.078	2.0	ND		
gamma-Chlordane	0.16	2.0	ND		
alpha-Chlordane	0.17	2.0	ND		
4,4-DDE	0.19	2.0	ND		
Endosulfan I	0.18	2.0	ND		
Dieldrin	0.15	2.0	ND		
Endrin	0.19	2.0	ND		
4,4-DDD	0.57	2.0	ND		
Endosulfan II	0.58	2.0	ND		
4,4-DDT	0.13	2.0	ND		
Endrin Aldehyde	0.15	2.0	ND		
Methoxychlor	0.20	2.0	ND		
Endosulfan Sulfate	0.12	2.0	ND		
Endrin Ketone	0.094	2.0	ND		
Chlordane, Technical	2.1	20	ND		
Toxaphene	8.5	50	ND		
TCMX (S)			101		
DCBP (S)			97.4		

Work Order:	2309213	Prep Method:	3546_PCB	Prep Date:	10/04/23	Prep Batch:	1154922
Matrix:	Soil	Analytical Method:	SW8082A	Analyzed Date:	10/4/2023	Analytical Batch:	478523
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier	
Aroclor1016	35.0	100	ND		
Aroclor1221	5.00	100	ND		
Aroclor1232	17.0	100	ND		
Aroclor1242	3.00	100	ND		
Aroclor1248	2.00	100	ND		
Aroclor1254	14.0	100	ND		
Aroclor1260	24.0	100	ND		
TCMX (S)			91.0		
DCBP (S)			96.0		



MB Summary Report

Work Order:	2309213	Prep Method:	Bioavailable As	Prep Date:	10/10/23	Prep Batch:	1155069
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	10/11/2023	Analytical Batch:	478726
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Arsenic	0.0100	0.100	0.0482	

Work Order:	2309213	Prep Method:	1312/3010A	Prep Date:	11/17/23	Prep Batch:	1156199
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	11/17/2023	Analytical Batch:	479721
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Antimony (SPLP)	0.10	0.20	ND	
Arsenic (SPLP)	0.40	0.20	ND	
Barium (SPLP)	0.020	0.20	ND	
Beryllium (SPLP)	0.010	0.20	ND	
Cadmium (SPLP)	0.040	0.20	ND	
Chromium (SPLP)	0.010	0.20	ND	
Cobalt (SPLP)	0.010	0.20	ND	
Copper (SPLP)	0.020	0.20	ND	
Lead (SPLP)	0.050	0.20	ND	
Molybdenum (SPLP)	0.020	0.20	ND	
Nickel (SPLP)	0.010	0.20	ND	
Selenium (SPLP)	0.090	0.20	ND	
Silver (SPLP)	0.020	0.20	ND	
Thallium (SPLP)	0.12	0.20	ND	
Vanadium (SPLP)	0.020	0.20	ND	
Zinc (SPLP)	0.080	0.20	ND	

Work Order:	2309213	Prep Method:	1312/7470	Prep Date:	11/17/23	Prep Batch:	1156202
Matrix:	Soil	Analytical Method:	SW7470A	Analyzed Date:	11/20/2023	Analytical Batch:	479741
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury (SPLP)	0.00013	0.020	ND	

Work Order:	2309213	Prep Method:	TOC-S-P	Prep Date:	12/27/23	Prep Batch:	1157083
Matrix:	Soil	Analytical Method:	E9060A	Analyzed Date:	12/28/2023	Analytical Batch:	480536
Units:	mg/L						

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



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	3546_PAHSIM	Prep Date:	10/03/23	Prep Batch:	1154834
Matrix:	Soil	Analytical Method:	SW8270CSIM	Analyzed Date:	10/4/2023	Analytical Batch:	478488
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Acenaphthene	0.13	3.3	ND	333.3	79.3	76.8	3.08	45 - 125	30	
Pyrene	0.46	3.3	ND	333.3	88.5	95.8	7.82	45 - 125	30	
2-Fluorobiphenyl (S)				5556	82.6	75.5		45 - 125		
Acenaphthylene			ND	5556				30 - 125		

Work Order:	2309213	Prep Method:	3050B	Prep Date:	10/02/23	Prep Batch:	1154839
Matrix:	Soil	Analytical Method:	SW6010C	Analyzed Date:	10/2/2023	Analytical Batch:	478479
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.025	2.49	ND	25	99.8	97.9	3.70	80 - 120	30	
Arsenic	0.075	0.647	ND	25	99.0	97.6	3.31	80 - 120	30	
Barium	0.027	2.49	ND	25	101	99.6	3.24	80 - 120	30	
Beryllium	0.027	2.49	ND	25	101	99.3	3.65	80 - 120	30	
Cadmium	0.050	2.49	ND	25	100	98.6	3.68	80 - 120	30	
Chromium	0.037	2.49	ND	25	101	99.5	3.24	80 - 120	30	
Cobalt	0.035	2.49	ND	25	101	99.2	3.65	80 - 120	30	
Copper	0.100	2.49	ND	25	103	101	3.98	80 - 120	30	
Lead	0.050	1.49	ND	25	101	99.0	4.07	80 - 120	30	
Nickel	0.25	2.49	ND	25	101	99.1	3.65	80 - 120	30	
Selenium	0.11	2.49	ND	25	95.1	94.1	3.00	80 - 120	30	
Silver	0.075	2.49	ND	25	101	99.0	4.07	80 - 120	30	
Thallium	0.100	2.49	ND	25	100	98.4	3.68	80 - 120	30	
Vanadium	0.050	2.49	ND	25	102	99.7	4.43	80 - 120	30	
Zinc	0.15	2.49	ND	25	100	98.3	3.68	80 - 120	30	
Aluminum	0.60	49.8	ND	250	106	104	3.86	80 - 120	30	
Calcium	5.0	24.9	ND	250	101	99.8	3.24	80 - 120	30	
Iron	5.0	24.9	ND	250	102	99.9	4.02	80 - 120	30	
Magnesium	5.0	24.9	ND	250	99.7	98.0	3.70	80 - 120	30	
Manganese	0.50	2.49	0.57	25	102	99.8	4.43	80 - 120	30	
Potassium	2.3	24.9	ND	250	102	100	4.02	80 - 120	30	
Sodium	5.0	24.9	ND	250	101	99.1	3.65	80 - 120	30	

Work Order:	2309213	Prep Method:	7471BP	Prep Date:	10/02/23	Prep Batch:	1154841
Matrix:	Soil	Analytical Method:	SW7471B	Analyzed Date:	10/3/2023	Analytical Batch:	478461
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.027	0.29	ND	0.735	107	107	0.000	80 - 120	20	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	3546_TPHetraMI	Prep Date:	10/02/23	Prep Batch:	1154856
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	10/3/2023	Analytical Batch:	478454
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	1.1	2.7	2.06	33.3	87.1	91.4	5.04	52 - 115	30	
Pentacosane (S)				200	97.8	94.0		59 - 129		

Work Order:	2309213	Prep Method:	8290S-P	Prep Date:	10/02/23	Prep Batch:	1154859
Matrix:	Soil	Analytical Method:	SW8290	Analyzed Date:	10/13/2023	Analytical Batch:	478693
Units:	pg/g						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
2,3,7,8-TCDF	0.21	0.48	ND	50	88.6			70 - 130		
1,2,3,7,8-PeCDF	0.99	4.8	ND	200	89.9			70 - 130		
2,3,4,7,8-PeCDF	0.65	4.8	ND	200	93.1			70 - 130		
1,2,3,4,7,8-HxCDF	0.49	4.8	ND	200	89.9			70 - 130		
1,2,3,6,7,8-HxCDF	1.1	4.8	ND	200	90.9			70 - 130		
2,3,4,6,7,8-HxCDF	1.4	4.8	ND	200	88.5			70 - 130		
1,2,3,7,8,9-HxCDF	1.9	4.8	ND	200	102			70 - 130		
1,2,3,4,6,7,8-HpCDF	1.8	4.8	ND	200	87.0			70 - 130		
1,2,3,4,7,8,9-HpCDF	1.1	4.8	ND	200	92.3			70 - 130		
OCDF	1.4	24	ND	500	105			70 - 130		
2,3,7,8-TCDD	0.20	0.48	ND	50	95.7			70 - 130		
1,2,3,7,8-PeCDD	1.1	4.8	ND	200	94.9			70 - 130		
1,2,3,4,7,8-HxCDD	0.90	4.8	ND	200	85.6			70 - 130		
1,2,3,6,7,8-HxCDD	1.3	4.8	ND	200	93.6			70 - 130		
1,2,3,7,8,9-HxCDD	3.1	4.8	ND	200	124			70 - 130		
1,2,3,4,6,7,8-HpCDD	1.5	4.8	1.99	200	99.8			70 - 130		
OCDD	4.3	24	13.5	500	93.5			70 - 130		
(LS) 13C-2,3,7,8-TCDF				100	82.5			40 - 135		
(LS) 13C-1,2,3,7,8-PeCDF				100	95.1			40 - 135		
(LS) 13C-2,3,4,7,8-PeCDF				100	98.6			40 - 135		
(LS) 13C-1,2,3,4,7,8-HxCDF				100	81.3			40 - 135		
(LS) 13C-1,2,3,6,7,8-HxCDF				100	76.3			40 - 135		
(LS) 13C-2,3,4,6,7,8-HxCDF				100	84.4			40 - 135		
(LS) 13C-1,2,3,7,8,9-HxCDF				100	89.3			40 - 135		
(LS) 13C-1,2,3,4,6,7,8-HpCDF				100	76.8			40 - 135		
(LS) 13C-1,2,3,4,7,8,9-HpCDF				100	78.9			40 - 135		
(LS) 13C-2,3,7,8-TCDD				100	88.6			40 - 135		
(LS) 13C-1,2,3,7,8-PeCDD				100	98.9			40 - 135		
(LS) 13C-2,3,7,8-TCDF				100	82.0			40 - 135		
(LS) 13C-1,2,3,7,8-PeCDF				100	67.5			40 - 135		
(LS) 13C-2,3,4,7,8-PeCDF				100	85.2			40 - 135		
(LS) 13C-1,2,3,4,7,8-HxCDF				200	70.0			40 - 135		



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	3546MI_OCP	Prep Date:	10/03/23	Prep Batch:	1154874
Matrix:	Soil	Analytical Method:	SW8081B	Analyzed Date:	10/3/2023	Analytical Batch:	478487
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
alpha-BHC	0.18	2.0	ND	40	86.2	91.2	5.63	45 - 137	30	
gamma-BHC (Lindane)	0.16	2.0	ND	40	83.5	88.8	6.10	49 - 135	30	
beta-BHC	0.32	2.0	ND	40	83.1	88.6	6.41	50 - 136	30	
delta-BHC	0.22	2.0	ND	40	83.9	89.6	6.34	47 - 139	30	
Heptachlor	0.12	2.0	ND	40	85.7	92.6	7.57	47 - 136	30	
Aldrin	0.20	2.0	ND	40	91.2	96.0	5.07	45 - 136	30	
Heptachlor Epoxide	0.24	2.0	ND	40	86.4	93.8	8.04	52 - 136	30	
gamma-Chlordane	0.44	2.0	ND	40	89.3	96.8	8.06	53 - 135	30	
alpha-Chlordane	0.21	2.0	ND	40	88.1	95.6	8.17	54 - 133	30	
4,4-DDE	0.45	2.0	ND	40	88.9	95.3	6.78	56 - 134	30	
Endosulfan I	0.20	2.0	ND	40	82.5	89.8	8.42	53 - 132	30	
Dieldrin	0.15	2.0	ND	40	83.4	90.8	8.32	56 - 136	30	
Endrin	1.4	2.0	ND	40	86.0	96.0	11.0	57 - 140	30	
4,4-DDD	0.57	2.0	ND	40	82.8	92.8	11.4	56 - 139	30	
Endosulfan II	0.93	4.0	ND	40	85.1	94.3	10.3	53 - 134	30	
4,4-DDT	0.24	2.0	ND	40	74.4	85.8	14.4	50 - 141	30	
Endrin Aldehyde	0.61	2.0	ND	40	75.0	85.4	13.1	35 - 137	30	
Methoxychlor	0.20	2.0	ND	120	78.9	94.8	18.5	52 - 143	30	
Endosulfan Sulfate	0.58	2.0	ND	40	84.0	93.6	10.7	55 - 134	30	
Endrin Ketone	0.098	2.0	ND	40	81.0	92.3	13.0	55 - 136	30	
Chlordane, Technical			ND	100				47 - 130		
DCBP (S)				100	83.8	94.1		54 - 125		

Work Order:	2309213	Prep Method:	3546_PCB	Prep Date:	10/04/23	Prep Batch:	1154922
Matrix:	Soil	Analytical Method:	SW8082A	Analyzed Date:	10/4/2023	Analytical Batch:	478523
Units:	ug/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	53	100	ND	600	84.8	85.7	0.978	25 - 145	30	
Aroclor1260	36	100	ND	600	91.8	89.2	2.95	30 - 145	30	
TCMX (S)				0.10	95.0	97.0		48 - 125		
DCBP (S)				0.10	105	103		48 - 135		

Work Order:	2309213	Prep Method:	Bioavailable As	Prep Date:	10/10/23	Prep Batch:	1155069
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	10/11/2023	Analytical Batch:	478726
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	0.0100	0.100	0.0482	1.0	115	110	4.44	80 - 120	30	



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	1312/3010A	Prep Date:	11/17/23	Prep Batch:	1156199
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	11/17/2023	Analytical Batch:	479721
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony (SPLP)	0.10	0.20	ND	10	104	103	0.966	80 - 120	20	
Arsenic (SPLP)	0.20	0.40	ND	10	104	103	0.966	80 - 120	20	
Barium (SPLP)	0.020	0.20	ND	10	104	103	0.966	80 - 120	20	
Beryllium (SPLP)	0.010	0.20	ND	10	103	102	0.976	80 - 120	20	
Cadmium (SPLP)	0.040	0.20	ND	10	103	101	1.96	80 - 120	20	
Chromium (SPLP)	0.010	0.20	ND	10	103	102	0.976	80 - 120	20	
Cobalt (SPLP)	0.010	0.20	ND	10	104	102	1.94	80 - 120	20	
Copper (SPLP)	0.020	0.20	ND	10	104	102	1.94	80 - 120	20	
Lead (SPLP)	0.050	0.20	ND	10	103	102	0.976	80 - 120	20	
Molybdenum (SPLP)	0.020	0.20	ND	10	103	102	0.976	80 - 120	20	
Nickel (SPLP)	0.010	0.20	ND	10	103	102	0.976	80 - 120	20	
Selenium (SPLP)	0.090	0.20	ND	10	105	103	1.92	80 - 120	20	
Silver (SPLP)	0.020	0.20	ND	10	103	102	0.976	80 - 120	20	
Thallium (SPLP)	0.12	0.20	ND	10	103	102	0.976	80 - 120	20	
Vanadium (SPLP)	0.020	0.20	ND	10	104	102	1.94	80 - 120	20	
Zinc (SPLP)	0.080	0.20	ND	10	103	102	0.976	80 - 120	20	

Work Order:	2309213	Prep Method:	1312/7470	Prep Date:	11/17/23	Prep Batch:	1156202
Matrix:	Soil	Analytical Method:	SW7470A	Analyzed Date:	11/20/2023	Analytical Batch:	479741
Units:	mg/L						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury (SPLP)	0.00013	0.020	ND	0.015	95.8	93.4	2.82	80 - 120	20	

Work Order:	2309213	Prep Method:	TOC-S-P	Prep Date:	12/27/23	Prep Batch:	1157083
Matrix:	Soil	Analytical Method:	E9060A	Analyzed Date:	12/28/2023	Analytical Batch:	480536
Units:	mg/L						

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	121	120	1.25	60 - 140	20	



MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	3546_PAHSIM	Prep Date:	10/03/23	Prep Batch:	1154834
Matrix:	Soil	Analytical Method:	SW8270CSIM	Analyzed Date:	10/4/2023	Analytical Batch:	478488
Spiked Sample:	2309213-001A						
Units:	ug/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Acenaphthene	0.135	3.30	5.50	333.3	34.8	17.9	60.5	45 - 125	30	S,R
Pyrene	0.457	3.30	ND	333.3	6.29	4.36	36.6	45 - 125	30	S,R
2-Fluorobiphenyl (S)				5556	42.6	20.6	69.6	45 - 125		S
p-Terphenyl-d14 (S)				5556	4.77	3.97	18.3	30 - 125		S

Work Order:	2309213	Prep Method:	3050B	Prep Date:	10/02/23	Prep Batch:	1154839
Matrix:	Soil	Analytical Method:	SW6010C	Analyzed Date:	10/2/2023	Analytical Batch:	478479
Spiked Sample:	2309213-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Antimony	0.25	25.1	110	25	0	0	0.000	30.7 - 130	30	NR
Arsenic	6.5	25.1	3240	25	0	0	5.00	71.0 - 121	30	NR
Barium	0.28	25.1	365	25	0	0	11.7	70.2 - 130	30	NR
Beryllium	0.28	25.1	ND	25	89.5	92.5	3.84	73.3 - 115	30	
Cadmium	0.50	25.1	ND	25	85.6	90.2	5.07	68.7 - 110	30	
Chromium	0.38	25.1	926	25	0	0	2.70	76.0 - 116	30	NR
Cobalt	0.35	25.1	85.7	25	90.9	89.6	0.922	57.4 - 122	30	
Copper	1.0	25.1	3240	25	0	0	6.61	74.8 - 119	30	NR
Lead	15	25.1	640	25	0	0	7.10	67.9 - 118	30	NR
Nickel	2.5	25.1	84.7	25	83.9	67.6	3.85	61.5 - 122	30	
Selenium	1.1	25.1	ND	25	83.5	86.9	4.63	62.0 - 111	30	
Silver	0.75	25.1	ND	25	108	103	2.26	75 - 125	30	
Thallium	1.0	25.1	ND	25	71.8	75.2	5.04	39.2 - 125	30	
Vanadium	0.50	25.1	130	25	0	0	3.30	65.8 - 122	30	NR
Zinc	1.5	25.1	1890	25	0	0	5.71	59.9 - 122	30	NR
Aluminum	110	503	28100	250	0	0	4.90	75.0 - 125	30	NR
Calcium	61	251	181000	250	0	0	6.09	77.0 - 125	30	NR
Iron	86	251	27800	250	0	0	0.364	75.0 - 125	30	NR
Magnesium	25	251	15100	250	0	0	5.23	75.0 - 125	30	NR
Manganese	4.3	25.1	742	25	0	0	2.49	75.0 - 125	30	NR
Potassium	24	251	2530	250	0	0	5.07	75.0 - 125	30	NR
Sodium	50	251	4340	250	0	0	4.82	75.0 - 125	30	NR



MS/MSD Summary Report

Raw values are used in quality control assessment.

Work Order:	2309213	Prep Method:	7471BP	Prep Date:	10/02/23	Prep Batch:	1154841
Matrix:	Soil	Analytical Method:	SW7471B	Analyzed Date:	10/3/2023	Analytical Batch:	478461
Spiked Sample:	2309213-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.029	0.31	ND	0.765	86.1	80.1	0.866	80 - 120	20	

Work Order:	2309213	Prep Method:	3546_TPHetraMI	Prep Date:	10/02/23	Prep Batch:	1154856
Matrix:	Soil	Analytical Method:	SW8015B	Analyzed Date:	10/3/2023	Analytical Batch:	478454
Spiked Sample:	2309213-001A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	4.53	10.7	80.0	33.3	64.6	22.7	15.2	52 - 115	30	S,x
Pentacosane (S)				200	81.6	70.6		59 - 129		

Work Order:	2309213	Prep Method:	Bioavailable As	Prep Date:	10/10/23	Prep Batch:	1155069
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	10/11/2023	Analytical Batch:	478726
Spiked Sample:	2309213-001B						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Bioaccessible Arsenic	0.0100	0.100	27.0	1.0	0	0	0.000	60 - 140	30	NR



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

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: 9/27/2023 10:56:00AM

Project Name: DOH Maui Wildfire Ash Sample-KULA

Received By: Lorna Imbat

Work Order No.: 2309213

Physically Logged By: TTHACH

Checklist Completed By: TTHACH

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? No Temperature: 18.0 °C
Water-VOA vials have zero headspace?
Water-pH acceptable upon receipt?
pH Checked by: N/A pH Adjusted by: N/A

Comments:



Login Summary Report

Client ID: TL5162 Tetra Tech Inc (HI)
Project Name: DOH Maui Wildfire Ash Sample-KULA
Project # : 103S864023138
Report Due Date: 12/28/2023

QC Level: II
TAT Requested: 10 Day:10
Date Received: 9/27/2023
Time Received: 10:56 am

Comments:
Work Order # : 2309213

<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>
2309213-001A	KULA ASH #1	09/21/23 17:00	Soil	03/19/24			TPHDO_S_TetraMI PCBs_S_8082A Pest_S_8081TETRA PAHSIM_S_8270 C Hg_S_7471B ISM Prep Met_S_6010Full TOC_S_5310B(M) Hg_S_SPLP Met_S_CAM17SPLP Dioxins_8290 M_S	
<u>Sample Note:</u>	For SPLP Hg							
2309213-001B	KULA ASH #1 Duplicate	09/21/23 17:00	Soil	03/19/24			Dioxins_8290_S PAHSIM_S_8270 C Hg_S_7471B Met_S_6010Full Bioavailable As	
<u>Sample Note:</u>	Same as 001A							
2309213-001C	KULA ASH #1 Triplicate	09/21/23 17:00	Soil	03/19/24			Dioxins_8290_S Met_S_6010Full Hg_S_7471B PAHSIM_S_8270 C	
<u>Sample Note:</u>	Same as 001A							

