Ambient Community Air Monitoring Weekly Report
For the Hawaii Department of Health – Clean Air Branch

Kula, Maui

11/08/2023-11/15/2023
[Report Updated: 12/29/2023]

As a result of ongoing debris removal operations in response to the Maui Wildfires, a community air monitoring and sampling plan (CAMSP, 2023) has been developed and sampling is being performed at three community locations across the area of Kula.

This approach includes ambient community air monitoring and sampling to monitor conditions and ensure debris removal activities, taking place under the U.S. Army Corps of Engineers (USACE), does not significantly impact air quality in the area of Kula. Data collected is made available to HDOH via online shared site and this weekly report. This approach to air monitoring and sampling will continue until debris removal activities are complete or until HDOH CAB advises otherwise.

Air quality monitoring for particulate matter was collected at all three community locations over a 24-hour period each day in accordance with the CAMSP. Additionally, daily air samples were collected at all community locations for asbestos and heavy metals. Summary analytical data is presented in **Tables 1 and 2**. **Figure 1** depicts the community air monitoring and sampling locations. **Appendix 1** provides detailed analytical results for all community locations where air sampling was performed. Analytical results were compared to site-specific screening levels for particulate matter, asbestos, and heavy metals as published in the CAMSP (Tetra Tech 2023; see Table 2).

Project Summary:
The results and data summary provided in this report are representative of the first week and air monitoring and sampling in response to wildfire cleanup operations.

Mobilization of field staff and equipment took place the week of November 6. Set up of the EBAMs for particulate monitoring took place from November 7th to November 8th.

Following the arrival of metals and asbestos sampling equipment and media, high flow asbestos samples began on November 9th, with low volume samples at all three locations resulted in voided samples. The first valid samples began on November 10th. Sampling for metals began at one location on November 11th, with sampling at all three commenced the following workday.

A database is currently being created for storage and display of particulate and analytical data. Lab reports in the form of pdfs, are being uploaded to a shared Teams folder following validation. Current air monitoring data from the $PM_{2.5}$ monitors has also been shared and can be found displayed on the EPA Fire and Smoke Map. PM_{10} data has also been shared, and efforts are underway to also incorporate onto the map.

A draft sampling plan was sent to HDOH for review on November 9th, including an outline of project deliverables, sampling methods and procedures, and calculated site-specific screening levels. Comments have been received and corresponding edits were made. A final version will be submitted following confirmation of no additional comments.

Results for Community Locations:

Ambient particulate air monitoring was performed to assess for the presence and concentrations of airborne particulates with a particle size aerodynamic diameter of 2.5 micrometers (µm) and less ($PM_{2.5}$), as well as 10 micrometers (µm) and less (PM_{10}). This particle size diameter is recognized for health evaluations and is identified as "$PM_{2.5}$" and "PM_{10}". The particle size diameters of 2.5 micrometers (µm) and 10 micrometers (µm) are small enough to be inhaled into a person's lungs. Monitoring for $PM_{2.5}$ and PM_{10} was conducted 7 days a week at each of the following locations: Top Property (AM-01) (November 8 – 15), Middle Property (AM-02) 2 (November 8 – 15), Lower Property (AM-03) (November 8 – 15).

The results of PM_{10} monitoring found that screening levels were exceeded at the Top Property air monitoring station on November 14. High winds were reported in conjunction with the homeowners of the property spreading woodchips.

The results of $PM_{2.5}$ monitoring found that screening levels were exceeded at the Top Property air monitoring station on November 15. It was recorded that the homeowners were spreading woodchips around the property as well as operating a woodchipper at the adjacent property.

Neither exceedance of particulate screening levels is likely to be attributable to USACE debris removal operations.

Upon further investigation into the date and time issue on the PM2.5 EBAM located at the lower property (AM-03) detailed in report [11/16/2023-11/22/2023], the issues extended back to the initial set up on 11/8 due to the EBAM set 12 hours back. When it was discovered by the field technician on 11/17/2023 the time was set back another 12 hours creating a 24 hr date error which was corrected on 11/29/2023. No data was lost because of the date error. This report shows a revised 24 hr TWA calculation for the Lower property (AM-03) when the data was corrected to the correct date and time for the readings.

There were eighteen samples collected for asbestos fibers at community monitoring locations throughout this time frame. No asbestos sample returned a value above the laboratory's detection limit, indicating fibers were not present in air sampled. All asbestos results were below the public health screening level of 0.0034 fibers/cc (as well as the laboratory's detection limits), and therefore not a concern.

Some extremely low levels of heavy metals were detected in ambient air samples at community locations. Although detected, all detections were below the public health screening levels for heavy metals. Details for particulates, heavy metal and asbestos sampling data for community locations are found in Attachment 1.

Attachments:

Analytical Sampling Results and Particulate Monitoring Results

Air Monitoring and Sampling Locations

Appendix:

Analytical Reports

Attachments

Table 1: HDOH CAB Ambient Community Monitoring and Sampling
Analytical Sampling Results
Maui Wildfire, Kula
11/10/2023-11/15/2023
[Report Updated: 12/29/2023]

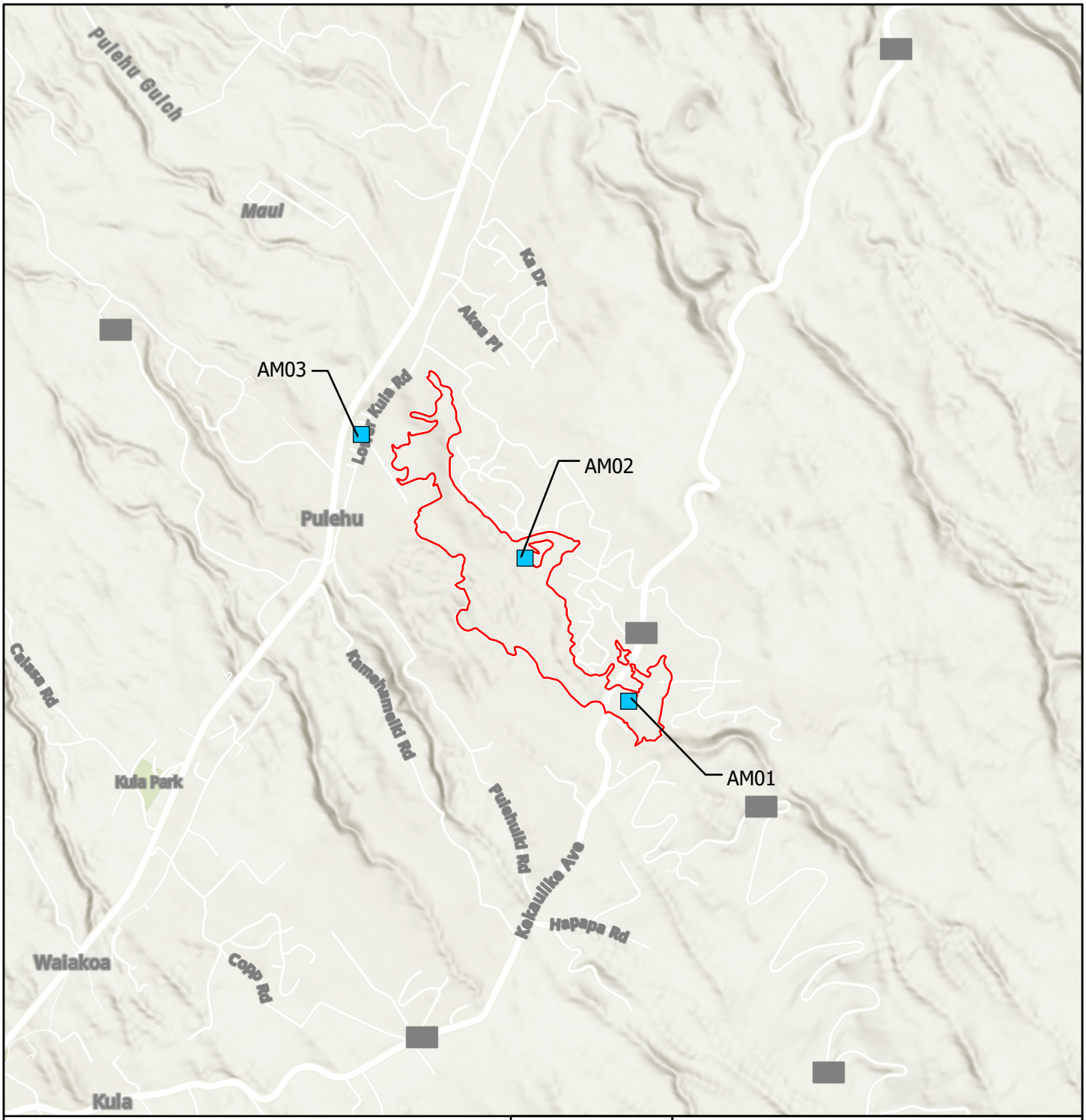
Analyte		Asbestos		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
Units		f/cc	Y/N	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3	µg/m^3
Screening Level	Location / ID	0.0034 [1]	Confirmed Asbestos [2]	1.4	0.18	2.4	0.1	0.048	24	0.029	480	1.5	0.24	9.6	0.048	96	48	0.48	2400
11/10/2023	Top Property (AM-01)	<0.00129	N																
	Middle Property (AM-02)	<0.00101	N																
	Lower Property (AM-03)	<0.00088	N																
11/11/2023	Top Property (AM-01)	<0.00052	N																
	Middle Property (AM-02)	<0.00057	N																
	Lower Property (AM-03)	<0.00044	N	0.000123	0.00017	0.00756	0.0000224	ND	0.00227	0.000447	0.027	0.00039	0.0242	0.000867	0.00109	0.000237	0.00000156	0.00243	ND
11/12/2003	Top Property (AM-01)	<0.00057	N	0.00012	0.000211	0.00802	0.0000259	ND	0.00263	0.000517	0.0199	0.00048	0.0275	0.000848	0.00126	0.000264	0.00000228	0.00287	ND
	Middle Property (AM-02)	<0.00062	N	0.0000881	0.000262	0.00923	0.0000277	ND	0.00268	0.000543	0.0109	0.000379	0.0293	0.000571	0.00204	0.000256	0.00000246	0.00294	ND
	Lower Property (AM-03)	<0.00057	N	0.0000881	0.00022	0.00873	0.0000259	ND	0.0024	0.000565	0.0171	0.000345	0.0301	0.000648	0.0011	0.000243	0.00000244	0.00292	ND
11/13/2023	Top Property (AM-01)	<0.00039	N	0.0000832	0.000457	0.018	0.0000656	ND	0.00355	0.00124	0.0201	0.000804	0.0675	0.00102	0.00178	0.000642	0.00000408	0.00545	ND
	Middle Property (AM-02)	<0.00038	N	0.0000794	0.000478	0.0143	0.0000474	ND	0.00309	0.00102	0.0151	0.000512	0.0539	0.00072	0.00179	0.00056	0.00000354	0.0046	ND
	Lower Property (AM-03)	<0.00064	N	0.000104	0.000332	0.0151	0.0000465	ND	0.00336	0.000896	0.0311	0.000563	0.0464	0.001	0.00148	0.000527	0.00000341	0.00395	ND
11/14/2023	Top Property (AM-01)	<0.00040	N	0.000111	0.000361	0.0174	0.0000497	ND	0.00326	0.000899	0.0514	0.00234	0.0528	0.000965	0.00173	0.000514	0.00000344	0.00447	ND
	Middle Property (AM-02)	<0.00035	N	0.0000876	0.000349	0.0137	0.0000433	ND	0.00259	0.000644	0.0188	0.000635	0.0362	0.000695	0.00119	0.00039	0.00000244	0.00339	ND
	Lower Property (AM-03)	<0.00057	N	0.000107	0.000238	0.0135	0.0000393	ND	0.00222	0.00056	0.0363	0.000443	0.0354	0.0012	0.00106	0.000333	0.00000312	0.00252	ND
11/15/2023	Top Property (AM-01)	<0.00040	N																
	Middle Property (AM-02)	<0.00040	N																
	Lower Property (AM-03)	<0.00045	N																
95% Upper Confidence Limit[3]		0.00068		0.00011	0.00039	0.0157	0.00005	NA	0.00311	0.00092	0.0345	0.00102	0.051	0.00099	0.0017	0.00052	0.0000033	0.00425	NA

Notes:
Metals sampling began at one location only on 11/11
No metals sampling tookplace on 11/15 due to high winds knocking over the Tisch samplers the day prior. Equipment was repositioned and secured on 11/15
NA = Not Available
f/cc = fibers per cubic centimeter
µg/m3= micrograms per cubic meter
ND = Not detected at or above the laboratory reporting or method detection limit
1 Fiber count sample result via Phase Contrast Microscopy
2 Confirmed asbestos sample result via Transmission Electron Microscopy
3 95% UCL determined through 'best fit' lognormal or normal parametric statistics via W test

Table 2: HDOH CAB Ambient Community Monitoring and Sampling
Particulate Monitoring Results
Maui Wildfire, Kula
11/08/2023-11/15/2023
[Report Updated: 12/29/2023]

Particulate Size		PM 2.5	PM 10
Screening Level	Location / ID	35 µg/m^3	150 µg/m^3
11/8/2023	Top Property (AM-01)	7.3	13
	Middle Property (AM-02)	8.5	12
	Lower Property (AM-03)	4.9	15
11/9/2023	Top Property (AM-01)	7.8	13
	Middle Property (AM-02)	6.3	10
	Lower Property (AM-03)	5.8	13
11/10/2023	Top Property (AM-01)	8.1	11
	Middle Property (AM-02)	7.2	11
	Lower Property (AM-03)	6.1	11
11/11/2023	Top Property (AM-01)	6.8	7.9
	Middle Property (AM-02)	5.2	7.1
	Lower Property (AM-03)	5.7	8.5
11/12/2023	Top Property (AM-01)	5.7	21
	Middle Property (AM-02)	6.1	7.7
	Lower Property (AM-03)	5.1	9.7
11/13/2023	Top Property (AM-01)	6.9	17
	Middle Property (AM-02)	4.9	11
	Lower Property (AM-03)	5.3	13
11/14/2023	Top Property (AM-01)	6.7	170
	Middle Property (AM-02)	14	12
	Lower Property (AM-03)	5.8	13
11/15/2023	Top Property (AM-01)	36	24
	Middle Property (AM-02)	19	6.7
	Lower Property (AM-03)	4.8	8.3

Notes:
The exceedances on 11/14 and 11/15 are a result of woodchips spread and private operations on the property
Lower Property (AM-03) PM2.5 EBAM 24 hr TWA was corrected on this report after review and correction of previously mentioned EBAM error
The 24hr TWA for 11/8/2023 was adjusted to reflect the official start times of valid data reporting for each property location.
Results are based on 24 hour TWA calculation
24 hour TWA calculation has been adjusted to be presented in the rule of two significant figures.
µg/m3 = micrograms per cubic meter
ND = Not detected at or above the laboratory reporting limit
NA = Not Available



Air Monitoring Locations

Kula Fire Perimeter

N

0 0.25 0.5
Miles

TETRA TECH

Figure 1
Ambient Community
Air Monitoring Locations

Hawaii DOH
2023 Kula Wildfire

Basemap: ESRI ArcGIS World Street Map

Appendix 1

Eastern Research Group
601 Keystone Park Drive
Suite 700
Morrisville, NC 27560

November 21, 2023

Ms. Chelsea Saber
Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
Project Name: Maui fires

Dear Ms. Chelsea Saber,

This report contains the analytical results for the sample(s) received under chain(s) of custody by Eastern Research Group on 11/15/23 13:08.

Values below the MDL for QC results in this report are recorded as ND, however the actual values are reported in the accompanying Excel report with a "U" flag (Under the detection limit). The actual values are reported in AQS.

This test is accredited under the 2016 TNI Standard for Environmental Laboratories (FL DOH Certification # E87673). All analyses were performed as described in the US EPA-approved QAPP, under the contract for National Hazardous Air Pollutant Support (US EPA Contract No. 68HERH22D0002). This cover page is an integral part of this report, and any exceptions or comments are noted on the last page.

Release of the data contained in this data package and in the data submitted in the electronic data deliverable, has been authorized by the Program Manager, or the Program Manager's designee as verified by the following signature.

The issuance of the final Certificate of Analysis takes precedence over any previous Report. If you have any questions, please contact me at 919-468-7924.

Sincerely,

Julie Swift
Program Manager
julie.swift@erg.com

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

ANALYTICAL REPORT FOR SAMPLES

SampleName	LabNumber	Matrix	Sampled	Received
Q9541253	3111547-01	Air	11/11/23 23:59	11/15/23 13:08
Q9541250	3111547-02	Air	11/12/23 23:59	11/15/23 13:08
Q9541247	3111547-03	Air	11/12/23 23:59	11/15/23 13:08
Q9541246	3111547-04	Air	11/12/23 23:59	11/15/23 13:08

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ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541253
Matrix: Air
Lab ID: 3111547-01
Sample Volume: 1639.8 m³
Filter ID:
Sampled: 11/11/23 23:59
Received: 11/15/23 13:08
Analysis Date: 11/18/23 02:37

Comments: MFK-AM-03-111123-HM - Sample received unfolded in envelope

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**530**		**31.8**
Antimony	**7440-36-0**	**0.123**	SL	**0.0438**
Arsenic	**7440-38-2**	**0.170**		**0.00948**
Barium	**7440-39-3**	**7.56**		**0.941**
Beryllium	**7440-41-7**	**0.0224**		**0.00329**
Cadmium	7440-43-9	0.0124	U	0.108
Calcium	**7440-70-2**	**537**		**290**
Chromium	**7440-47-3**	**2.27**		**2.01**
Cobalt	**7440-48-4**	**0.447**		**0.0155**
Copper	**7440-50-8**	**27.0**		**2.98**
Iron	**7439-89-6**	**778**		**24.0**
Lead	**7439-92-1**	**0.390**		**0.274**
Magnesium	**7439-95-4**	**311**		**95.6**
Manganese	**7439-96-5**	**24.2**		**1.18**
Molybdenum	**7439-98-7**	**0.867**		**0.211**
Nickel	**7440-02-0**	**1.09**		**0.795**
Phosphorus	7723-14-0	406	U, E, ICS-01, LK, QX	1240
Potassium	**7440-09-7**	**138**		**37.7**
Rubidium		**0.253**		**0.0182**
Selenium	**7782-49-2**	**0.237**		**0.0109**
Sodium	**7440-23-5**	**2570**	E, ICS-01, LK	**1980**
Strontium	**7440-24-6**	**4.88**		**0.647**
Thallium	**7440-28-0**	**0.00156**		**4.99E-4**
Thorium	**7440-29-01**	**0.0229**		**0.00298**
Uranium	NA	0.0160	U	0.0169
Vanadium	**7440-62-2**	**2.43**		**0.0488**
Zinc	7440-66-6	15.1	U	96.9

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541250
Matrix: Air
Lab ID: 3111547-02
Sample Volume: 1641.6 m³
Filter ID:
Sampled: 11/12/23 23:59
Received: 11/15/23 13:08
Analysis Date: 11/17/23 17:44

Comments: MFK-AM-01-111223-HM - Sample received unfolded in envelope

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**703**		**31.8**
Antimony	**7440-36-0**	**0.120**	SL	**0.0437**
Arsenic	**7440-38-2**	**0.211**		**0.00947**
Barium	**7440-39-3**	**8.02**		**0.940**
Beryllium	**7440-41-7**	**0.0259**		**0.00329**
Cadmium	7440-43-9	0.0172	U	0.108
Calcium	**7440-70-2**	**638**		**289**
Chromium	**7440-47-3**	**2.63**		**2.01**
Cobalt	**7440-48-4**	**0.517**		**0.0155**
Copper	**7440-50-8**	**19.9**		**2.97**
Iron	**7439-89-6**	**949**		**24.0**
Lead	**7439-92-1**	**0.480**		**0.274**
Magnesium	**7439-95-4**	**345**		**95.5**
Manganese	**7439-96-5**	**27.5**		**1.18**
Molybdenum	**7439-98-7**	**0.848**		**0.211**
Nickel	**7440-02-0**	**1.26**		**0.794**
Phosphorus	7723-14-0	404	U, E, ICS-01, LK, QX	1240
Potassium	**7440-09-7**	**145**		**37.7**
Rubidium		**0.293**		**0.0181**
Selenium	**7782-49-2**	**0.264**		**0.0109**
Sodium	**7440-23-5**	**2640**	E, ICS-01, LK	**1980**
Strontium	**7440-24-6**	**6.21**		**0.646**
Thallium	**7440-28-0**	**0.00228**		**4.99E-4**
Thorium	**7440-29-01**	**0.0273**		**0.00297**
Uranium	**NA**	**0.0195**		**0.0168**
Vanadium	**7440-62-2**	**2.87**		**0.0488**
Zinc	7440-66-6	18.1	U	96.8

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541247
Matrix: Air
Lab ID: 3111547-03
Sample Volume: 1627.2 m³
Filter ID:
Sampled: 11/12/23 23:59
Received: 11/15/23 13:08
Analysis Date: 11/18/23 02:53

Comments: MFK-AM-02-111223-HM - Sample received unfolded in envelope

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**851**	E	**32.1**
Antimony	**7440-36-0**	**0.0881**	SL	**0.0441**
Arsenic	**7440-38-2**	**0.262**		**0.00955**
Barium	**7440-39-3**	**9.23**		**0.948**
Beryllium	**7440-41-7**	**0.0277**		**0.00332**
Cadmium	7440-43-9	0.0154	U	0.109
Calcium	**7440-70-2**	**664**		**292**
Chromium	**7440-47-3**	**2.68**		**2.03**
Cobalt	**7440-48-4**	**0.543**		**0.0156**
Copper	**7440-50-8**	**10.9**		**3.00**
Iron	**7439-89-6**	**1030**		**24.2**
Lead	**7439-92-1**	**0.379**		**0.276**
Magnesium	**7439-95-4**	**342**		**96.4**
Manganese	**7439-96-5**	**29.3**		**1.19**
Molybdenum	**7439-98-7**	**0.571**		**0.213**
Nickel	**7440-02-0**	**2.04**		**0.801**
Phosphorus	7723-14-0	468	U, E, ICS-01, LK, QX	1250
Potassium	**7440-09-7**	**169**		**38.0**
Rubidium		**0.344**		**0.0183**
Selenium	**7782-49-2**	**0.256**		**0.0110**
Sodium	**7440-23-5**	**2700**	E, ICS-01, LK	**2000**
Strontium	**7440-24-6**	**6.79**		**0.652**
Thallium	**7440-28-0**	**0.00246**		**5.03E-4**
Thorium	**7440-29-01**	**0.0292**		**0.00300**
Uranium	**NA**	**0.0210**		**0.0170**
Vanadium	**7440-62-2**	**2.94**		**0.0492**
Zinc	7440-66-6	10.3	U	97.7

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541246
Matrix: Air
Lab ID: 3111547-04
Sample Volume: 1834.56 m³
Filter ID:
Sampled: 11/12/23 23:59
Received: 11/15/23 13:08
Analysis Date: 11/18/23 03:48

Comments: MFK-AM-03-111223-HM - Sample received unfolded in envelope

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**675**		**28.5**
Antimony	**7440-36-0**	**0.0881**	SL	**0.0391**
Arsenic	**7440-38-2**	**0.220**		**0.00847**
Barium	**7440-39-3**	**8.73**		**0.841**
Beryllium	**7440-41-7**	**0.0259**		**0.00294**
Cadmium	7440-43-9	0.0141	U	0.0967
Calcium	**7440-70-2**	**583**		**259**
Chromium	**7440-47-3**	**2.40**		**1.80**
Cobalt	**7440-48-4**	**0.565**		**0.0138**
Copper	**7440-50-8**	**17.1**		**2.66**
Iron	**7439-89-6**	**1020**		**21.5**
Lead	**7439-92-1**	**0.345**		**0.245**
Magnesium	**7439-95-4**	**317**		**85.5**
Manganese	**7439-96-5**	**30.1**		**1.06**
Molybdenum	**7439-98-7**	**0.648**		**0.189**
Nickel	**7440-02-0**	**1.10**		**0.710**
Phosphorus	7723-14-0	385	U, E, ICS-01, LK, QX	1110
Potassium	**7440-09-7**	**146**		**33.7**
Rubidium		**0.305**		**0.0162**
Selenium	**7782-49-2**	**0.243**		**0.00976**
Sodium	**7440-23-5**	**2400**	E, ICS-01, LK	**1770**
Strontium	**7440-24-6**	**5.77**		**0.578**
Thallium	**7440-28-0**	**0.00244**		**4.46E-4**
Thorium	**7440-29-01**	**0.0336**		**0.00266**
Uranium	**NA**	**0.0212**		**0.0151**
Vanadium	**7440-62-2**	**2.92**		**0.0436**
Zinc	7440-66-6	8.69	U	86.6

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Blank (2311043-CCB1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	41.6		ng/l							
Antimony	1.87		ng/l							
Arsenic	-1.80		ng/l							U
Barium	5.10		ng/l							
Beryllium	-0.108		ng/l							U
Cadmium	0.862		ng/l							
Calcium	801		ng/l							
Chromium	8.29		ng/l							
Cobalt	1.16		ng/l							
Copper	61.2		ng/l							
Iron	145		ng/l							
Lead	11.9		ng/l							
Magnesium	46.5		ng/l							
Manganese	15.1		ng/l							
Molybdenum	39.8		ng/l							
Nickel	2.50		ng/l							
Phosphorus	106		ng/l							ICS-01, LK, QX
Potassium	2360		ng/l							
Rubidium	-0.371		ng/l							U
Selenium	-2.22		ng/l							U
Sodium	-3210		ng/l							ICS-01, LK, U
Strontium	0.927		ng/l							
Thallium	0.499		ng/l							
Thorium	0.391		ng/l							
Uranium	0.0504		ng/l							
Vanadium	-57.9		ng/l							U
Zinc	-15.4		ng/l							U
Calibration Blank (2311043-CCB2)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	33.7		ng/l							
Antimony	1.30		ng/l							
Arsenic	1.95		ng/l							
Barium	4.42		ng/l							
Beryllium	-0.359		ng/l							U
Cadmium	0.569		ng/l							
Calcium	286		ng/l							
Chromium	7.03		ng/l							
Cobalt	0.989		ng/l							

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Blank (2311043-CCB2) Contin				Prepared: 11/16/23 Analyzed: 11/17/23						
Copper	49.3		ng/l							
Iron	143		ng/l							
Lead	11.9		ng/l							
Magnesium	39.1		ng/l							
Manganese	9.63		ng/l							
Molybdenum	12.2		ng/l							
Nickel	2.73		ng/l							
Phosphorus	-20.4		ng/l							ICS-01, LK, QX, U
Potassium	1010		ng/l							
Rubidium	0.765		ng/l							
Selenium	2.26		ng/l							
Sodium	-3920		ng/l							ICS-01, LK, U
Strontium	0.601		ng/l							
Thallium	0.498		ng/l							
Thorium	0.814		ng/l							
Uranium	0.00911		ng/l							
Vanadium	-64.0		ng/l							U
Zinc	-42.7		ng/l							U
Calibration Blank (2311043-CCB3)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	47.4		ng/l							
Antimony	1.51		ng/l							
Arsenic	-3.21		ng/l							U
Barium	3.95		ng/l							
Beryllium	-0.706		ng/l							U
Cadmium	0.456		ng/l							
Calcium	251		ng/l							
Chromium	5.93		ng/l							
Cobalt	0.737		ng/l							
Copper	43.9		ng/l							
Iron	91.0		ng/l							
Lead	13.0		ng/l							
Magnesium	34.5		ng/l							
Manganese	8.71		ng/l							
Molybdenum	15.6		ng/l							
Nickel	4.22		ng/l							
Phosphorus	-160		ng/l							ICS-01, LK, QX, U
Potassium	633		ng/l							

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Inorganics by Compendium Method IO-3.5 - Quality Control

Batch 2311043 - B3K1601

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calibration Blank (2311043-CCB3) Contin				Prepared: 11/16/23 Analyzed: 11/17/23						
Rubidium	-0.0142		ng/l							U
Selenium	-0.348		ng/l							U
Sodium	-5730		ng/l							ICS-01, LK, U
Strontium	-0.111		ng/l							U
Thallium	0.428		ng/l							
Thorium	0.916		ng/l							
Uranium	0.00701		ng/l							
Vanadium	-67.3		ng/l							U
Zinc	-61.7		ng/l							U
Calibration Blank (2311043-CCB4)				Prepared: 11/16/23 Analyzed: 11/18/23						
Aluminum	-6.92		ng/l							U
Antimony	1.48		ng/l							
Arsenic	0.304		ng/l							
Barium	4.99		ng/l							
Beryllium	-0.852		ng/l							U
Cadmium	0.542		ng/l							
Calcium	347		ng/l							
Chromium	6.09		ng/l							
Cobalt	0.998		ng/l							
Copper	57.8		ng/l							
Iron	118		ng/l							
Lead	10.8		ng/l							
Magnesium	58.2		ng/l							
Manganese	11.2		ng/l							
Molybdenum	13.4		ng/l							
Nickel	5.80		ng/l							
Phosphorus	38.3		ng/l							ICS-01, LK, QX
Potassium	127		ng/l							
Rubidium	0.556		ng/l							
Selenium	11.3		ng/l							
Sodium	-4480		ng/l							ICS-01, LK, U
Strontium	1.92		ng/l							
Thallium	0.360		ng/l							
Thorium	0.489		ng/l							
Uranium	0.0121		ng/l							
Vanadium	-65.2		ng/l							U
Zinc	-45.4		ng/l							U

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Blank (2311043-CCB5)				Prepared: 11/16/23 Analyzed: 11/18/23						
Aluminum	101		ng/l							
Antimony	1.89		ng/l							
Arsenic	-0.504		ng/l							U
Barium	5.84		ng/l							
Beryllium	-0.952		ng/l							U
Cadmium	0.677		ng/l							
Calcium	717		ng/l							
Chromium	7.19		ng/l							
Cobalt	0.920		ng/l							
Copper	56.9		ng/l							
Iron	183		ng/l							
Lead	11.1		ng/l							
Magnesium	69.2		ng/l							
Manganese	12.6		ng/l							
Molybdenum	33.7		ng/l							
Nickel	5.69		ng/l							
Phosphorus	35.2		ng/l							ICS-01, LK, QX
Potassium	1010		ng/l							
Rubidium	-0.160		ng/l							U
Selenium	6.04		ng/l							
Sodium	-5750		ng/l							ICS-01, LK, U
Strontium	1.84		ng/l							
Thallium	0.408		ng/l							
Thorium	0.677		ng/l							
Uranium	0.0332		ng/l							
Vanadium	-67.6		ng/l							U
Zinc	-57.8		ng/l							U
Calibration Check (2311043-CCV1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.56E6		ng/l	1.5000E6		104	90-110			
Antimony	20300		ng/l	20000		101	90-110			
Arsenic	20000		ng/l	20000		100	90-110			
Barium	200000		ng/l	200000		100	90-110			
Beryllium	4880		ng/l	5000.0		97.6	90-110			
Cadmium	20500		ng/l	20000		102	90-110			
Calcium	2.61E7		ng/l	2.5000E7		104	90-110			
Chromium	244000		ng/l	240000		102	90-110			
Cobalt	53400		ng/l	50000		107	90-110			
Copper	2.10E6		ng/l	2.0000E6		105	90-110			

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Check (2311043-CCV1) Contin				Prepared: 11/16/23 Analyzed: 11/17/23						
Iron	2.63E6		ng/l	2.5000E6		105	90-110			
Lead	201000		ng/l	200000		100	90-110			
Magnesium	1.07E6		ng/l	1.0000E6		107	90-110			
Manganese	515000		ng/l	500000		103	90-110			
Molybdenum	50600		ng/l	50000		101	90-110			
Nickel	129000		ng/l	120000		108	90-110			
Phosphorus	208000		ng/l	200000		104	90-110			ICS-01, LK, QX
Potassium	2.66E6		ng/l	2.5000E6		107	90-110			
Rubidium	10000		ng/l	10000		100	90-110			
Selenium	19900		ng/l	20000		99.6	90-110			
Sodium	2.67E6		ng/l	2.5000E6		107	90-110			ICS-01, LK
Strontium	50300		ng/l	50000		101	90-110			
Thallium	510		ng/l	500.00		102	90-110			
Thorium	495		ng/l	500.00		99.1	90-110			
Uranium	496		ng/l	500.00		99.1	90-110			
Vanadium	20400		ng/l	20000		102	90-110			
Zinc	538000		ng/l	500000		108	90-110			
Calibration Check (2311043-CCV2)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.47E6		ng/l	1.5000E6		97.8	90-110			
Antimony	20300		ng/l	20000		102	90-110			
Arsenic	20000		ng/l	20000		100	90-110			
Barium	201000		ng/l	200000		100	90-110			
Beryllium	4710		ng/l	5000.0		94.2	90-110			
Cadmium	20600		ng/l	20000		103	90-110			
Calcium	2.52E7		ng/l	2.5000E7		101	90-110			
Chromium	244000		ng/l	240000		102	90-110			
Cobalt	51700		ng/l	50000		103	90-110			
Copper	2.07E6		ng/l	2.0000E6		103	90-110			
Iron	2.54E6		ng/l	2.5000E6		102	90-110			
Lead	201000		ng/l	200000		101	90-110			
Magnesium	999000		ng/l	1.0000E6		99.9	90-110			
Manganese	497000		ng/l	500000		99.4	90-110			
Molybdenum	51700		ng/l	50000		103	90-110			
Nickel	126000		ng/l	120000		105	90-110			
Phosphorus	193000		ng/l	200000		96.3	90-110			ICS-01, LK, QX
Potassium	2.53E6		ng/l	2.5000E6		101	90-110			
Rubidium	10000		ng/l	10000		100	90-110			

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Check (2311043-CCV2) Contin				Prepared: 11/16/23 Analyzed: 11/17/23						
Selenium	19900		ng/l	20000		99.7	90-110			
Sodium	2.50E6		ng/l	2.5000E6		100	90-110			ICS-01, LK
Strontium	50200		ng/l	50000		100	90-110			
Thallium	505		ng/l	500.00		101	90-110			
Thorium	502		ng/l	500.00		100	90-110			
Uranium	501		ng/l	500.00		100	90-110			
Vanadium	20300		ng/l	20000		101	90-110			
Zinc	529000		ng/l	500000		106	90-110			
Calibration Check (2311043-CCV3)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.45E6		ng/l	1.5000E6		96.7	90-110			
Antimony	20400		ng/l	20000		102	90-110			
Arsenic	20000		ng/l	20000		100	90-110			
Barium	200000		ng/l	200000		99.9	90-110			
Beryllium	4640		ng/l	5000.0		92.7	90-110			
Cadmium	20700		ng/l	20000		104	90-110			
Calcium	2.53E7		ng/l	2.5000E7		101	90-110			
Chromium	244000		ng/l	240000		102	90-110			
Cobalt	51500		ng/l	50000		103	90-110			
Copper	2.05E6		ng/l	2.0000E6		103	90-110			
Iron	2.54E6		ng/l	2.5000E6		102	90-110			
Lead	203000		ng/l	200000		101	90-110			
Magnesium	1.00E6		ng/l	1.0000E6		100	90-110			
Manganese	500000		ng/l	500000		100	90-110			
Molybdenum	51500		ng/l	50000		103	90-110			
Nickel	125000		ng/l	120000		104	90-110			
Phosphorus	193000		ng/l	200000		96.4	90-110			ICS-01, LK, QX
Potassium	2.54E6		ng/l	2.5000E6		101	90-110			
Rubidium	9960		ng/l	10000		99.6	90-110			
Selenium	19900		ng/l	20000		99.6	90-110			
Sodium	2.51E6		ng/l	2.5000E6		101	90-110			ICS-01, LK
Strontium	50200		ng/l	50000		100	90-110			
Thallium	498		ng/l	500.00		99.6	90-110			
Thorium	498		ng/l	500.00		99.6	90-110			
Uranium	506		ng/l	500.00		101	90-110			
Vanadium	20400		ng/l	20000		102	90-110			
Zinc	531000		ng/l	500000		106	90-110			
Calibration Check (2311043-CCV4)				Prepared: 11/16/23 Analyzed: 11/18/23						

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Check (2311043-CCV4) Contin				Prepared: 11/16/23 Analyzed: 11/18/23						
Aluminum	1.48E6		ng/l	1.5000E6		98.5	90-110			
Antimony	20500		ng/l	20000		103	90-110			
Arsenic	20300		ng/l	20000		101	90-110			
Barium	202000		ng/l	200000		101	90-110			
Beryllium	4640		ng/l	5000.0		92.7	90-110			
Cadmium	20900		ng/l	20000		104	90-110			
Calcium	2.56E7		ng/l	2.5000E7		102	90-110			
Chromium	249000		ng/l	240000		104	90-110			
Cobalt	52700		ng/l	50000		105	90-110			
Copper	2.11E6		ng/l	2.0000E6		105	90-110			
Iron	2.56E6		ng/l	2.5000E6		103	90-110			
Lead	203000		ng/l	200000		101	90-110			
Magnesium	1.01E6		ng/l	1.0000E6		101	90-110			
Manganese	510000		ng/l	500000		102	90-110			
Molybdenum	52400		ng/l	50000		105	90-110			
Nickel	128000		ng/l	120000		107	90-110			
Phosphorus	191000		ng/l	200000		95.3	90-110			ICS-01, LK, QX
Potassium	2.58E6		ng/l	2.5000E6		103	90-110			
Rubidium	10100		ng/l	10000		101	90-110			
Selenium	20400		ng/l	20000		102	90-110			
Sodium	2.56E6		ng/l	2.5000E6		102	90-110			ICS-01, LK
Strontium	50800		ng/l	50000		102	90-110			
Thallium	496		ng/l	500.00		99.2	90-110			
Thorium	497		ng/l	500.00		99.5	90-110			
Uranium	499		ng/l	500.00		99.8	90-110			
Vanadium	20500		ng/l	20000		103	90-110			
Zinc	534000		ng/l	500000		107	90-110			
Calibration Check (2311043-CCV5)				Prepared: 11/16/23 Analyzed: 11/18/23						
Aluminum	1.50E6		ng/l	1.5000E6		99.8	90-110			
Antimony	20500		ng/l	20000		102	90-110			
Arsenic	20300		ng/l	20000		102	90-110			
Barium	203000		ng/l	200000		101	90-110			
Beryllium	4650		ng/l	5000.0		93.0	90-110			
Cadmium	20700		ng/l	20000		104	90-110			
Calcium	2.56E7		ng/l	2.5000E7		102	90-110			
Chromium	246000		ng/l	240000		102	90-110			
Cobalt	52700		ng/l	50000		105	90-110			

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Calibration Check (2311043-CCV5) Contin				Prepared: 11/16/23 Analyzed: 11/18/23						
Copper	2.10E6		ng/l	2.0000E6		105	90-110			
Iron	2.59E6		ng/l	2.5000E6		104	90-110			
Lead	204000		ng/l	200000		102	90-110			
Magnesium	1.02E6		ng/l	1.0000E6		102	90-110			
Manganese	511000		ng/l	500000		102	90-110			
Molybdenum	51500		ng/l	50000		103	90-110			
Nickel	128000		ng/l	120000		107	90-110			
Phosphorus	197000		ng/l	200000		98.3	90-110			ICS-01, LK, QX
Potassium	2.59E6		ng/l	2.5000E6		104	90-110			
Rubidium	10100		ng/l	10000		101	90-110			
Selenium	20000		ng/l	20000		100	90-110			
Sodium	2.57E6		ng/l	2.5000E6		103	90-110			ICS-01, LK
Strontium	50600		ng/l	50000		101	90-110			
Thallium	506		ng/l	500.00		101	90-110			
Thorium	502		ng/l	500.00		100	90-110			
Uranium	501		ng/l	500.00		100	90-110			
Vanadium	20400		ng/l	20000		102	90-110			
Zinc	538000		ng/l	500000		108	90-110			
High Cal Check (2311043-HCV1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	3.01E6		ng/l	3.0000E6		100	95-105			
Antimony	41400		ng/l	40000		103	95-105			
Arsenic	40700		ng/l	40000		102	95-105			
Barium	409000		ng/l	400000		102	95-105			
Beryllium	9810		ng/l	10000		98.1	95-105			
Cadmium	41200		ng/l	40000		103	95-105			
Calcium	5.20E7		ng/l	5.0000E7		104	95-105			
Chromium	493000		ng/l	480000		103	95-105			
Cobalt	101000		ng/l	100000		101	95-105			
Copper	4.03E6		ng/l	4.0000E6		101	95-105			
Iron	5.07E6		ng/l	5.0000E6		101	95-105			
Lead	409000		ng/l	400000		102	95-105			
Magnesium	2.01E6		ng/l	2.0000E6		100	95-105			
Manganese	1.01E6		ng/l	1.0000E6		101	95-105			
Molybdenum	104000		ng/l	100000		104	95-105			
Nickel	240000		ng/l	240000		99.8	95-105			
Phosphorus	399000		ng/l	400000		99.7	95-105			ICS-01, LK, QX
Potassium	4.93E6		ng/l	5.0000E6		98.6	95-105			

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
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PHONE: (703) 885-5495 **FAX:**

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REPORTED: 11/21/23 13:30
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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
High Cal Check (2311043-HCV1) Continue				Prepared: 11/16/23 Analyzed: 11/17/23						
Rubidium	20400		ng/l	20000		102	95-105			
Selenium	40500		ng/l	40000		101	95-105			
Sodium	4.98E6		ng/l	5.0000E6		99.6	95-105			ICS-01, LK
Strontium	104000		ng/l	100000		104	95-105			
Thallium	1020		ng/l	1000.0		102	95-105			
Thorium	1040		ng/l	1000.0		104	95-105			
Uranium	1050		ng/l	1000.0		105	95-105			
Vanadium	41500		ng/l	40000		104	95-105			
Zinc	1.00E6		ng/l	1.0000E6		100	95-105			
Initial Cal Blank (2311043-ICB1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	14.5		ng/l							
Antimony	1.81		ng/l							
Arsenic	-7.99		ng/l							U
Barium	3.22		ng/l							
Beryllium	0.748		ng/l							
Cadmium	0.540		ng/l							
Calcium	-117		ng/l							U
Chromium	7.03		ng/l							
Cobalt	0.818		ng/l							
Copper	51.2		ng/l							
Iron	50.9		ng/l							
Lead	14.8		ng/l							
Magnesium	6.01		ng/l							
Manganese	12.4		ng/l							
Molybdenum	20.1		ng/l							
Nickel	0.702		ng/l							
Phosphorus	-13.2		ng/l							ICS-01, LK, QX, U
Potassium	-152		ng/l							U
Rubidium	-0.579		ng/l							U
Selenium	5.30		ng/l							
Sodium	-5650		ng/l							ICS-01, LK, U
Strontium	-0.536		ng/l							U
Thallium	0.412		ng/l							
Thorium	0.807		ng/l							
Uranium	0.0330		ng/l							
Vanadium	-57.3		ng/l							U
Zinc	-14.6		ng/l							U

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Inorganics by Compendium Method IO-3.5 - Quality Control

Batch 2311043 - B3K1601

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Initial Cal Check (2311043-ICV1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.48E6		ng/l	1.5000E6		98.7	90-110			
Antimony	20200		ng/l	20000		101	90-110			
Arsenic	20200		ng/l	20000		101	90-110			
Barium	202000		ng/l	200000		101	90-110			
Beryllium	4740		ng/l	5000.0		94.8	90-110			
Cadmium	20600		ng/l	20000		103	90-110			
Calcium	2.51E7		ng/l	2.5000E7		100	90-110			
Chromium	238000		ng/l	240000		99.3	90-110			
Cobalt	51200		ng/l	50000		102	90-110			
Copper	2.00E6		ng/l	2.0000E6		100	90-110			
Iron	2.52E6		ng/l	2.5000E6		101	90-110			
Lead	199000		ng/l	200000		99.6	90-110			
Magnesium	997000		ng/l	1.0000E6		99.7	90-110			
Manganese	490000		ng/l	500000		98.1	90-110			
Molybdenum	50200		ng/l	50000		100	90-110			
Nickel	127000		ng/l	120000		106	90-110			
Phosphorus	190000		ng/l	200000		95.2	90-110			ICS-01, LK, QX
Potassium	2.53E6		ng/l	2.5000E6		101	90-110			
Rubidium	9030		ng/l	10000		90.3	90-110			
Selenium	20200		ng/l	20000		101	90-110			
Sodium	2.43E6		ng/l	2.5000E6		97.0	90-110			ICS-01, LK
Strontium	50500		ng/l	50000		101	90-110			
Thallium	482		ng/l	500.00		96.4	90-110			
Thorium	493		ng/l	500.00		98.7	90-110			
Uranium	493		ng/l	500.00		98.5	90-110			
Vanadium	20500		ng/l	20000		102	90-110			
Zinc	536000		ng/l	500000		107	90-110			
Interference Check A (2311043-IFA1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.60E7		ng/l	1.5000E7		107	80-120			
Antimony	0.00		ng/l				80-120			U
Arsenic	0.00		ng/l				80-120			U
Barium	0.00		ng/l				80-120			U
Beryllium	0.00		ng/l				80-120			U
Cadmium	0.00		ng/l				80-120			U
Calcium	9.91E7		ng/l	1.0040E8		98.7	80-120			
Chromium	0.00		ng/l				80-120			U
Cobalt	0.00		ng/l				80-120			U
Copper	0.00		ng/l				80-120			U

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Interference Check A (2311043-IFA1) Co				Prepared: 11/16/23 Analyzed: 11/17/23						
Iron	1.57E7		ng/l	1.5000E7		104	80-120			
Lead	0.00		ng/l				80-120			U
Magnesium	1.58E7		ng/l	1.5000E7		105	80-120			
Manganese	0.00		ng/l				80-120			U
Molybdenum	305000		ng/l	300000		102	80-120			
Nickel	0.00		ng/l				80-120			U
Phosphorus	1.72E7		ng/l	1.5000E7		115	80-120			ICS-01, LK, QX
Potassium	1.60E7		ng/l	1.5000E7		107	80-120			
Rubidium	0.00		ng/l				80-120			U
Selenium	0.00		ng/l				80-120			U
Sodium	1.66E7		ng/l	1.5000E7		111	80-120			ICS-01, LK
Strontium	0.00		ng/l				80-120			U
Thallium	0.00		ng/l				80-120			U
Thorium	0.00		ng/l				80-120			U
Uranium	0.00		ng/l				80-120			U
Vanadium	0.00		ng/l				80-120			U
Zinc	0.00		ng/l				80-120			U
Interference Check B (2311043-IFB1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	1.90E7		ng/l	1.6500E7		115	80-120			
Antimony	21000		ng/l	20000		105	80-120			
Arsenic	20800		ng/l	20000		104	80-120			
Barium	207000		ng/l	200000		104	80-120			
Beryllium	4590		ng/l	5000.0		91.8	80-120			
Cadmium	20400		ng/l	20000		102	80-120			
Calcium	1.30E8		ng/l	1.2540E8		104	80-120			
Chromium	240000		ng/l	240000		100	80-120			
Cobalt	54000		ng/l	50000		108	80-120			
Copper	2.02E6		ng/l	2.0000E6		101	80-120			
Iron	1.91E7		ng/l	1.7500E7		109	80-120			
Lead	209000		ng/l	200000		105	80-120			
Magnesium	1.82E7		ng/l	1.6000E7		114	80-120			
Manganese	556000		ng/l	500000		111	80-120			
Molybdenum	367000		ng/l	350000		105	80-120			
Nickel	128000		ng/l	120000		106	80-120			
Phosphorus	1.87E7		ng/l	1.5200E7		123	80-120			ICS-01, LK, QX
Potassium	1.99E7		ng/l	1.7500E7		114	80-120			
Rubidium	10200		ng/l	10000		102	80-120			

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311043 - B3K1601										
Interference Check B (2311043-IFB1) Co					Prepared: 11/16/23 Analyzed: 11/17/23					
Selenium	19400		ng/l	20000		96.9	80-120			
Sodium	2.11E7		ng/l	1.7500E7		121	80-120			ICS-01, LK
Strontium	51000		ng/l	50000		102	80-120			
Thallium	531		ng/l	500.00		106	80-120			
Thorium	552		ng/l	500.00		110	80-120			
Uranium	561		ng/l	500.00		112	80-120			
Vanadium	19600		ng/l	20000		98.1	80-120			
Zinc	508000		ng/l	500000		102	80-120			
Serial Dilution (2311043-SRD1)		**Source: 3111547-02**			Prepared: 11/16/23 Analyzed: 11/17/23					
Aluminum	693	159	ng/m³ Air		703			1.37	10	
Antimony	ND	0.219	ng/m³ Air		ND				10	SL, U
Arsenic	0.212	0.0473	ng/m³ Air		0.211			0.247	10	
Barium	7.82	4.70	ng/m³ Air		8.02			2.47	10	
Beryllium	0.0261	0.0165	ng/m³ Air		0.0259			0.942	10	
Cadmium	ND	0.540	ng/m³ Air		ND				10	U
Calcium	ND	1450	ng/m³ Air		ND				10	U
Chromium	ND	10.1	ng/m³ Air		ND				10	U
Cobalt	0.520	0.0773	ng/m³ Air		0.517			0.420	10	
Copper	20.0	14.9	ng/m³ Air		19.9			0.226	10	
Iron	936	120	ng/m³ Air		949			1.37	10	
Lead	ND	1.37	ng/m³ Air		ND				10	U
Magnesium	ND	478	ng/m³ Air		ND				10	U
Manganese	27.4	5.90	ng/m³ Air		27.5			0.519	10	
Molybdenum	ND	1.06	ng/m³ Air		ND				10	U
Nickel	ND	3.97	ng/m³ Air		ND				10	U
Phosphorus	ND	6190	ng/m³ Air		ND				10	ICS-01, LK, QX, U
Potassium	ND	188	ng/m³ Air		ND				10	U
Rubidium	0.293	0.0907	ng/m³ Air		0.293			0.0326	10	
Selenium	0.292	0.0545	ng/m³ Air		0.264			9.95	10	
Sodium	ND	9910	ng/m³ Air		ND				10	ICS-01, LK, U
Strontium	6.23	3.23	ng/m³ Air		6.21			0.416	10	
Thallium	0.00297	0.00249	ng/m³ Air		ND			26.4	10	
Thorium	0.0254	0.0149	ng/m³ Air		0.0273			7.33	10	
Uranium	ND	0.0842	ng/m³ Air		ND				10	U
Vanadium	2.76	0.244	ng/m³ Air		2.87			3.77	10	
Zinc	ND	484	ng/m³ Air		ND				10	U
Batch B3K1601 - ICP-MS Extraction										

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Inorganics by Compendium Method IO-3.5 - Quality Control

Batch B3K1601 - ICP-MS Extraction

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (B3K1601-BLK1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	ND	32.1	ng/m³ Air							U
Antimony	ND	0.0441	ng/m³ Air							U, SL
Arsenic	ND	0.00955	ng/m³ Air							U
Barium	ND	0.948	ng/m³ Air							U
Beryllium	ND	0.00332	ng/m³ Air							U
Cadmium	ND	0.109	ng/m³ Air							U
Calcium	ND	292	ng/m³ Air							U
Chromium	ND	2.03	ng/m³ Air							U
Cobalt	ND	0.0156	ng/m³ Air							U
Copper	ND	3.00	ng/m³ Air							U
Iron	ND	24.2	ng/m³ Air							U
Lead	ND	0.276	ng/m³ Air							U
Magnesium	ND	96.4	ng/m³ Air							U
Manganese	ND	1.19	ng/m³ Air							U
Molybdenum	ND	0.213	ng/m³ Air							U
Nickel	ND	0.801	ng/m³ Air							U
Phosphorus	ND	1250	ng/m³ Air							ICS-01, LK, QX, U
Potassium	ND	38.0	ng/m³ Air							U
Rubidium	ND	0.0183	ng/m³ Air							U
Selenium	ND	0.0110	ng/m³ Air							U
Sodium	ND	2000	ng/m³ Air							ICS-01, LK, U
Strontium	ND	0.652	ng/m³ Air							U
Thallium	ND	5.03E-4	ng/m³ Air							U
Thorium	ND	0.00300	ng/m³ Air							U
Uranium	ND	0.0170	ng/m³ Air							U
Vanadium	ND	0.0492	ng/m³ Air							U
Zinc	ND	97.7	ng/m³ Air							U
LCS (B3K1601-BS1)				Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	86.3	32.1	ng/m³ Air	82.975		104	80-120			
Antimony	0.944	0.0441	ng/m³ Air	1.3829		68.3	80-120			SL
Arsenic	2.77	0.00955	ng/m³ Air	2.7658		100	80-120			
Barium	28.0	0.948	ng/m³ Air	27.658		101	80-120			
Beryllium	1.25	0.00332	ng/m³ Air	1.3829		90.3	80-120			
Cadmium	1.43	0.109	ng/m³ Air	1.3829		104	80-120			
Calcium	ND	292	ng/m³ Air	69.146			80-120			U
Chromium	15.2	2.03	ng/m³ Air	13.829		110	80-120			
Cobalt	1.43	0.0156	ng/m³ Air	1.3829		103	80-120			
Copper	30.7	3.00	ng/m³ Air	27.658		111	80-120			

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch B3K1601 - ICP-MS Extraction										
LCS (B3K1601-BS1) Continued				Prepared: 11/16/23 Analyzed: 11/17/23						
Iron	35.2	24.2	ng/m³ Air	27.658		127	80-120			
Lead	13.9	0.276	ng/m³ Air	13.829		100	80-120			
Magnesium	ND	96.4	ng/m³ Air	27.658			80-120			U
Manganese	8.56	1.19	ng/m³ Air	8.2975		103	80-120			
Molybdenum	1.50	0.213	ng/m³ Air	1.3829		108	80-120			
Nickel	3.12	0.801	ng/m³ Air	2.7658		113	80-120			
Phosphorus	ND	1250	ng/m³ Air	13.829			80-120			GC-BS, ICS-01, LK,
Potassium	61.6	38.0	ng/m³ Air	55.317		111	80-120			
Rubidium	1.36	0.0183	ng/m³ Air	1.3829		98.4	80-120			
Selenium	2.72	0.0110	ng/m³ Air	2.7658		98.4	80-120			
Sodium	ND	2000	ng/m³ Air	55.317			80-120			GC-BS, ICS-01, LK, U
Strontium	1.64	0.652	ng/m³ Air	1.3829		119	80-120			
Thallium	0.132	5.03E-4	ng/m³ Air	0.13829		95.2	80-120			
Thorium	0.134	0.00300	ng/m³ Air	0.13829		96.7	80-120			
Uranium	0.132	0.0170	ng/m³ Air	0.13829		95.8	80-120			
Vanadium	2.88	0.0492	ng/m³ Air	2.7658		104	80-120			
Zinc	109	97.7	ng/m³ Air	82.975		131	80-120			
Duplicate (B3K1601-DUP1)		**Source: 3111547-02**		Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	715	31.8	ng/m³ Air		703			1.71	10	
Antimony	0.0989	0.0437	ng/m³ Air		0.120			19.0	10	SL
Arsenic	0.210	0.00947	ng/m³ Air		0.211			0.348	10	
Barium	8.03	0.940	ng/m³ Air		8.02			0.142	10	
Beryllium	0.0296	0.00329	ng/m³ Air		0.0259			13.7	10	
Cadmium	ND	0.108	ng/m³ Air		ND				10	U
Calcium	633	289	ng/m³ Air		638			0.738	10	
Chromium	2.70	2.01	ng/m³ Air		2.63			2.56	10	
Cobalt	0.525	0.0155	ng/m³ Air		0.517			1.46	10	
Copper	20.7	2.97	ng/m³ Air		19.9			3.67	10	
Iron	967	24.0	ng/m³ Air		949			1.93	10	
Lead	0.568	0.274	ng/m³ Air		0.480			16.8	10	
Magnesium	349	95.5	ng/m³ Air		345			1.17	10	
Manganese	27.8	1.18	ng/m³ Air		27.5			1.04	10	
Molybdenum	0.825	0.211	ng/m³ Air		0.848			2.70	10	
Nickel	1.21	0.794	ng/m³ Air		1.26			3.98	10	
Phosphorus	ND	1240	ng/m³ Air		ND				10	U, E, ICS-01, LK, QX
Potassium	146	37.7	ng/m³ Air		145			0.337	10	

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch B3K1601 - ICP-MS Extraction										
Duplicate (B3K1601-DUP1) Continued		**Source: 3111547-02**		Prepared: 11/16/23 Analyzed: 11/17/23						
Rubidium	0.289	0.0181	ng/m³ Air		0.293			1.22	10	
Selenium	0.251	0.0109	ng/m³ Air		0.264			5.10	10	
Sodium	2730	1980	ng/m³ Air		2640			3.30	10	ICS-01, LK, SI
Strontium	6.09	0.646	ng/m³ Air		6.21			1.94	10	
Thallium	0.00244	4.99E-4	ng/m³ Air		0.00228			6.88	10	
Thorium	0.0290	0.00297	ng/m³ Air		0.0273			5.89	10	
Uranium	0.0188	0.0168	ng/m³ Air		0.0195			3.83	10	
Vanadium	2.84	0.0488	ng/m³ Air		2.87			0.947	10	
Zinc	ND	96.8	ng/m³ Air		ND				10	U
Matrix Spike (B3K1601-MS1)		**Source: 3111547-02**		Prepared: 11/16/23 Analyzed: 11/17/23						
Aluminum	827	31.8	ng/m³ Air	82.237	703	151	80-120			E, QM-4X
Antimony	0.766	0.0437	ng/m³ Air	1.3706	0.120	47.2	80-120			SL
Arsenic	2.84	0.00947	ng/m³ Air	2.7412	0.211	95.7	80-120			
Barium	35.5	0.940	ng/m³ Air	27.412	8.02	100	80-120			
Beryllium	1.53	0.00329	ng/m³ Air	1.3706	0.0259	110	80-120			
Cadmium	1.43	0.108	ng/m³ Air	1.3706	ND	104	80-120			
Calcium	740	289	ng/m³ Air	68.531	638	148	80-120			QM-4X
Chromium	16.5	2.01	ng/m³ Air	13.706	2.63	101	80-120			
Cobalt	1.96	0.0155	ng/m³ Air	1.3706	0.517	105	80-120			
Copper	48.8	2.97	ng/m³ Air	27.412	19.9	105	80-120			
Iron	1010	24.0	ng/m³ Air	27.412	949	214	80-120			QM-4X
Lead	14.0	0.274	ng/m³ Air	13.706	0.480	98.7	80-120			
Magnesium	393	95.5	ng/m³ Air	27.412	345	175	80-120			QM-4X
Manganese	37.9	1.18	ng/m³ Air	8.2237	27.5	126	80-120			QM-07
Molybdenum	2.19	0.211	ng/m³ Air	1.3706	0.848	98.2	80-120			
Nickel	4.03	0.794	ng/m³ Air	2.7412	1.26	101	80-120			
Phosphorus	ND	1240	ng/m³ Air	13.706	ND		80-120			U, E, ICS-01, LK, QM-4X,
Potassium	205	37.7	ng/m³ Air	54.825	145	108	80-120			
Rubidium	1.55	0.0181	ng/m³ Air	1.3706	0.293	91.7	80-120			
Selenium	2.86	0.0109	ng/m³ Air	2.7412	0.264	94.6	80-120			
Sodium	2900	1980	ng/m³ Air	54.825	2640	478	80-120			E, ICS-01, LK, QM-4X
Strontium	7.47	0.646	ng/m³ Air	1.3706	6.21	92.4	80-120			
Thallium	0.131	4.99E-4	ng/m³ Air	0.13706	0.00228	93.6	80-120			
Thorium	0.0815	0.00297	ng/m³ Air	0.13706	0.0273	39.5	80-120			QM-07
Uranium	0.149	0.0168	ng/m³ Air	0.13706	0.0195	94.1	80-120			
Vanadium	5.65	0.0488	ng/m³ Air	2.7412	2.87	101	80-120			
Zinc	111	96.8	ng/m³ Air	82.237	ND	135	80-120			

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Inorganics by Compendium Method IO-3.5 - Quality Control

Batch B3K1601 - ICP-MS Extraction

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (B3K1601-MSD1)	**Source: 3111547-02**			Prepared: 11/16/23	Analyzed: 11/17/23					
Aluminum	850	31.8	ng/m³ Air	82.237	703	178	80-120	2.65	20	E, QM-4X
Antimony	0.784	0.0437	ng/m³ Air	1.3706	0.120	48.5	80-120	2.30	20	SL
Arsenic	2.90	0.00947	ng/m³ Air	2.7412	0.211	98.1	80-120	2.22	20	
Barium	36.0	0.940	ng/m³ Air	27.412	8.02	102	80-120	1.34	20	
Beryllium	1.30	0.00329	ng/m³ Air	1.3706	0.0259	93.3	80-120	16.0	20	
Cadmium	1.44	0.108	ng/m³ Air	1.3706	ND	105	80-120	0.658	20	
Calcium	764	289	ng/m³ Air	68.531	638	183	80-120	3.20	20	QM-4X
Chromium	17.2	2.01	ng/m³ Air	13.706	2.63	106	80-120	3.82	20	
Cobalt	2.01	0.0155	ng/m³ Air	1.3706	0.517	109	80-120	2.85	20	
Copper	52.0	2.97	ng/m³ Air	27.412	19.9	117	80-120	6.39	20	
Iron	1040	24.0	ng/m³ Air	27.412	949	321	80-120	2.85	20	QM-4X
Lead	14.4	0.274	ng/m³ Air	13.706	0.480	102	80-120	3.06	20	
Magnesium	407	95.5	ng/m³ Air	27.412	345	228	80-120	3.62	20	QM-4X
Manganese	38.7	1.18	ng/m³ Air	8.2237	27.5	136	80-120	2.16	20	QM-07
Molybdenum	2.37	0.211	ng/m³ Air	1.3706	0.848	111	80-120	7.75	20	
Nickel	4.18	0.794	ng/m³ Air	2.7412	1.26	106	80-120	3.50	20	
Phosphorus	ND	1240	ng/m³ Air	13.706	ND		80-120		20	U, E, ICS-01, LK, QM-4X,
Potassium	209	37.7	ng/m³ Air	54.825	145	117	80-120	2.28	20	
Rubidium	1.57	0.0181	ng/m³ Air	1.3706	0.293	93.3	80-120	1.48	20	
Selenium	2.88	0.0109	ng/m³ Air	2.7412	0.264	95.3	80-120	0.695	20	
Sodium	3010	1980	ng/m³ Air	54.825	2640	682	80-120	3.79	20	E, ICS-01, LK, QM-4X
Strontium	7.71	0.646	ng/m³ Air	1.3706	6.21	110	80-120	3.16	20	
Thallium	0.134	4.99E-4	ng/m³ Air	0.13706	0.00228	95.8	80-120	2.22	20	
Thorium	0.0866	0.00297	ng/m³ Air	0.13706	0.0273	43.2	80-120	6.07	20	QM-07
Uranium	0.153	0.0168	ng/m³ Air	0.13706	0.0195	97.1	80-120	2.71	20	
Vanadium	5.75	0.0488	ng/m³ Air	2.7412	2.87	105	80-120	1.71	20	
Zinc	106	96.8	ng/m³ Air	82.237	ND	129	80-120	4.57	20	
Post Spike (B3K1601-PS1)	**Source: 3111547-02**			Prepared: 11/16/23	Analyzed: 11/17/23					
Aluminum	748	31.8	ng/m³ Air	27.412	703	165	75-125			PS-01
Antimony	0.390	0.0437	ng/m³ Air	0.27412	0.120	98.6	75-125			SL
Arsenic	1.53	0.00947	ng/m³ Air	1.3706	0.211	95.9	75-125			
Barium	10.6	0.940	ng/m³ Air	2.7412	8.02	94.9	75-125			
Beryllium	0.293	0.00329	ng/m³ Air	0.27412	0.0259	97.5	75-125			
Cadmium	0.152	0.108	ng/m³ Air	0.13706	ND	111	75-125			
Calcium	653	289	ng/m³ Air		638		75-125			
Chromium	3.95	2.01	ng/m³ Air	1.3706	2.63	96.2	75-125			
Cobalt	0.806	0.0155	ng/m³ Air	0.27412	0.517	105	75-125			

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REPORTED: 11/21/23 13:30
SUBMITTED: 11/15/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch B3K1601 - ICP-MS Extraction										
Post Spike (B3K1601-PS1) Continued		**Source: 3111547-02**		Prepared: 11/16/23		Analyzed: 11/17/23				
Copper	33.9	2.97	ng/m³ Air	13.706	19.9	102	75-125			
Iron	984	24.0	ng/m³ Air	27.412	949	126	75-125			PS-01
Lead	27.5	0.274	ng/m³ Air	27.412	0.480	98.7	75-125			
Magnesium	385	95.5	ng/m³ Air	27.412	345	145	75-125			PS-01
Manganese	30.8	1.18	ng/m³ Air	2.7412	27.5	119	75-125			
Molybdenum	2.13	0.211	ng/m³ Air	1.3706	0.848	93.5	75-125			
Nickel	4.05	0.794	ng/m³ Air	2.7412	1.26	102	75-125			
Phosphorus	ND	1240	ng/m³ Air	5.4825	ND		75-125			E, ICS-01, LK, PS-01, QX, U
Potassium	177	37.7	ng/m³ Air	27.412	145	114	75-125			
Rubidium	0.402	0.0181	ng/m³ Air	0.13706	0.293	79.5	75-125			
Selenium	1.51	0.0109	ng/m³ Air	1.3706	0.264	90.9	75-125			
Sodium	2790	1980	ng/m³ Air	27.412	2640	567	75-125			E, ICS-01, LK, PS-01
Strontium	7.25	0.646	ng/m³ Air	1.3706	6.21	76.3	75-125			
Thallium	0.0669	4.99E-4	ng/m³ Air	6.8531E-2	0.00228	94.3	75-125			
Thorium	0.0895	0.00297	ng/m³ Air	6.8531E-2	0.0273	90.7	75-125			
Uranium	0.0838	0.0168	ng/m³ Air	6.8531E-2	0.0195	93.8	75-125			
Vanadium	4.16	0.0488	ng/m³ Air	1.3706	2.87	93.9	75-125			
Zinc	ND	96.8	ng/m³ Air	27.412	ND		75-125			U

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FILE #: 0000.00
REPORTED: 11/21/23 13:30
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AQS SITE CODE:
SITE CODE: Maui fires

Notes and Definitions

U	Under Detection Limit
SL	The spike recovery was outside acceptance limits. Reported value may be biased low.
QX	Compound does not meet QC criteria. Results should be considered an estimate.
QM-4X	The MS/MSD recovery exceeds criteria because the parent sample concentration is greater than 4x the spike concentration. Sample results for the QC batch were accepted based on acceptable BS/BSD recoveries.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
PS-01	Post Spike exceeds DQO criteria.
LK	Analyte identified; Reported value may be biased high.
ICS-01	Interference check exceeds criteria.
GC-BS	Compound exceeds Blank Spike Criteria
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
ND	Analyte NOT DETECTED
NR	Not Reported
MDL	Method Detection Limit
RPD	Relative Percent Difference

Note: This test is accredited under the 2016 TNI Standard.

Eastern Research Group
601 Keystone Park Drive
Suite 700
Morrisville, NC 27560

November 29, 2023

Ms. Chelsea Saber
Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
Project Name: Maui fires

Dear Ms. Chelsea Saber,

This report contains the analytical results for the sample(s) received under chain(s) of custody by Eastern Research Group on 11/20/23 10:27.

Values below the MDL for QC results in this report are recorded as ND, however the actual values are reported in the accompanying Excel report with a "U" flag (Under the detection limit). The actual values are reported in AQS.

This test is accredited under the 2016 TNI Standard for Environmental Laboratories (FL DOH Certification # E87673). All analyses were performed as described in the US EPA-approved QAPP, under the contract for National Hazardous Air Pollutant Support (US EPA Contract No. 68HERH22D0002). This cover page is an integral part of this report, and any exceptions or comments are noted on the last page.

Release of the data contained in this data package and in the data submitted in the electronic data deliverable, has been authorized by the Program Manager, or the Program Manager's designee as verified by the following signature.

The issuance of the final Certificate of Analysis takes precedence over any previous Report. If you have any questions, please contact me at 919-468-7924.

Sincerely,

Julie Swift
Program Manager
julie.swift@erg.com

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

ANALYTICAL REPORT FOR SAMPLES

SampleName	LabNumber	Matrix	Sampled	Received
Q9541243	3112027-01	Air	11/13/23 23:59	11/20/23 10:27
Q9541244	3112027-02	Air	11/13/23 23:59	11/20/23 10:27
Q9541245	3112027-03	Air	11/13/23 23:59	11/20/23 10:27
Q9541239	3112027-04	Air	11/14/23 23:59	11/20/23 10:27
Q9541241	3112027-05	Air	11/14/23 23:59	11/20/23 10:27
Q9541242	3112027-06	Air	11/14/23 23:59	11/20/23 10:27

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Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541243
Matrix: Air
Comments: MFK-AM-03-111323-HM

Lab ID: 3112027-01
Sample Volume: 1713.6 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 00:32

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**1080**		**30.5**
Antimony	**7440-36-0**	**0.104**	SL	**0.0419**
Arsenic	**7440-38-2**	**0.332**		**0.00907**
Barium	**7440-39-3**	**15.1**		**0.900**
Cadmium	7440-43-9	0.0246	U	0.103
Calcium	**7440-70-2**	**940**	LJ	**277**
Chromium	**7440-47-3**	**3.36**		**1.93**
Cobalt	**7440-48-4**	**0.896**		**0.0148**
Copper	**7440-50-8**	**31.1**		**2.85**
Lead	**7439-92-1**	**0.563**		**0.262**
Magnesium	**7439-95-4**	**538**		**91.5**
Manganese	**7439-96-5**	**46.4**		**1.13**
Molybdenum	**7439-98-7**	**1.00**		**0.202**
Nickel	**7440-02-0**	**1.48**		**0.761**
Phosphorus	7723-14-0	447	U, GC-BS	1190
Potassium	**7440-09-7**	**240**		**36.1**
Rubidium		**0.446**		**0.0174**
Selenium	**7782-49-2**	**0.527**		**0.0104**
Sodium	**7440-23-5**	**3770**	GC-BS	**1900**
Strontium	**7440-24-6**	**9.01**		**0.619**
Thallium	**7440-28-0**	**0.00341**		**4.78E-4**
Thorium	**7440-29-01**	**0.0593**		**0.00285**
Uranium	**NA**	**0.0313**		**0.0161**
Vanadium	**7440-62-2**	**3.95**		**0.0467**
Zinc	7440-66-6	27.6	U	92.8

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541243
Matrix: Air
Comments: MFK-AM-03-111323-HM

Lab ID: 3112027-01RE1
Sample Volume: 1713.6 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 03:28

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Iron	**7439-89-6**	**1580**	D	**230**

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541243
Matrix: Air
Comments: MFK-AM-03-111323-HM

Lab ID: 3112027-01RE2
Sample Volume: 1713.6 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 13:17

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0465		0.00315

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541244
Matrix: Air
Comments: MFK-AM-02-111323-HM

Lab ID: 3112027-02
Sample Volume: 1617.28 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 00:49

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**1320**		**32.3**
Antimony	**7440-36-0**	**0.0794**	SL	**0.0444**
Arsenic	**7440-38-2**	**0.478**		**0.00961**
Barium	**7440-39-3**	**14.3**		**0.954**
Cadmium	7440-43-9	0.0236	U	0.110
Calcium	**7440-70-2**	**990**	LJ	**294**
Chromium	**7440-47-3**	**3.09**		**2.04**
Cobalt	**7440-48-4**	**1.02**		**0.0157**
Copper	**7440-50-8**	**15.1**		**3.02**
Lead	**7439-92-1**	**0.512**		**0.278**
Magnesium	**7439-95-4**	**502**		**97.0**
Manganese	**7439-96-5**	**53.9**		**1.20**
Molybdenum	**7439-98-7**	**0.720**		**0.214**
Nickel	**7440-02-0**	**1.79**		**0.806**
Phosphorus	7723-14-0	474	U, GC-BS	1260
Potassium	**7440-09-7**	**206**		**38.2**
Rubidium		**0.445**		**0.0184**
Selenium	**7782-49-2**	**0.560**		**0.0111**
Sodium	**7440-23-5**	**3440**	GC-BS	**2010**
Strontium	**7440-24-6**	**9.52**		**0.656**
Thallium	**7440-28-0**	**0.00354**		**5.06E-4**
Thorium	**7440-29-01**	**0.0754**		**0.00302**
Uranium	**NA**	**0.0359**		**0.0171**
Vanadium	**7440-62-2**	**4.60**		**0.0495**
Zinc	7440-66-6	17.3	U	98.3

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541244
Matrix: Air
Comments: MFK-AM-02-111323-HM

Lab ID: 3112027-02RE1
Sample Volume: 1617.28 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 03:43

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Iron	**7439-89-6**	**1770**	D	**243**

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541244
Matrix: Air
Comments: MFK-AM-02-111323-HM

Lab ID: 3112027-02RE2
Sample Volume: 1617.28 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 13:25

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0474		0.00334

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541245
Matrix: Air
Comments: MFK-AM-01-111323-HM

Lab ID: 3112027-03
Sample Volume: 1699.2 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 01:06

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**1660**		**30.7**
Antimony	**7440-36-0**	**0.0832**	SL	**0.0422**
Arsenic	**7440-38-2**	**0.457**		**0.00914**
Barium	**7440-39-3**	**18.0**		**0.908**
Cadmium	7440-43-9	0.0220	U	0.104
Calcium	**7440-70-2**	**1130**	LJ	**280**
Chromium	**7440-47-3**	**3.55**		**1.94**
Cobalt	**7440-48-4**	**1.24**		**0.0149**
Copper	**7440-50-8**	**20.1**		**2.87**
Lead	**7439-92-1**	**0.804**		**0.264**
Magnesium	**7439-95-4**	**548**		**92.3**
Manganese	**7439-96-5**	**67.5**		**1.14**
Molybdenum	**7439-98-7**	**1.02**		**0.204**
Nickel	**7440-02-0**	**1.78**		**0.767**
Phosphorus	7723-14-0	484	U, GC-BS	1200
Potassium	**7440-09-7**	**241**		**36.4**
Rubidium		**0.530**		**0.0175**
Selenium	**7782-49-2**	**0.642**		**0.0105**
Sodium	**7440-23-5**	**3530**	GC-BS	**1920**
Strontium	**7440-24-6**	**11.0**		**0.624**
Thallium	**7440-28-0**	**0.00408**		**4.82E-4**
Thorium	**7440-29-01**	**0.0884**		**0.00287**
Uranium	**NA**	**0.0421**		**0.0163**
Vanadium	**7440-62-2**	**5.45**		**0.0471**
Zinc	7440-66-6	17.7	U	93.5

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541245
Matrix: Air
Comments: MFK-AM-01-111323-HM

Lab ID: 3112027-03RE1
Sample Volume: 1699.2 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 04:03

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Iron	**7439-89-6**	**2120**	D	**232**

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541245
Matrix: Air
Comments: MFK-AM-01-111323-HM

Lab ID: 3112027-03RE2
Sample Volume: 1699.2 m³
Filter ID:

Sampled: 11/13/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 13:48

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0656		0.00318

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541239
Matrix: Air
Comments: MFK-AM-03-111423-HM

Lab ID: 3112027-04
Sample Volume: 1785.6 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 02:33

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**907**		**29.2**
Antimony	**7440-36-0**	**0.107**	SL	**0.0402**
Arsenic	**7440-38-2**	**0.238**		**0.00870**
Barium	**7440-39-3**	**13.5**		**0.864**
Cadmium	7440-43-9	0.0356	U	0.0993
Calcium	**7440-70-2**	**758**	LJ	**266**
Chromium	**7440-47-3**	**2.22**		**1.85**
Cobalt	**7440-48-4**	**0.560**		**0.0142**
Copper	**7440-50-8**	**36.3**		**2.73**
Iron	**7439-89-6**	**1100**		**22.1**
Lead	**7439-92-1**	**0.443**		**0.251**
Magnesium	**7439-95-4**	**349**		**87.8**
Manganese	**7439-96-5**	**35.4**		**1.08**
Molybdenum	**7439-98-7**	**1.20**		**0.194**
Nickel	**7440-02-0**	**1.06**		**0.730**
Phosphorus	7723-14-0	438	U, GC-BS	1140
Potassium	**7440-09-7**	**231**		**34.6**
Rubidium		**0.408**		**0.0167**
Selenium	**7782-49-2**	**0.333**		**0.0100**
Sodium	**7440-23-5**	**2270**	GC-BS	**1820**
Strontium	**7440-24-6**	**10.0**		**0.594**
Thallium	**7440-28-0**	**0.00312**		**4.58E-4**
Thorium	**7440-29-01**	**0.0322**		**0.00273**
Uranium	**NA**	**0.0242**		**0.0155**
Vanadium	**7440-62-2**	**2.52**		**0.0448**
Zinc	7440-66-6	17.3	U	89.0

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541239
Matrix: Air
Comments: MFK-AM-03-111423-HM

Lab ID: 3112027-04RE2
Sample Volume: 1785.6 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 13:56

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0393		0.00303

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541241
Matrix: Air
Comments: MFK-AM-02-111423-HM

Lab ID: 3112027-05
Sample Volume: 1857.6 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 02:52

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**1340**		**28.1**
Antimony	**7440-36-0**	**0.0876**	SL	**0.0386**
Arsenic	**7440-38-2**	**0.349**		**0.00836**
Barium	**7440-39-3**	**13.7**		**0.830**
Cadmium	7440-43-9	0.0195	U	0.0955
Calcium	**7440-70-2**	**789**	LJ	**256**
Chromium	**7440-47-3**	**2.59**		**1.78**
Cobalt	**7440-48-4**	**0.644**		**0.0137**
Copper	**7440-50-8**	**18.8**		**2.63**
Lead	**7439-92-1**	**0.635**		**0.242**
Magnesium	**7439-95-4**	**342**		**84.4**
Manganese	**7439-96-5**	**36.2**		**1.04**
Molybdenum	**7439-98-7**	**0.695**		**0.187**
Nickel	**7440-02-0**	**1.19**		**0.702**
Phosphorus	7723-14-0	412	U, GC-BS	1090
Potassium	**7440-09-7**	**197**		**33.3**
Rubidium		**0.381**		**0.0160**
Selenium	**7782-49-2**	**0.390**		**0.00963**
Sodium	**7440-23-5**	**2160**	GC-BS	**1750**
Strontium	**7440-24-6**	**9.71**		**0.571**
Thallium	**7440-28-0**	**0.00244**		**4.41E-4**
Thorium	**7440-29-01**	**0.0458**		**0.00263**
Uranium	**NA**	**0.0288**		**0.0149**
Vanadium	**7440-62-2**	**3.39**		**0.0431**
Zinc	7440-66-6	16.9	U	85.6

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541241
Matrix: Air
Comments: MFK-AM-02-111423-HM

Lab ID: 3112027-05RE1
Sample Volume: 1857.6 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 04:32

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Iron	**7439-89-6**	**1360**	D	**212**

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541241
Matrix: Air
Comments: MFK-AM-02-111423-HM

Lab ID: 3112027-05RE2
Sample Volume: 1857.6 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 14:04

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0433		0.00291

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541242
Matrix: Air
Comments: MFK-AM-01-111423-HM

Lab ID: 3112027-06
Sample Volume: 1826.8 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 03:09

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Aluminum	**7429-90-5**	**1900**		**28.6**
Antimony	**7440-36-0**	**0.111**	SL	**0.0393**
Arsenic	**7440-38-2**	**0.361**		**0.00851**
Barium	**7440-39-3**	**17.4**		**0.844**
Cadmium	7440-43-9	0.0281	U	0.0971
Calcium	**7440-70-2**	**1680**	LJ	**260**
Chromium	**7440-47-3**	**3.26**		**1.81**
Cobalt	**7440-48-4**	**0.899**		**0.0139**
Copper	**7440-50-8**	**51.4**		**2.67**
Lead	**7439-92-1**	**2.34**		**0.246**
Magnesium	**7439-95-4**	**437**		**85.9**
Manganese	**7439-96-5**	**52.8**		**1.06**
Molybdenum	**7439-98-7**	**0.965**		**0.190**
Nickel	**7440-02-0**	**1.73**		**0.713**
Phosphorus	7723-14-0	506	U, GC-BS	1110
Potassium	**7440-09-7**	**222**		**33.8**
Rubidium		**0.537**		**0.0163**
Selenium	**7782-49-2**	**0.514**		**0.00980**
Sodium	**7440-23-5**	**2480**	GC-BS	**1780**
Strontium	**7440-24-6**	**24.7**		**0.581**
Thallium	**7440-28-0**	**0.00344**		**4.48E-4**
Thorium	**7440-29-01**	**0.0667**		**0.00267**
Uranium	**NA**	**0.0405**		**0.0151**
Vanadium	**7440-62-2**	**4.47**		**0.0438**
Zinc	7440-66-6	36.2	U	87.0

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541242
Matrix: Air
Comments: MFK-AM-01-111423-HM

Lab ID: 3112027-06RE1
Sample Volume: 1826.8 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/23/23 04:46

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Iron	**7439-89-6**	**1850**	D	**216**

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Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
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PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Description: Q9541242
Matrix: Air
Comments: MFK-AM-01-111423-HM

Lab ID: 3112027-06RE2
Sample Volume: 1826.8 m³
Filter ID:

Sampled: 11/14/23 23:59
Received: 11/20/23 10:27
Analysis Date: 11/24/23 14:11

Inorganics by Compendium Method IO-3.5

Analyte	CAS Number	Results ng/m³ Air	Flag	MDL ng/m³ Air
Beryllium	7440-41-7	0.0497		0.00296

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Blank (2311061-CCB1)				Prepared & Analyzed: 11/22/23						
Aluminum	293		ng/l							
Antimony	2.24		ng/l							
Arsenic	10.7		ng/l							
Barium	4.84		ng/l							
Beryllium	-0.442		ng/l							U
Cadmium	0.661		ng/l							
Calcium	2100		ng/l							
Chromium	6.17		ng/l							
Cobalt	0.752		ng/l							
Copper	48.2		ng/l							
Iron	237		ng/l							
Lead	9.93		ng/l							
Magnesium	216		ng/l							
Manganese	12.6		ng/l							
Molybdenum	38.1		ng/l							
Nickel	0.461		ng/l							
Phosphorus	105		ng/l							
Potassium	2770		ng/l							
Rubidium	0.325		ng/l							
Selenium	0.980		ng/l							
Sodium	2810		ng/l							
Strontium	1.04		ng/l							
Thallium	0.524		ng/l							
Thorium	0.265		ng/l							
Uranium	-0.00683		ng/l							U
Vanadium	-22.6		ng/l							U
Zinc	-4.13		ng/l							U
Calibration Blank (2311061-CCB2)				Prepared & Analyzed: 11/22/23						
Aluminum	36.6		ng/l							
Antimony	2.09		ng/l							
Arsenic	5.50		ng/l							
Barium	7.46		ng/l							
Beryllium	-0.964		ng/l							U
Cadmium	0.423		ng/l							
Calcium	868		ng/l							
Chromium	6.14		ng/l							
Cobalt	1.18		ng/l							
Copper	50.8		ng/l							

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Blank (2311061-CCB2) Contin				Prepared & Analyzed: 11/22/23						
Iron	112		ng/l							
Lead	7.59		ng/l							
Magnesium	31.6		ng/l							
Manganese	12.9		ng/l							
Molybdenum	9.27		ng/l							
Nickel	2.47		ng/l							
Phosphorus	-740		ng/l							U
Potassium	1320		ng/l							
Rubidium	0.00678		ng/l							
Selenium	2.82		ng/l							
Sodium	964		ng/l							
Strontium	3.17		ng/l							
Thallium	0.715		ng/l							
Thorium	0.348		ng/l							
Uranium	0.0131		ng/l							
Vanadium	-16.5		ng/l							U
Zinc	77.2		ng/l							
Calibration Blank (2311061-CCB3)				Prepared: 11/22/23 Analyzed: 11/23/23						
Aluminum	151		ng/l							
Antimony	2.35		ng/l							
Arsenic	11.7		ng/l							
Barium	6.87		ng/l							
Beryllium	-1.25		ng/l							U
Cadmium	1.21		ng/l							
Calcium	1390		ng/l							
Chromium	11.4		ng/l							
Cobalt	1.67		ng/l							
Copper	76.2		ng/l							
Iron	175		ng/l							
Lead	9.11		ng/l							
Magnesium	77.3		ng/l							
Manganese	19.0		ng/l							
Molybdenum	12.3		ng/l							
Nickel	7.19		ng/l							
Phosphorus	-707		ng/l							U
Potassium	973		ng/l							
Rubidium	0.924		ng/l							
Selenium	4.38		ng/l							

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Blank (2311061-CCB3) Contin				Prepared: 11/22/23 Analyzed: 11/23/23						
Sodium	3240		ng/l							
Strontium	4.72		ng/l							
Thallium	0.549		ng/l							
Thorium	0.500		ng/l							
Uranium	0.0167		ng/l							
Vanadium	-21.0		ng/l							U
Zinc	63.2		ng/l							
Calibration Blank (2311061-CCB4)				Prepared: 11/22/23 Analyzed: 11/23/23						
Aluminum	374		ng/l							
Antimony	2.91		ng/l							
Arsenic	7.52		ng/l							
Barium	20.9		ng/l							
Beryllium	-0.259		ng/l							U
Cadmium	1.75		ng/l							
Calcium	4480		ng/l							
Chromium	17.3		ng/l							
Cobalt	3.46		ng/l							
Copper	158		ng/l							
Iron	592		ng/l							
Lead	17.3		ng/l							
Magnesium	224		ng/l							
Manganese	45.9		ng/l							
Molybdenum	13.4		ng/l							
Nickel	11.4		ng/l							
Phosphorus	-393		ng/l							U
Potassium	494		ng/l							
Rubidium	0.483		ng/l							
Selenium	10.7		ng/l							
Sodium	2910		ng/l							
Strontium	16.9		ng/l							
Thallium	0.520		ng/l							
Thorium	0.524		ng/l							
Uranium	0.0405		ng/l							
Vanadium	-19.9		ng/l							U
Zinc	167		ng/l							
Calibration Check (2311061-CCV1)				Prepared & Analyzed: 11/22/23						
Aluminum	1.55E6		ng/l	1.5000E6		103	90-110			
Antimony	19800		ng/l	20000		98.8	90-110			

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FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Check (2311061-CCV1) Contin					Prepared & Analyzed: 11/22/23					
Arsenic	19700		ng/l	20000		98.6	90-110			
Barium	200000		ng/l	200000		100	90-110			
Beryllium	4850		ng/l	5000.0		96.9	90-110			
Cadmium	19800		ng/l	20000		99.2	90-110			
Calcium	2.50E7		ng/l	2.5000E7		99.8	90-110			
Chromium	224000		ng/l	240000		93.3	90-110			
Cobalt	52300		ng/l	50000		105	90-110			
Copper	2.02E6		ng/l	2.0000E6		101	90-110			
Iron	2.51E6		ng/l	2.5000E6		100	90-110			
Lead	196000		ng/l	200000		98.1	90-110			
Magnesium	1.05E6		ng/l	1.0000E6		105	90-110			
Manganese	503000		ng/l	500000		101	90-110			
Molybdenum	49100		ng/l	50000		98.3	90-110			
Nickel	124000		ng/l	120000		104	90-110			
Phosphorus	206000		ng/l	200000		103	90-110			
Potassium	2.61E6		ng/l	2.5000E6		104	90-110			
Rubidium	9840		ng/l	10000		98.4	90-110			
Selenium	19700		ng/l	20000		98.6	90-110			
Sodium	2.62E6		ng/l	2.5000E6		105	90-110			
Strontium	49100		ng/l	50000		98.2	90-110			
Thallium	488		ng/l	500.00		97.6	90-110			
Thorium	489		ng/l	500.00		97.8	90-110			
Uranium	488		ng/l	500.00		97.6	90-110			
Vanadium	18800		ng/l	20000		94.2	90-110			
Zinc	526000		ng/l	500000		105	90-110			
Calibration Check (2311061-CCV2)					Prepared & Analyzed: 11/22/23					
Aluminum	1.47E6		ng/l	1.5000E6		97.9	90-110			
Antimony	20000		ng/l	20000		99.9	90-110			
Arsenic	19600		ng/l	20000		98.2	90-110			
Barium	212000		ng/l	200000		106	90-110			
Beryllium	4690		ng/l	5000.0		93.9	90-110			
Cadmium	20100		ng/l	20000		101	90-110			
Calcium	2.47E7		ng/l	2.5000E7		99.0	90-110			
Chromium	224000		ng/l	240000		93.4	90-110			
Cobalt	51500		ng/l	50000		103	90-110			
Copper	2.00E6		ng/l	2.0000E6		100	90-110			
Iron	2.46E6		ng/l	2.5000E6		98.2	90-110			
Lead	199000		ng/l	200000		99.4	90-110			

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Check (2311061-CCV2) Contin					Prepared & Analyzed: 11/22/23					
Magnesium	1.01E6		ng/l	1.0000E6		101	90-110			
Manganese	488000		ng/l	500000		97.6	90-110			
Molybdenum	51500		ng/l	50000		103	90-110			
Nickel	122000		ng/l	120000		102	90-110			
Phosphorus	188000		ng/l	200000		94.0	90-110			
Potassium	2.51E6		ng/l	2.5000E6		100	90-110			
Rubidium	9960		ng/l	10000		99.6	90-110			
Selenium	19800		ng/l	20000		98.8	90-110			
Sodium	2.56E6		ng/l	2.5000E6		102	90-110			
Strontium	49400		ng/l	50000		98.7	90-110			
Thallium	500		ng/l	500.00		100	90-110			
Thorium	497		ng/l	500.00		99.3	90-110			
Uranium	498		ng/l	500.00		99.6	90-110			
Vanadium	19500		ng/l	20000		97.3	90-110			
Zinc	530000		ng/l	500000		106	90-110			
Calibration Check (2311061-CCV3)					Prepared: 11/22/23 Analyzed: 11/23/23					
Aluminum	1.47E6		ng/l	1.5000E6		98.1	90-110			
Antimony	20200		ng/l	20000		101	90-110			
Arsenic	19800		ng/l	20000		98.8	90-110			
Barium	212000		ng/l	200000		106	90-110			
Beryllium	4430		ng/l	5000.0		88.5	90-110			
Cadmium	20400		ng/l	20000		102	90-110			
Calcium	2.49E7		ng/l	2.5000E7		99.7	90-110			
Chromium	231000		ng/l	240000		96.1	90-110			
Cobalt	51800		ng/l	50000		104	90-110			
Copper	2.02E6		ng/l	2.0000E6		101	90-110			
Iron	2.47E6		ng/l	2.5000E6		98.8	90-110			
Lead	200000		ng/l	200000		100	90-110			
Magnesium	1.01E6		ng/l	1.0000E6		101	90-110			
Manganese	496000		ng/l	500000		99.1	90-110			
Molybdenum	52100		ng/l	50000		104	90-110			
Nickel	123000		ng/l	120000		102	90-110			
Phosphorus	193000		ng/l	200000		96.6	90-110			
Potassium	2.55E6		ng/l	2.5000E6		102	90-110			
Rubidium	10000		ng/l	10000		100	90-110			
Selenium	19700		ng/l	20000		98.3	90-110			
Sodium	2.55E6		ng/l	2.5000E6		102	90-110			
Strontium	49900		ng/l	50000		99.9	90-110			

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Calibration Check (2311061-CCV3) Contin					Prepared: 11/22/23 Analyzed: 11/23/23					
Thallium	493		ng/l	500.00		98.5	90-110			
Thorium	497		ng/l	500.00		99.3	90-110			
Uranium	495		ng/l	500.00		99.0	90-110			
Vanadium	19700		ng/l	20000		98.3	90-110			
Zinc	528000		ng/l	500000		106	90-110			
Calibration Check (2311061-CCV4)					Prepared: 11/22/23 Analyzed: 11/23/23					
Aluminum	1.41E6		ng/l	1.5000E6		94.3	90-110			
Antimony	20400		ng/l	20000		102	90-110			
Arsenic	19900		ng/l	20000		99.6	90-110			
Barium	216000		ng/l	200000		108	90-110			
Beryllium	4530		ng/l	5000.0		90.5	90-110			
Cadmium	20500		ng/l	20000		103	90-110			
Calcium	2.48E7		ng/l	2.5000E7		99.0	90-110			
Chromium	233000		ng/l	240000		97.1	90-110			
Cobalt	51000		ng/l	50000		102	90-110			
Copper	2.00E6		ng/l	2.0000E6		100	90-110			
Iron	2.44E6		ng/l	2.5000E6		97.8	90-110			
Lead	199000		ng/l	200000		99.7	90-110			
Magnesium	968000		ng/l	1.0000E6		96.8	90-110			
Manganese	488000		ng/l	500000		97.6	90-110			
Molybdenum	52200		ng/l	50000		104	90-110			
Nickel	121000		ng/l	120000		101	90-110			
Phosphorus	186000		ng/l	200000		93.0	90-110			
Potassium	2.49E6		ng/l	2.5000E6		99.7	90-110			
Rubidium	10200		ng/l	10000		102	90-110			
Selenium	20200		ng/l	20000		101	90-110			
Sodium	2.48E6		ng/l	2.5000E6		99.2	90-110			
Strontium	50700		ng/l	50000		101	90-110			
Thallium	497		ng/l	500.00		99.5	90-110			
Thorium	504		ng/l	500.00		101	90-110			
Uranium	503		ng/l	500.00		101	90-110			
Vanadium	20200		ng/l	20000		101	90-110			
Zinc	531000		ng/l	500000		106	90-110			
High Cal Check (2311061-HCV1)					Prepared & Analyzed: 11/22/23					
Aluminum	2.95E6		ng/l	3.0000E6		98.4	95-105			
Antimony	40500		ng/l	40000		101	95-105			
Arsenic	40000		ng/l	40000		99.9	95-105			
Barium	406000		ng/l	400000		101	95-105			

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
High Cal Check (2311061-HCV1) Continue				Prepared & Analyzed: 11/22/23						
Beryllium	9610		ng/l	10000		96.1	95-105			
Cadmium	40200		ng/l	40000		101	95-105			
Calcium	4.99E7		ng/l	5.0000E7		99.8	95-105			
Chromium	470000		ng/l	480000		97.9	95-105			
Cobalt	98000		ng/l	100000		98.0	95-105			
Copper	3.92E6		ng/l	4.0000E6		98.0	95-105			
Iron	4.95E6		ng/l	5.0000E6		98.9	95-105			
Lead	402000		ng/l	400000		101	95-105			
Magnesium	1.98E6		ng/l	2.0000E6		98.9	95-105			
Manganese	986000		ng/l	1.0000E6		98.6	95-105			
Molybdenum	101000		ng/l	100000		101	95-105			
Nickel	239000		ng/l	240000		99.4	95-105			
Phosphorus	394000		ng/l	400000		98.5	95-105			
Potassium	4.99E6		ng/l	5.0000E6		99.7	95-105			
Rubidium	20000		ng/l	20000		100	95-105			
Selenium	40200		ng/l	40000		101	95-105			
Sodium	4.93E6		ng/l	5.0000E6		98.6	95-105			
Strontium	101000		ng/l	100000		101	95-105			
Thallium	999		ng/l	1000.0		99.9	95-105			
Thorium	1000		ng/l	1000.0		100	95-105			
Uranium	1020		ng/l	1000.0		102	95-105			
Vanadium	39600		ng/l	40000		98.9	95-105			
Zinc	980000		ng/l	1.0000E6		98.0	95-105			
Initial Cal Blank (2311061-ICB1)				Prepared & Analyzed: 11/22/23						
Aluminum	-62.2		ng/l							U
Antimony	9.15		ng/l							
Arsenic	-0.710		ng/l							U
Barium	1.23		ng/l							
Beryllium	-0.0373		ng/l							U
Cadmium	0.0937		ng/l							
Calcium	301		ng/l							
Chromium	2.95		ng/l							
Cobalt	0.166		ng/l							
Copper	16.8		ng/l							
Iron	-25.5		ng/l							U
Lead	6.73		ng/l							
Magnesium	55.7		ng/l							
Manganese	5.62		ng/l							

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Initial Cal Blank (2311061-ICB1) Continu				Prepared & Analyzed: 11/22/23						
Molybdenum	13.4		ng/l							
Nickel	-1.45		ng/l							U
Phosphorus	-143		ng/l							U
Potassium	663		ng/l							
Rubidium	0.487		ng/l							
Selenium	10.7		ng/l							
Sodium	-1010		ng/l							U
Strontium	1.09		ng/l							
Thallium	0.173		ng/l							
Thorium	0.293		ng/l							
Uranium	0.00257		ng/l							
Vanadium	-21.9		ng/l							U
Zinc	10.4		ng/l							
Initial Cal Check (2311061-ICV1)				Prepared & Analyzed: 11/22/23						
Aluminum	1.44E6		ng/l	1.5000E6		96.1	90-110			
Antimony	19600		ng/l	20000		97.8	90-110			
Arsenic	19700		ng/l	20000		98.3	90-110			
Barium	197000		ng/l	200000		98.6	90-110			
Beryllium	4700		ng/l	5000.0		94.0	90-110			
Cadmium	20700		ng/l	20000		103	90-110			
Calcium	2.43E7		ng/l	2.5000E7		97.0	90-110			
Chromium	231000		ng/l	240000		96.2	90-110			
Cobalt	50400		ng/l	50000		101	90-110			
Copper	1.99E6		ng/l	2.0000E6		99.3	90-110			
Iron	2.45E6		ng/l	2.5000E6		98.1	90-110			
Lead	197000		ng/l	200000		98.3	90-110			
Magnesium	970000		ng/l	1.0000E6		97.0	90-110			
Manganese	483000		ng/l	500000		96.6	90-110			
Molybdenum	49600		ng/l	50000		99.1	90-110			
Nickel	121000		ng/l	120000		101	90-110			
Phosphorus	186000		ng/l	200000		93.2	90-110			
Potassium	2.49E6		ng/l	2.5000E6		99.8	90-110			
Rubidium	9610		ng/l	10000		96.1	90-110			
Selenium	20200		ng/l	20000		101	90-110			
Sodium	2.40E6		ng/l	2.5000E6		96.1	90-110			
Strontium	50200		ng/l	50000		100	90-110			
Thallium	468		ng/l	500.00		93.7	90-110			
Thorium	489		ng/l	500.00		97.8	90-110			

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Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Initial Cal Check (2311061-ICV1) Continu				Prepared & Analyzed: 11/22/23						
Uranium	487		ng/l	500.00		97.3	90-110			
Vanadium	20100		ng/l	20000		100	90-110			
Zinc	532000		ng/l	500000		106	90-110			
Interference Check A (2311061-IFA1)				Prepared & Analyzed: 11/22/23						
Aluminum	1.53E7		ng/l	1.5000E7		102	80-120			
Antimony	0.00		ng/l				80-120			U
Arsenic	0.00		ng/l				80-120			U
Barium	0.00		ng/l				80-120			U
Beryllium	0.00		ng/l				80-120			U
Cadmium	0.00		ng/l				80-120			U
Calcium	9.02E7		ng/l	1.0040E8		89.9	80-120			
Chromium	0.00		ng/l				80-120			U
Cobalt	0.00		ng/l				80-120			U
Copper	0.00		ng/l				80-120			U
Iron	1.47E7		ng/l	1.5000E7		98.1	80-120			
Lead	0.00		ng/l				80-120			U
Magnesium	1.59E7		ng/l	1.5000E7		106	80-120			
Manganese	0.00		ng/l				80-120			U
Molybdenum	294000		ng/l	300000		97.9	80-120			
Nickel	0.00		ng/l				80-120			U
Phosphorus	1.69E7		ng/l	1.5000E7		112	80-120			
Potassium	1.53E7		ng/l	1.5000E7		102	80-120			
Rubidium	0.00		ng/l				80-120			U
Selenium	0.00		ng/l				80-120			U
Sodium	1.59E7		ng/l	1.5000E7		106	80-120			
Strontium	0.00		ng/l				80-120			U
Thallium	0.00		ng/l				80-120			U
Thorium	0.00		ng/l				80-120			U
Uranium	0.00		ng/l				80-120			U
Vanadium	0.00		ng/l				80-120			U
Zinc	0.00		ng/l				80-120			U
Interference Check B (2311061-IFB1)				Prepared & Analyzed: 11/22/23						
Aluminum	1.79E7		ng/l	1.6500E7		109	80-120			
Antimony	20100		ng/l	20000		101	80-120			
Arsenic	20500		ng/l	20000		103	80-120			
Barium	206000		ng/l	200000		103	80-120			
Beryllium	4690		ng/l	5000.0		93.9	80-120			
Cadmium	19300		ng/l	20000		96.4	80-120			

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311061 - B3K2104										
Interference Check B (2311061-IFB1) Co				Prepared & Analyzed: 11/22/23						
Calcium	1.16E8		ng/l	1.2540E8		92.9	80-120			
Chromium	219000		ng/l	240000		91.0	80-120			
Cobalt	51900		ng/l	50000		104	80-120			
Copper	1.89E6		ng/l	2.0000E6		94.7	80-120			
Iron	1.77E7		ng/l	1.7500E7		101	80-120			
Lead	204000		ng/l	200000		102	80-120			
Magnesium	1.80E7		ng/l	1.6000E7		112	80-120			
Manganese	535000		ng/l	500000		107	80-120			
Molybdenum	343000		ng/l	350000		98.0	80-120			
Nickel	120000		ng/l	120000		99.8	80-120			
Phosphorus	1.81E7		ng/l	1.5200E7		119	80-120			
Potassium	1.88E7		ng/l	1.7500E7		107	80-120			
Rubidium	10200		ng/l	10000		102	80-120			
Selenium	19300		ng/l	20000		96.7	80-120			
Sodium	1.99E7		ng/l	1.7500E7		114	80-120			
Strontium	50000		ng/l	50000		100	80-120			
Thallium	511		ng/l	500.00		102	80-120			
Thorium	528		ng/l	500.00		106	80-120			
Uranium	531		ng/l	500.00		106	80-120			
Vanadium	17400		ng/l	20000		87.2	80-120			
Zinc	486000		ng/l	500000		97.2	80-120			
Batch 2311063 - B3K2104										
Calibration Blank (2311063-CCB1)				Prepared & Analyzed: 11/24/23						
Beryllium	-0.134		ng/l							U
Calibration Blank (2311063-CCB2)				Prepared & Analyzed: 11/24/23						
Beryllium	-0.893		ng/l							U
Calibration Blank (2311063-CCB3)				Prepared & Analyzed: 11/24/23						
Beryllium	-1.67		ng/l							U
Calibration Check (2311063-CCV1)				Prepared & Analyzed: 11/24/23						
Beryllium	4570		ng/l	5000.0		91.4	90-110			
Calibration Check (2311063-CCV2)				Prepared & Analyzed: 11/24/23						
Beryllium	4680		ng/l	5000.0		93.6	90-110			
Calibration Check (2311063-CCV3)				Prepared & Analyzed: 11/24/23						
Beryllium	4560		ng/l	5000.0		91.2	90-110			
High Cal Check (2311063-HCV1)				Prepared & Analyzed: 11/24/23						
Beryllium	9800		ng/l	10000		98.0	95-105			

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Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch 2311063 - B3K2104										
Initial Cal Blank (2311063-ICB1)				Prepared & Analyzed: 11/24/23						
Beryllium	-0.0416		ng/l							U
Initial Cal Check (2311063-ICV1)				Prepared & Analyzed: 11/24/23						
Beryllium	4580		ng/l	5000.0		91.6	90-110			
Interference Check A (2311063-IFA1)				Prepared & Analyzed: 11/24/23						
Beryllium	0.00		ng/l				80-120			U
Interference Check B (2311063-IFB1)				Prepared & Analyzed: 11/24/23						
Beryllium	4610		ng/l	5000.0		92.2	80-120			
Batch B3K2104 - ICP-MS Extraction										
Blank (B3K2104-BLK1)				Prepared: 11/21/23 Analyzed: 11/22/23						
Aluminum	ND	32.1	ng/m³ Air							U
Antimony	ND	0.0441	ng/m³ Air							U, SL
Arsenic	ND	0.00955	ng/m³ Air							U
Barium	ND	0.948	ng/m³ Air							U
Beryllium	ND	0.00332	ng/m³ Air							U
Cadmium	ND	0.109	ng/m³ Air							U
Calcium	ND	292	ng/m³ Air							U
Chromium	ND	2.03	ng/m³ Air							U
Cobalt	ND	0.0156	ng/m³ Air							U
Copper	ND	3.00	ng/m³ Air							U
Iron	ND	24.2	ng/m³ Air							U
Lead	ND	0.276	ng/m³ Air							U
Magnesium	ND	96.4	ng/m³ Air							U
Manganese	ND	1.19	ng/m³ Air							U
Molybdenum	ND	0.213	ng/m³ Air							U
Nickel	ND	0.801	ng/m³ Air							U
Phosphorus	ND	1250	ng/m³ Air							U, GC-BS
Potassium	ND	38.0	ng/m³ Air							U
Rubidium	ND	0.0183	ng/m³ Air							U
Selenium	ND	0.0110	ng/m³ Air							U
Sodium	ND	2000	ng/m³ Air							U
Strontium	ND	0.652	ng/m³ Air							U
Thallium	ND	5.03E-4	ng/m³ Air							U
Thorium	ND	0.00300	ng/m³ Air							U
Uranium	ND	0.0170	ng/m³ Air							U
Vanadium	ND	0.0492	ng/m³ Air							U
Zinc	ND	97.7	ng/m³ Air							U
LCS (B3K2104-BS1)				Prepared: 11/21/23 Analyzed: 11/22/23						

CERTIFICATE OF ANALYSIS

Tetra Tech, Inc.
1777 Sentry Pkwy, Bldg 12
Blue Bell, PA 19422
ATTN: Ms. Chelsea Saber
PHONE: (703) 885-5495 **FAX:**

FILE #: 0000.00
REPORTED: 11/29/23 10:49
SUBMITTED: 11/20/23
AQS SITE CODE:
SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch B3K2104 - ICP-MS Extraction										
LCS (B3K2104-BS1) Continued				Prepared: 11/21/23 Analyzed: 11/22/23						
Aluminum	87.7	32.1	ng/m³ Air	82.975		106	80-120			
Antimony	0.896	0.0441	ng/m³ Air	1.3829		64.8	80-120			SL
Arsenic	2.67	0.00955	ng/m³ Air	2.7658		96.5	80-120			
Barium	27.8	0.948	ng/m³ Air	27.658		101	80-120			
Beryllium	1.33	0.00332	ng/m³ Air	1.3829		96.3	80-120			
Cadmium	1.38	0.109	ng/m³ Air	1.3829		99.5	80-120			
Calcium	ND	292	ng/m³ Air	69.146			80-120			U
Chromium	14.0	2.03	ng/m³ Air	13.829		101	80-120			
Cobalt	1.39	0.0156	ng/m³ Air	1.3829		101	80-120			
Copper	29.8	3.00	ng/m³ Air	27.658		108	80-120			
Iron	36.2	24.2	ng/m³ Air	27.658		131	80-120			
Lead	13.5	0.276	ng/m³ Air	13.829		97.4	80-120			
Magnesium	ND	96.4	ng/m³ Air	27.658			80-120			U
Manganese	8.26	1.19	ng/m³ Air	8.2975		99.5	80-120			
Molybdenum	1.43	0.213	ng/m³ Air	1.3829		103	80-120			
Nickel	2.96	0.801	ng/m³ Air	2.7658		107	80-120			
Phosphorus	ND	1250	ng/m³ Air	13.829			80-120			U, GC-BS
Potassium	61.3	38.0	ng/m³ Air	55.317		111	80-120			
Rubidium	1.33	0.0183	ng/m³ Air	1.3829		96.4	80-120			
Selenium	2.63	0.0110	ng/m³ Air	2.7658		95.1	80-120			
Sodium	ND	2000	ng/m³ Air	55.317			80-120			U, GC-BS
Strontium	1.63	0.652	ng/m³ Air	1.3829		118	80-120			
Thallium	0.128	5.03E-4	ng/m³ Air	0.13829		92.8	80-120			
Thorium	0.129	0.00300	ng/m³ Air	0.13829		93.4	80-120			
Uranium	0.127	0.0170	ng/m³ Air	0.13829		91.8	80-120			
Vanadium	2.70	0.0492	ng/m³ Air	2.7658		97.7	80-120			
Zinc	111	97.7	ng/m³ Air	82.975		133	80-120			
LCS (B3K2104-BS2)				Prepared: 11/21/23 Analyzed: 11/22/23						
Aluminum	77.1	32.1	ng/m³ Air	82.975		92.9	80-120			
Antimony	1.34	0.0441	ng/m³ Air	1.3829		97.0	80-120			SL
Arsenic	2.62	0.00955	ng/m³ Air	2.7658		94.8	80-120			
Barium	26.8	0.948	ng/m³ Air	27.658		96.9	80-120			
Beryllium	1.41	0.00332	ng/m³ Air	1.3829		102	80-120			
Cadmium	1.37	0.109	ng/m³ Air	1.3829		98.9	80-120			
Calcium	ND	292	ng/m³ Air	69.146			80-120			U, LJ
Chromium	13.2	2.03	ng/m³ Air	13.829		95.6	80-120			
Cobalt	1.36	0.0156	ng/m³ Air	1.3829		98.2	80-120			
Copper	29.0	3.00	ng/m³ Air	27.658		105	80-120			

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SITE CODE: Maui fires

Analyte	Result	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Inorganics by Compendium Method IO-3.5 - Quality Control										
Batch B3K2104 - ICP-MS Extraction										
LCS (B3K2104-BS2) Continued				Prepared: 11/21/23 Analyzed: 11/22/23						
Iron	25.8	24.2	ng/m³ Air	27.658		93.4	80-120			
Lead	13.3	0.276	ng/m³ Air	13.829		96.3	80-120			
Magnesium	ND	96.4	ng/m³ Air	27.658			80-120			U
Manganese	7.88	1.19	ng/m³ Air	8.2975		95.0	80-120			
Molybdenum	1.33	0.213	ng/m³ Air	1.3829		96.5	80-120			
Nickel	2.69	0.801	ng/m³ Air	2.7658		97.3	80-120			
Phosphorus	ND	1250	ng/m³ Air	13.829			80-120			U, GC-BS
Potassium	54.3	38.0	ng/m³ Air	55.317		98.1	80-120			
Rubidium	1.32	0.0183	ng/m³ Air	1.3829		95.4	80-120			
Selenium	2.62	0.0110	ng/m³ Air	2.7658		94.8	80-120			
Sodium	ND	2000	ng/m³ Air	55.317			80-120			U
Strontium	1.34	0.652	ng/m³ Air	1.3829		97.1	80-120			
Thallium	0.129	5.03E-4	ng/m³ Air	0.13829		93.0	80-120			
Thorium	0.126	0.00300	ng/m³ Air	0.13829		90.9	80-120			
Uranium	0.124	0.0170	ng/m³ Air	0.13829		90.0	80-120			
Vanadium	2.69	0.0492	ng/m³ Air	2.7658		97.2	80-120			
Zinc	ND	97.7	ng/m³ Air	82.975			80-120			U

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AQS SITE CODE:
SITE CODE: Maui fires

Notes and Definitions

U	Under Detection Limit
SL	The spike recovery was outside acceptance limits. Reported value may be biased low.
LJ	Identification of analyte is acceptable; reported value is an estimate.
GC-BS	Compound exceeds Blank Spike Criteria
D	This result obtained by dilution.
ND	Analyte NOT DETECTED
NR	Not Reported
MDL	Method Detection Limit
RPD	Relative Percent Difference

Note: This test is accredited under the 2016 TNI Standard.

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Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

Maura McAleese
TetraTech
1999 Harrison St, Suite 500
Oakland, CA 94612

EBET Order #: 3454309
Project #: 1032864023141
Receipt Date: 15-Nov-2023
Analysis Date: 20-Nov-2023
Report Date: 20-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AMO1-111023-AB**

Air Volume:	2261.714
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	1.28958
Analytical Sensitivity: f/cm3:	0.00129
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00129
Concentration of Asbestos (Amphibole) f/cm3:	<0.00129
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00129
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	4.8
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	4.8

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

NVLAP Lab Code: 200525-0; TDSHS License: 30-0273

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Analysis Date: 20-Nov-2023
Report Date: 20-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AMO2-111023-AB**

Air Volume:	2885.531
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	1.01079
Analytical Sensitivity: f/cm3:	0.00101
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00101
Concentration of Asbestos (Amphibole) f/cm3:	<0.00101
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00101
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	3.7
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	3.7

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

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Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

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TetraTech
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HDOH Kula Community Air

Sample Number **MFK-AMO3-111023-AB**

Air Volume:	3312.221
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.88058
Analytical Sensitivity: f/cm3:	0.00088
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00088
Concentration of Asbestos (Amphibole) f/cm3:	<0.00088
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00088
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	3.2
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	3.2

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

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Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

Maura McAleese
TetraTech
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Analysis Date: 20-Nov-2023
Report Date: 20-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AMO1-111123-AB**

Air Volume:	5658.48
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.51545
Analytical Sensitivity: f/cm3:	0.00052
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00052
Concentration of Asbestos (Amphibole) f/cm3:	<0.00052
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00052
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.9
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.9

Analyst: William Colbert

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Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

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HDOH Kula Community Air

Sample Number **MFK-AMO2-111123-AB**

Air Volume:	5148.37
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.56652
Analytical Sensitivity: f/cm3:	0.00057
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Amphibole) f/cm3:	<0.00057
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.1
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.1

Analyst: William Colbert

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HDOH Kula Community Air

Sample Number **MFK-AMO3-111123-AB**

Air Volume:	6677.049
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.43682
Analytical Sensitivity: f/cm3:	0.00044
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00044
Concentration of Asbestos (Amphibole) f/cm3:	<0.00044
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00044
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.6
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.6

Analyst: William Colbert

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HDOH Kula Community Air

Sample Number **MFK-AMO1-111223-AB**

Air Volume:	5121.496
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.56950
Analytical Sensitivity: f/cm3:	0.00057
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Amphibole) f/cm3:	<0.00057
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.1
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.1

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

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Report Date: 20-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AMO2-111223-AB**

Air Volume:	4696.992
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.62096
Analytical Sensitivity: f/cm3:	0.00062
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00062
Concentration of Asbestos (Amphibole) f/cm3:	<0.00062
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00062
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.3
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.3

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

NVLAP Lab Code: 200525-0; TDSHS License: 30-0273

Eurofins Built Environment Testing
6110 W. 34th Street, Houston, Texas 77092
Phone: (713) 290-0221 Fax: (713) 290-0248
www.EurofinsUS.com/BuiltEnv

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Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

Maura McAleese
TetraTech
1999 Harrison St, Suite 500
Oakland, CA 94612

EBET Order #: 3454309
Project #: 1032864023141
Receipt Date: 15-Nov-2023
Analysis Date: 20-Nov-2023
Report Date: 20-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AMO3-111223-AB**

Air Volume:	5134.032
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	WC
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.56810
Analytical Sensitivity: f/cm3:	0.00057
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Amphibole) f/cm3:	<0.00057
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.1
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.1

Analyst: William Colbert

Scott M. Ward, Ph.D. **Lab Director**

NVLAP Lab Code: 200525-0; TDSHS License: 30-0273

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Report for:

Maura McAleese
Tetra Tech- Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

Regarding: Eurofins J3 Resources, Inc.
Project: 103286402341; HDOH Kula Community Air
EML ID: 3458356

Approved by:

Lab Director
Scott Ward

Dates of Analysis:
Asbestos TEM ISO 10312 / ASTM6281-06: 11-27-2023

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank correction of results is not applied. The results relate only to the samples as received and tested.

Eurofins J3 Resources, Inc.
6110 W. 34th Street, Houston, Texas 77092
Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
Analysis Date: 27-Nov-2023
Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM01-111323-AB**

Air Volume:	7394.855
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.39442
Analytical Sensitivity: f/cm3:	0.00039
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00039
Concentration of Asbestos (Amphibole) f/cm3:	<0.00039
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00039
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.5
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.5

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
Analysis Date: 27-Nov-2023
Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM02-111323-AB**

Air Volume:	7670.678
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.38024
Analytical Sensitivity: f/cm3:	0.00038
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00038
Concentration of Asbestos (Amphibole) f/cm3:	<0.00038
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00038
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.4
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.4

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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6110 W. 34th Street, Houston, Texas 77092
Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
Analysis Date: 27-Nov-2023
Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM03-111323-AB**

Air Volume:	4540.176
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.64241
Analytical Sensitivity: f/cm3:	0.00064
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00064
Concentration of Asbestos (Amphibole) f/cm3:	<0.00064
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00064
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.4
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.4

Analyst: Taylor Smylie

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j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

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Receipt Date: 20-Nov-2023
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Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM01-111423-AB**

Air Volume:	7307.402
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.39914
Analytical Sensitivity: f/cm3:	0.00040
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Amphibole) f/cm3:	<0.00040
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.5
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.5

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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6110 W. 34th Street, Houston, Texas 77092
Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

Airborne Asbestos Fiber Analysis by Transmission Electron Microscopy (TEM) ISO 10312 - Ambient Air - Determination of Asbestos Fibers Direct-Transfer Transmission Electron Microscopy Method

Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

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HDOH Kula Community Air

Sample Number **MFK-AM02-111423-AB**

Air Volume:	8400.285
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.34721
Analytical Sensitivity: f/cm3:	0.00035
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00035
Concentration of Asbestos (Amphibole) f/cm3:	<0.00035
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00035
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.3
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.3

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
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Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM03-111423-AB**

Air Volume:	5086.31
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.57343
Analytical Sensitivity: f/cm3:	0.00057
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Amphibole) f/cm3:	<0.00057
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00057
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	2.1
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	2.1

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

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Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM01-111523-AB**

Air Volume:	7228.224
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.40351
Analytical Sensitivity: f/cm3:	0.00040
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Amphibole) f/cm3:	<0.00040
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.5
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.5

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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Phone: (713) 290-0221 Fax: (713) 290-0248
j3resources.com

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
Analysis Date: 27-Nov-2023
Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM02-111523-AB**

Air Volume:	7311.168
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.39893
Analytical Sensitivity: f/cm3:	0.00040
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Amphibole) f/cm3:	<0.00040
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00040
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.5
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.5

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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Maura McAleese
Tetra Tech - Maui Fire
1999 Harrison St. Ste. 500
Oakland, CA 94612

EJ3 Order #: 3458356
Project #: 103286402341.00
Receipt Date: 20-Nov-2023
Analysis Date: 27-Nov-2023
Report Date: 27-Nov-2023

HDOH Kula Community Air

Sample Number **MFK-AM03-111523-AB**

Air Volume:	6445.728
Effective Filter Area:	385.0 mm^2
Level of Analysis (Chrysotile):	CDQ
Level of Analysis (Amphibole):	ADQ
Magnification Used for Fiber Counting:	20,000
Aspect Ratio for Fiber Definition:	5:1
Mean Dimension of Grid Openings (GOs):	0.0132 mm^2
Initials of Analyst:	TS
Number of GO's Examined:	10
Analytical Sensitivity: f/Liter:	0.45250
Analytical Sensitivity: f/cm3:	0.00045
Number of primary asbestos structures:	0
Number of asbestos structures counted:	0
Number of asbestos structures > 5 um :	0
Number of asbestos fibers and bundles > 5 um:	0
Number of PCM equivalent asbestos structures:	0
Number of PCM equivalent asbestos fibers:	0
Concentration of Asbestos (Chrysotile) f/cm3:	<0.00045
Concentration of Asbestos (Amphibole) f/cm3:	<0.00045
Concentration of PCME Asbestos (Chrysotile) f/cm3:	<0.00045
Concentration of Asbestos (Chrysotile), Str/L:	0
Concentration of Asbestos (Amphibole), Str/L:	0
Lower 95% Confidence Limit (Chrysotile), Str/L:	0
Upper 95% Confidence Limit (Chrysotile), Str/L:	1.7
Lower 95% Confidence Limit (Amphibole), Str/L:	0
Upper 95% Confidence Limit (Amphibole), Str/L:	1.7

Analyst: Taylor Smylie

Scott M. Ward, Ph.D. **Lab Director**

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