

via email

9 May 2023



Stephen Lee, Director
Louisiana Department of Natural Resources
Office of Conservation - Injection & Mining Division
617 North Third Street, LaSalle Building
Baton Rouge, Louisiana 70802-5431

Reference: 0688077

Subject: 1st Analytical Data Submittal
Westlake US 2, LLC
Sulphur Dome
Calcasieu Parish, Louisiana

Dear Mr. Lee:

On behalf of Westlake US 2, LLC (Westlake), Environmental Resources Management Southwest, Inc. (ERM) is pleased to provide the Louisiana Department of Natural Resources (LDNR) Injection & Mining Division with the final laboratory analytical data for groundwater, surface water, and oil samples collected at the Sulphur Dome in Calcasieu Parish. The samples were collected by ERM during January through March 2023 sampling events and by Intertek during May, June, August and November 2022 and January 2023 sampling events.

Enclosed are the following:

- Table 1 – Ground Water Data
- Table 2 – Surface Water Data
- Table 3 – Dissolved Gasses Data
- Table 4 – Oil Data
- Figure 1 – Sample Location Map
- Figure 2 – Piper Diagram
- Figure 3 – Dissolved Gas Isotopes
- Attachment 1 – Laboratory Reports

For completeness, all final laboratory reports received to date are provided in Attachment 1. Supplemental submittals will be made as additional final laboratory analytical data are received.

1. WATER SAMPLING RESULTS

Samples of surface water and groundwater have been collected at locations shown on Figure 1. The samples were analyzed by ALS Global laboratory based in Houston, Texas, a Louisiana Environmental Laboratory Accreditation Program (LELAP) accredited laboratory. The analytical data for surface water and groundwater are summarized in Tables 1 and 2, respectively. Cations and anions in the water samples have been plotted together on a single piper diagram for general comparison of water quality (Figure 2). A brief discussion of the groundwater, surface water, and dissolved gasses results to date is provided herein.

1.1 Groundwater

Groundwater samples have been collected from the industrial water wells operated by Westlake, as well as the Cottages Well located west of Cavern 7 (see Figure 1). At each well, water was allowed to flow from each well for several minutes prior to sampling and field parameters, i.e., pH, specific conductivity (SC), oxidation-reduction potential (ORP), and temperature, were recorded with a hand-held meter at the time of sampling. The groundwater analytical data are summarized in Table 1. Reported constituent concentrations were below their respective RECAP screening standards (GWSS) or EPA Secondary Maximum Contaminant Limits (SMCL), with the exception of iron and manganese. Alluvial aquifers throughout South Louisiana are known to exhibit elevated concentrations of naturally occurring iron, manganese, and other metals. Industrial processes utilizing steel piping can also influence the metal concentrations reported in the water. SMCLs are non-enforceable guidelines established by the EPA based on aesthetic qualities (e.g., odor, taste, etc.).

The brine samples were included for comparison but were not evaluated with respect to the RECAP GWSS or the SMCL because the brine is a manufactured product. However, the brine samples did contain detectable concentrations of benzene and toluene, in addition to the high salt content.

When plotted on the piper diagram, the groundwater data plot relatively close together in a cluster. The industrial water wells are screened between approximately 470-600 feet below ground surface and all exhibit similar water quality signatures. For reference, data from historical water well samples collected in the area have also been plotted on the piper diagram. The groundwater data from the most recent samples are consistent with the data from the historical samples. For reference, the brine samples from Brine Well 6X and Brine Well 7B are provided on Table 1 and also plotted on the piper diagram (Figure 2).

When different waters mix, it is expected that the data will plot between the two end-member waters on a piper diagram. In this case, mixing groundwater with brine is expected to plot between the cluster of groundwater data points and the brine end-members.

The Cottages Well data plots in a slightly different location on Figure 2 than the industrial water wells, and similar to the historical data from 019-1054. The information is limited on the Cottages Well, but it has been reported that this well is installed into the 700-foot Chicot sand. While the data are slightly different than the industrial water wells, the location of the plotted data does not suggest influence from brine. Mixing of brine with the groundwater is expected to plot between the two end-members, and the Cottages Well data does not fall along that mixing line between the industrial water wells and brine. At this time, there is no indication that the groundwater at these locations has been influenced by or mixed with brine.

1.2 Surface Water

Surface water samples have been collected primarily from the central lake within the center of the operational area and at the approximate center of the salt dome (Figure 1). At the time of sampling, the depth of water is measured and water quality parameters (pH, SC, ORP, and temperature) are recorded using a hand-held field meter. While some variability is expected, the field readings from the central lake have been very consistent regardless of location or depth. The depth of the Central Lake varies across the site and is typically less than 6-feet. Surface water samples are collected from as close as possible to the middle of the water column using

expendable tubing, weights, and/or an extendable pole, along with a peristaltic pump to pull water from within the water column.

Surface water analytical results (Table 2) are consistent with the field-measured parameters and the data from the central lake are all quite similar. The surface water in the Central Lake is slightly saline with elevated sulfate and total dissolved solids (TDS) as compared to the groundwater. The one exception is the sample labelled “Central Pond” which was collected in an area with very little standing water and subject to evaporation. The piper diagram (Figure 2) illustrates that the surface water samples have consistent water quality signatures and plot very closely together.

Other surface water samples have been collected from other perennially ponded features (LDNR #9 and #19), temporarily ponded areas due to rainfall (LDNR #5, #10, and Brine Well 7A), and the well vault at Brine Well 7B. The sample collected from the Brine Well 7B vault has a signature of brine. Sample locations 7A, LDNR #5, and LDNR #10 were all collected in very shallow puddles as a result of rainfall and the water quality signatures are different from the other samples.

Samples LDNR #9 and LDNR #19 were collected in a pond near Brine Well 4 and plot in similar locations with one another, but slightly differently than the Central Lake samples. Sample LDNR #2 was collected from a culvert running into the Central Pond, and LDNR #20 was collected in the large body of water west of Cavern 7, both of which have a very similar signature to the Central Lake samples.

As noted above, when different waters mix, it is expected that the data will plot between the two end-member waters on a piper diagram. In this case, mixing surface water with brine is expected to plot between the cluster of surface water data points and the brine end-members. While the “Central Pond” sample plots along the mixing line between the surface water and the brine, this sample was collected in an area with very little water which is subject to evaporation, influence from sediment, and at a location where no bubbling was observed. At this time, the surface water data suggest that there is no indication of influence by or mixing with brine.

1.3 Dissolved Gas Results

Dissolved gas samples have been collected at individual bubble sites as well as the water wells and are summarized in Table 3. At each bubble site location, the sample was collected as close to the source of the bubbling as possible using expendable tubing and a peristaltic pump to fill the laboratory supplied evacuated container (IsoFlask) with water. The samples were submitted to Isotech, a Stratum Reservoir brand, located in Champaign, Illinois for dissolved gas analysis. Several samples did not contain enough methane to perform the full isotopic analysis, including LDNR #6, LDNR #7, “Central Pond”, LDNR #20, and the water well samples. The “Central Pond” and LDNR #20 samples were collected at locations where there was no bubbling observed, thus very little methane was reported. LDNR #6 and LDNR #7 locations were collected in the same manner as the other bubble site locations; however, there was very little methane reported in these samples.

The methane stable isotopic results were plotted on a linear chart (Figure 3) for comparison with known genetic classifications (Coleman, et al., 1995). Data previously collected by Lonquist of gas samples from the caverns and/or well annulus were also plotted for comparison.

The methane isotopic gas data indicate that the gas from the bubble sites has thermogenic origins, is likely deep gas, and is similar in isotopic composition to the cavern gas samples collected previously. The concentration of methane in the water wells was too low for complete

isotopic evaluation, however, the carbon 13 isotopic data indicate the origin of gas in the Chicot aquifer is different than that observed in the caverns and at the bubble sites.

2. OIL SAMPLE RESULTS

One oil sample from Cavern 7B was collected and submitted to Southern Petroleum Laboratories (SPL) for bulk/whole oil properties. The results from this sampling, along with data from previous sampling conducted by Intertek, are provided in Table 4. The recently-collected Cavern 7B oil sample has similar properties (American Petroleum Institute [API] gravity, low salt, and high vanadium to nickel content) to the 7B well samples previously collected. The crude oil sample from Yellow Rock, LLC Fee 969 has a much lower API gravity, high salt, and low vanadium to nickel content than the Cavern 7B sample. Based on these data, the oil from Cavern 7B appears to be similar to the previous 7B oil samples and different from the Yellow Rock crude oil sample collected.

We will continue to report sampling results to LDNR as they are received. Should you have any questions or need addition information, please contact us at scott.himes@erm.com and david.upthegrove@erm.com.

Sincerely,

Environmental Resources Management Southwest, Inc.



Scott A. Himes, P.G.
Senior Hydrogeologist



David C. Upthegrove, P.G.
Partner



FIGURES

**Legend**

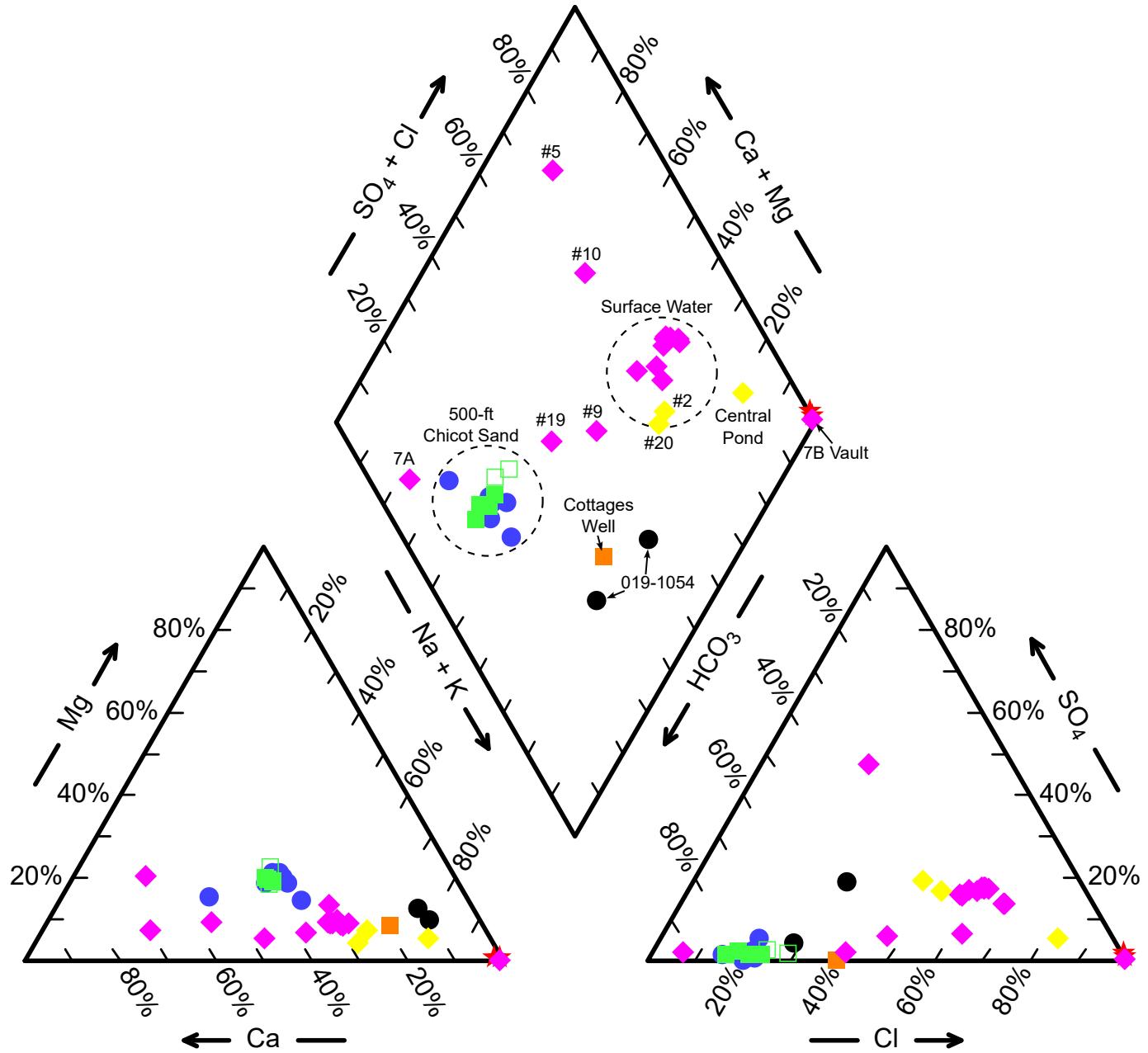
- Surface Water Sample Location
- Bubble Site Water Sample Location
- Sheen Sample Location
- ◆ Water Well Sample Location
- Westlake Property

Notes:
2021 Aerial imagery via USGS Earth Explorer (NAIP).

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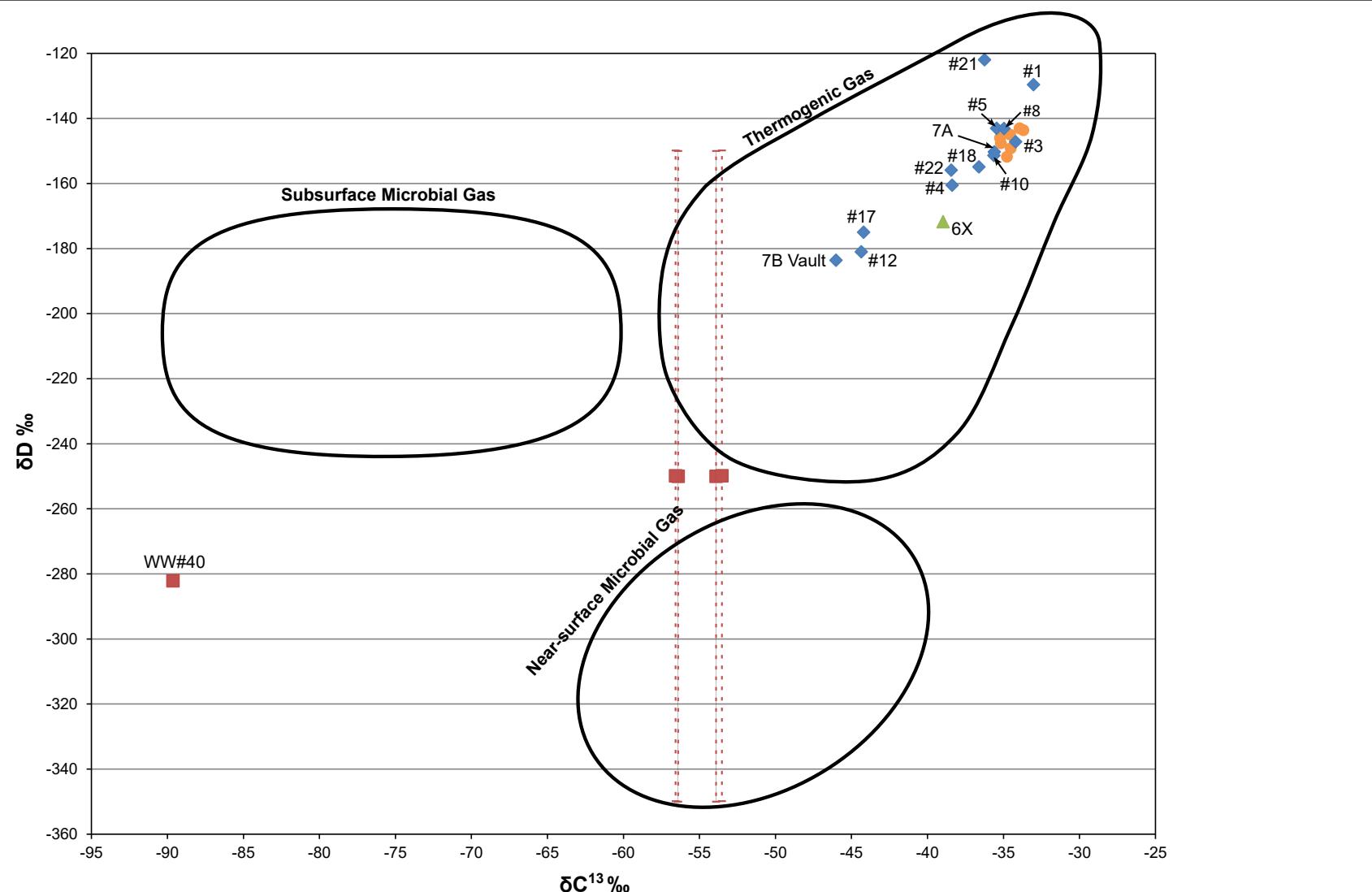
Figure 1
Sampling Locations
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana



Legend

- ◆ Bubble Site & Surface Water
- ◆ Other Surface Water
- ◆ Industrial Water Well (Current)
- ◆ Industrial Water Well (Historic)
- ◆ Cottages Well
- ◆ Other Water Well
- 019-1054 (Historic)
- ★ Brine

Figure 2
Piper Diagram
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana

**Legend**

- Cavern Gas (Lonquist)
- ◆ Bubble Site
- Groundwater
- ▲ Brine

Notes:

Coleman, D.D., Liu, C., Hackley, K.C., and Pelphrey, S.R., 1995, Identification of Landfill Methane, Environmental Geosciences, Vol. 2, No. 2, pp. 95-103.

Figure 3
Dissolved Gas Isotopes
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana

TABLES

Table 1
Groundwater Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Constituent	Units	Sample ID Sample Location Sample Interval (ft) Sample Date Sampler	Groundwater						6X Brine SN 57788 Brine 1/25/23 ERM	007-B Brine SN 67270 Brine 2/16/23 ERM			
			019-580 WW #11		019-582 WW #13		019-995 WW #12		019-1055 WW #19	019-1603 WW #40	Cottages Well Cottages		
			469'	609'	1/26/23	3/30/23	485'	520'	1/26/23	3/30/23	3/30/23		
			ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM		
Total Metals		RECAP GWSS											
Arsenic	mg/L	0.01	0.000477 J	<0.0004	0.000812 J	<0.0004	0.000762 J	<0.0004	0.000419 J	<0.0004	0.000974 J	<0.0004	0.0300 J
Barium	mg/L	2	0.23	0.235	0.239	0.221	0.214	0.234	0.265	0.263	0.258	0.187	0.220
Cadmium	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01
Calcium	mg/L	NS	26.8	25.4	25.5	23.9	26.4	25.3	28.7	27.5	26.9	13.7	722
Chromium	mg/L	0.1	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.243
Iron ^(a)	mg/L	0.3	5.12	4.25	4.03	4.02	0.821	4.76	3.81	3.96	12.4	5.57	25.7
Lead	mg/L	0.015	0.00144 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.03
Magnesium	mg/L	NS	8.03	8.1	7.81	7.66	8.02	7.87	8.66	8.42	8.33	3.69	8.16 J
Manganese ^(a)	mg/L	0.05	0.412	0.413	0.417	0.388	0.388	0.403	0.42	0.4	0.506	0.193	0.953
Mercury	mg/L	0.002	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000310 J	<0.00003	0.0000300 J	<0.00003	<0.00003	<0.00003
Potassium	mg/L	NS	2.93	2.68	2.94	2.5	3.00	2.60	3.10	2.69	2.81	2.03	14.4
Selenium	mg/L	0.05	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	0.00114 J	<0.0011	<0.0011	<0.0011	<0.0550
Silver	mg/L	0.18	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01
Sodium	mg/L	NS	31.9	27.7	28.0	26.4	29.9	30.3	34.4	32	32.1	57.7	100,000
Strontium	mg/L	NS	0.246	0.228	0.240	0.208	0.241	0.221	0.262	0.238	0.235	0.16	2.66
Zinc	mg/L	1.1	0.0147	0.0495	0.0107	0.0166	0.00426	<0.002	0.00993	0.0107	0.0845	0.255	0.481
Anions/Water Quality Parameters													
Bicarbonate Alkalinity	mg/L	NS	200	115	180	115	258	122	250	123	125	139	159
Bromide	mg/L	NS	0.0992 J	<0.03	0.0860 J	<0.03	0.0931 J	0.0782 J	0.0982 J	<0.03	0.101	0.102	<3
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride ^(a)	mg/L	250	35.7	26.4	23.4	26.3	28.7	36.3	38.3	36.8	36.6	52.8	213,000
Sulfate ^(a)	mg/L	250	2.91	3.67	4.11	3.68	3.63	2.8	3.51	3.39	0.426 J	<0.2	1,380
Total Dissolved Solids (TDS) ^(a)	mg/L	500	236	186	212	200	226	240	244	230	206	274	239,000
pH ^(a)	SI	6.5 - 8.5	NA	7.04 H	NA	7.01 H	NA	6.94 H	NA	7.16 H	7.23 H	NA	NA NA
Sulfides													
Hydrogen Sulfide	mg/L	NS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 <0.5
Sulfide	mg/L	NS	<1	<1.7	<1	<1.7	<1	<1.7	<1	<1.7	<1.7	<1.7	<1 <1
Volatile Organic Compounds													
Benzene	mg/L	0.005	<0.0002	<0.2	<0.0002	<0.2	<0.0002	<0.2	<0.0002	<0.2	<0.2	<0.2	0.170
Ethylbenzene	mg/L	0.7	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.3	<0.3	0.0075 J <0.0003
Toluene	mg/L	1	<0.0002	<0.2	<0.0002	<0.2	<0.0002	<0.2	<0.0002	<0.2	<0.2	<0.2	0.110
m,p-Xylene	mg/L	10	<0.0005	<0.5	<0.0005	<0.5	<0.0005	<0.5	<0.0005	<0.5	<0.5	<0.5	0.013 J <0.0005
o-Xylene	mg/L	10	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.3	<0.3	0.0091 J <0.0003
Xylenes, Total	mg/L	10	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.0003	<0.3	<0.3	<0.3	0.022 <0.0003
TPH Fractions													
Aliphatics >C6-C8	mg/L	3.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0997
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0803
Aliphatics >C10-C12	mg/L	0.15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.107
Aliphatics >C12-C16	mg/L	0.15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NA
Aliphatics >C16-C35	mg/L	7.3	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	NA
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0132
Aromatics >C10-C12	mg/L	0.15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
Aromatics >C12-C16	mg/L	0.15	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	NA
Aromatics >C16-C21	mg/L	0.15	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA
Aromatics >C21-C35	mg/L	0.15	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	NA

Notes

J - Estimated Value reported below the detection limit.

H - pH is received at the lab outside of hold time (15 min from sampling).

< - Not Detected at the reporting limit shown.

Bolded values detected in the sample.

NA - Not Analyzed

NS - No Standard

(a) - No RECAP standard, limit listed is EPA Secondary MCL

Shaded values exceed standard

Table 2
Surface Water Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

LDNR Sample No.	#1	#3	#4	#5	#6	#7	#8	#9	#10	#12	#17	#18	#19	#21	#22	#23	WPB PPB No.7A	WPB PPB No.7B
Sample ID	Brine Well 22 BS	CP BS 1	CP BS 2	CP BS 3	BS 06	BS 07	BS 08	Brine Pond 4 BS	1101529-BS	BS 12	BS 17	BS 18	BS 19	No. 21	No. 22	No. 23	Brine Well 7A BS	Brine Well 7B BS
Sample Date	1/25/23	1/30/23	1/30/23	1/30/23	2/28/23	2/28/23	2/28/23			2/10/23	2/28/23	2/28/23	2/28/23	3/30/23	3/30/23	3/30/23	1/25/23	2/16/23
Sample Interval (ft)	Surface	Surface	Surface	Surface	Surface	Surface	Surface			Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Constituent	Sampler Units	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Total Metals																		
Arsenic	mg/L	0.00149 J	0.000862 J	0.000868 J	0.000769 J	0.000784 J	0.000886 J	0.000975 J	0.00176 J	0.000896 J	0.000797 J	0.000916 J	0.00355	0.000855 J	0.000998 J	0.000930 J	0.000767 J	0.0202 J
Barium	mg/L	0.300	0.160	0.367	0.155	0.116	0.119	0.127	0.118	0.0594	0.119	0.118	0.125	0.127	0.116	0.135	0.132	0.232
Cadmium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01
Calcium	mg/L	71.2	75.3	64.2	77.7	66.3	65.8	68.1	38.6	55.8	66.9	65.8	68.6	62	78.4	89.2	84.1	24.5
Chromium	mg/L	0.000847 J	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000474 J	0.114 J
Iron	mg/L	1.14	0.132 J	0.0258 J	0.125 J	0.0485 J	0.0546 J	0.166 J	0.609	0.0432 J	0.0570 J	0.0795 J	0.0686 J	0.102 J	0.0273 J	0.0375 J	0.0270 J	0.0406 J
Lead	mg/L	0.00208	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.03
Magnesium	mg/L	19.8	15.0	12.6	15.0	11.7	11.5	12	4.2	5.64	11.9	11.5	12	4.36	13.9	15.9	14.8	1.54
Manganese	mg/L	0.797	0.266	0.458	0.232	0.813	1.03	0.972	0.204	0.0295	0.885	1	1.03	0.24	0.445	0.43	0.379	0.0215
Mercury	mg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Potassium	mg/L	2.57	2.90	2.58	2.86	2.31	2.36	2.39	1.17	2.44	2.3	2.36	2.42	0.962	2.15	2.45	2.33	1.02
Selenium	mg/L	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.055
Silver	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01
Sodium	mg/L	156	174	166	19.1	142	140	144	64.6	37.6	146	137	143	71.2	186	211	205	8.45
Strontium	mg/L	0.619	0.556	0.482	0.578	0.441	0.426	0.457	0.243	0.237	0.451	0.435	0.452	0.338	0.495	0.559	0.542	0.167
Zinc	mg/L	0.00857	0.00452	0.00213 J	0.00748	<0.002	<0.002	0.0658	0.00496	0.00654	0.0445	0.0119	<0.002	0.00535	<0.002	0.00431	0.00291 J	0.0466
Anions/Water Quality Parameters																		
Bicarbonate Alkalinity	mg/L	269	241	238	245	148	162	144	163	107	142	144	148	240	162	162	159	128
Bromide	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<1.5
Carbonate Alkalinity	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	317	308	296	343	253	253	251	95.8	47	257	248	248	98.4	342	343	346	6.45
Sulfate	mg/L	45.2	113	111	135	96.8	95.1	96.2	16.5	133	96.5	95.9	95.9	6.72	93.9	94.1	94	2.97
Total Dissolved Solids (TDS)	mg/L	676	80.0	512	892	710	712	748	290	412	712	732	706	408	872	812	844	320
pH	SI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.74 H	7.70 H	7.58 H	NA
Sulfides																		
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	23.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfide	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.7	<1.7	<1.7	<1

Table 2
Surface Water Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Constituent	LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler Units	#2	#20		
		Culvert	Central Pond	No. 20	
		1/25/23 Surface	1/25/23 Surface	3/9/23 Surface	
		ERM	ERM	ERM	
Surface Water					
Total Metals					
Arsenic	mg/L	0.00141 J	0.00192 J	0.00109 J	
Barium	mg/L	0.0832	0.146	0.43	
Cadmium	mg/L	<0.0002	<0.0004	<0.0002	
Calcium	mg/L	58.2	149	8.98	
Chromium	mg/L	0.00101 J	0.00458 J	<0.0004	
Iron	mg/L	0.207	2.07	0.148 J	
Lead	mg/L	<0.0006	<0.00120	<0.0006	
Magnesium	mg/L	5.44	37.8	1.6	
Manganese	mg/L	0.00934	0.847	0.0163	
Mercury	mg/L	<0.00003	<0.00003	<0.00003	
Potassium	mg/L	2.86	3.22	1.2	
Selenium	mg/L	<0.0011	<0.0022	<0.0011	
Silver	mg/L	<0.0002	<0.0004	<0.0002	
Sodium	mg/L	158	1080	27.5	
Strontium	mg/L	0.341	0.941	0.134	
Zinc	mg/L	0.0153	0.0258	<0.002	
Anions/Water Quality Parameters					
Bicarbonate Alkalinity	mg/L	210	495	37.4	
Bromide	mg/L	<0.03	<0.06	<0.03	
Carbonate Alkalinity	mg/L	<5	<5	<5	
Chloride	mg/L	215	2090	32	
Sulfate	mg/L	92.1	183	17.2	
Total Dissolved Solids (TDS)	mg/L	498	3600	148	
pH	SI	NA	NA	NA	
Sulfides					
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	
Sulfide	mg/L	<1	<1	<1.7	
Volatile Organic Compounds					
Benzene	mg/L	<0.0002	<0.0002	<0.2	
Ethylbenzene	mg/L	<0.0003	<0.0003	<0.3	
Toluene	mg/L	<0.0002	<0.0002	<0.2	
m,p-Xylene	mg/L	<0.0005	<0.0005	<0.5	
o-Xylene	mg/L	<0.0003	<0.0003	<0.3	
Xylenes, Total	mg/L	<0.0003	<0.0003	<0.3	
TPH Fractions					
Aliphatics >C6-C8	mg/L	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	mg/L	<0.01	<0.01	<0.01	
Aliphatics >C10-C12	mg/L	<0.001	<0.001	<0.001	
Aliphatics >C12-C16	mg/L	<0.002	<0.002	<0.002	
Aliphatics >C16-C35	mg/L	<0.008	<0.008	<0.008	
Aromatics >C8-C10	mg/L	<0.01	<0.01	0.012	
Aromatics >C10-C12	mg/L	<0.001	<0.001	<0.001	
Aromatics >C12-C16	mg/L	<0.004	<0.004	<0.004	
Aromatics >C16-C21	mg/L	<0.003	<0.003	<0.003	
Aromatics >C21-C35	mg/L	<0.009	<0.009	<0.009	

Notes

J - Estimated Value reported below the detection limit.

H - pH is received at the lab outside of hold time (15 min from sampling).

< - Not Detected at the reporting limit shown.

Bolded values detected in the sample.

Table 3
Dissolved Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location	LDNR #1	LDNR #3	LDNR #4	LDNR #5	LDNR #6	LDNR #7	LDNR #8	LDNR #9	LDNR #10	
	Sample ID	Brine Well 22 BS	CP BS 1	CP BS 2	CP BS 3	BS 06	BS 07	BS 08	1101529-BS	
	Sample Date	1/25/23	1/30/23	1/30/23	1/30/23	2/28/23	2/28/23	2/28/23	2/10/23	
Component	Units	Surface Water (Bubble Site)								
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	0.034	ND	
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	
Argon	mol%	1.35	1.04	0.905	1.54	1.68	1.66	1.31	1.14	
Oxygen	mol%	0.47	8.91	15.5	21.68	21.86	22.94	16.43	22.32	
Nitrogen	mol%	61.78	45.65	65.33	69.85	72.96	71.73	57.26	75.05	
Carbon Dioxide	mol%	7.47	3.58	1.29	2.47	3.22	3.27	2.88	0.61	
Methane	mol%	28.45	40.41	16.69	4.39	0.278	0.398	21.89	0.845	
Ethane	mol%	0.287	0.261	0.209	0.0472	0.0042	0.0050	0.146	0.0022	
Ethylene	mol%	ND	0.0097	0.0067	0.0022	ND	ND	0.0044	ND	
Propane	mol%	0.0926	0.0702	0.0445	0.0128	ND	0.0006	0.0482	0.0004	
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	
Iso-butane	mol%	0.0216	0.0259	0.0115	0.0033	ND	ND	0.0158	ND	
N-butane	mol%	0.0216	0.0189	0.0091	0.0028	ND	ND	0.0108	ND	
Iso-pentane	mol%	0.0083	0.0083	0.0032	0.0006	ND	ND	0.0034	ND	
N-pentane	mol%	0.0055	0.0051	0.0019	ND	ND	ND	0.0015	ND	
Hexanes +	mol%	0.0449	0.0083	0.0029	0.0039	0.0012	0.0013	0.0030	0.0007	
Methane Stable Isotopes										
$\delta^{13}\text{C}$	‰	-33.03	-34.2	-38.37	-35.45	NA	-36.7	-34.96	-33.1	
δD	‰	-129.6	-147.2	-160.5	-143	NA	NA	-143.1	-81	
									-151.4	

Notes

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

Table 3
Dissolved Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location	Sample ID	LDNR #12	LDNR #17	LDNR #18	LDNR #19	LDNR #21	LDNR #22	LDNR #23	WPB PGG No.7A	WPB PPB No.7B	
		BS 12	BS 17	BS 18	BS 19	No. 21	No. 22	No. 23	Brine Well 7A BS	Brine Well 7B-BS	
		Sample Date	2/28/23	2/28/23	2/28/23	2/28/23	3/30/23	3/30/23	1/25/23	2/16/23	
	Sampler	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	
Component	Units	Surface Water (Bubble Site)									
Carbon Monoxide	mol%	ND	ND	ND	ND	0.11	0.098	0.040	ND	ND	
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Argon	mol%	1.62	1.69	1.21	0.976	1.29	1.43	1.09	0.744	0.955	
Oxygen	mol%	19.99	16.22	14.38	29.18	20.65	20.90	21.18	16.39	19.64	
Nitrogen	mol%	70.00	74.92	52.67	43.27	75.31	71.96	76.89	41.21	76.59	
Carbon Dioxide	mol%	3.51	5.42	3.08	2.83	1.77	2.40	0.69	0.29	0.51	
Methane	mol%	4.72	1.73	28.32	23.62	0.860	3.16	0.105	40.83	2.26	
Ethane	mol%	0.138	0.0148	0.240	0.106	0.0080	0.410	0.0013	0.397	0.0333	
Ethylene	mol%	ND	ND	ND	ND	ND	0.0005	ND	0.0013	0.0011	
Propane	mol%	0.0108	0.0021	0.0616	0.093	0.0011	0.0064	0.0002	0.099	0.0085	
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Iso-butane	mol%	0.0025	ND	0.176	0.0034	0.0004	0.0015	ND	0.0286	0.0011	
N-butane	mol%	0.0019	ND	0.132	ND	ND	0.0010	ND	0.0106	0.0024	
Iso-pentane	mol%	ND	ND	0.0044	0.0004	ND	ND	ND	0.013	0.0005	
N-pentane	mol%	ND	ND	0.0024	ND	ND	ND	ND	ND	0.0004	
Hexanes +	mol%	0.0038	0.0028	0.0044	0.0021	0.0018	0.0020	0.0007	0.003	0.001	
Methane Stable Isotopes											
δ ¹³ C	‰	-44.36	-44.2	-36.62	-32.77	-36.2	-38.40	-34.0	-35.6	-46.02	
δD	‰	-181	-175	-154.9	-109.4	-122	-156	NA	-150.3	-183.6	

Notes

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

Table 3
Dissolved Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location	Sulphur Dome	LDNR #20	WW #11		WW #13		WW #12		WW #19		WW #40	SN 57788 6X Brine 1/25/23 ERM Brine
	Central Pond	No. 20	019-580		019-582		019-995		019-1055		019-1603	
	Sample Date	1/25/23	3/9/23	1/26/23	3/30/23	1/26/23	3/30/23	1/26/23	3/30/23	1/26/23	3/30/23	
	Sampler	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	
Component	Units	Surface Water		Water Well								
Carbon Monoxide	mol%	0.26	0.023	ND	ND	ND	ND	ND	ND	ND	ND	ND
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.98	1.01	1.64	1.17	1.76	1.27	1.75	1.29	1.39	1.23	1.26
Oxygen	mol%	0.41	22.40	5.59	14.38	5.03	13.10	6.3	11.66	9.78	13.74	11.67
Nitrogen	mol%	84.79	76.38	79.08	80.66	82.36	80.92	80.84	81.99	82	80.18	82.50
Carbon Dioxide	mol%	12.25	0.16	13.23	3.75	10.83	4.66	10.81	4.83	6.53	4.67	3.77
Methane	mol%	0.302	0.0245	0.456	0.0421	0.0186	0.0516	0.294	0.231	0.3	0.180	0.802
Ethane	mol%	0.0015	ND	ND	ND	ND	ND	ND	0.0005	0.0013	0.0007	0.0009
Ethylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-butane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-pentane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-pentane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexanes +	mol%	0.0037	0.005	0.0042	0.0008	0.0018	0.0007	0.0019	0.0018	0.002	0.0015	0.0013
Methane Stable Isotopes												
$\delta^{13}\text{C}$	‰	NA	NA	-56.4	NA	NA	NA	NA	-56.6	-53.9	-53.5	-89.5
δD	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-282
												-38.98 -171.7

Notes

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

Table 4
Oil Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample ID	Westlake 7B	Westlake 7B	Westlake 7B	Westlake 7B	Westlake 7B	7B Oil	Yellowrock 969	Pad Oil
Sample Date	5/11/22	6/14/22	8/16/22	11/2/22	1/18/23	3/30/23	11/2/22	1/18/23
Location	Shore Tank @	Shore Tank @	7B Well	7B Well	7B Brine Well	7B Oil frac tank	Yellowrock 969	Pad Oil
	Boardwalk Composite	Boardwalk Composite					Well Sample	Pump Oil
Constituent	Sampler Units	Intertek	Intertek	Intertek	Intertek	ERM	Intertek	Intertek
Average API Gravity	°	30.3	32.8	34.1	32.8	34	33.6	26.0
Sulfur	Wt %	1.48	1.3788	1.36	1.38	1.4	1.37	0.302
Vanadium	mg/kg	20.6	4.035	2.85	22.8	22.8	100	1.23
Nickel	mg/kg	26.2	1.401	0.986	6.11	5.88	26	7.04
Iron	mg/kg	<0.1	2.304	0.014	0.002	0	12	6.57
Salt	lb/1000 bbl	<1.0	0.57	5	<1.0	2.1	18	363.36
Organic Chloride	mg/kg	5.1	4.5	6.9	4.8	2.5	<1.0	89.0
Total Chloride	mg/kg	5.5	5.19	10.5	5.5	9.7	NA	146.1
Inorganic Chloride	mg/kg	0.4	0.69	3.7	0.7	7.2	NA	57.1
								139.2

Notes:

< Not detected at the reporting limit shown.

Bolded values detected in sample

NA - Not Analyzed

ATTACHMENT 1: LABORATORY REPORTS



Certificate of Analysis

Number: 1030-23040178-001A

Houston Laboratories

8820 Interchange Drive

Houston, TX 77054

Phone 713-660-0901

Scott Himes
ERM
840 W. Sam Houston Parkway North
Houston, TX 77024-4613

Apr. 19, 2023

Station Name: TB Oil
Method: ASTM D-86
Analyzed: 04/17/2023 00:00:00 by CMN

Sampled By: DS
Sample Of: Liquid Spot
Sample Date: 03/30/2023 16:00
Sample Conditions:

ASTM D-86 Distillation

% Recovery	°F @ 771 mm Hg
Initial Boiling Point	139
5	211
10	258
20	342
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	400
Volume % Recovery	27.0
Volume % Residue	73.0
Volume % Loss	0

Comments: Residue and loss observed.
Temperatures are uncorrected for barometric pressure.
Visual color is @Value.

Data reviewed by: Michael Staley, ASTM Manager

Quality Assurance:

The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.



Certificate of Analysis

Number: 1030-23040178-001A

Houston Laboratories

8820 Interchange Drive

Houston, TX 77054

Phone 713-660-0901

Scott Himes
ERM
840 W. Sam Houston Parkway North
Houston, TX 77024-4613

Apr. 19, 2023

Station Name: TB Oil
Sample Conditions:

Sampled By: DS
Sample Of: Liquid Spot
Sample Date: 03/30/2023 16:00

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	18.0	lbs/1000 bbls		MG	04/17/2023
Sulfur Content by X-ray	ASTM D-4294	1.370	wt%		CMN	04/17/2023
Organic Chloride	ASTM D-4929	<1.0	ppmw		FSN	04/18/2023
API Gravity @ 60.01 °F	ASTM D-5002	33.60	°		MG	04/17/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.8571	—		MG	04/17/2023
Density @ 60.01 °F	ASTM D-5002	0.8562	g/ml		MG	04/17/2023
Nickel	ASTM D-5708A	26	ppmw		CMN	04/14/2023
Vanadium	ASTM D-5708A	100	ppmw		CMN	04/14/2023
Iron	ASTM D-5708A	12	ppmw		CMN	04/14/2023

Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.
Mass Fraction = 0.2323

Data reviewed by: Michael Staley, ASTM Manager

Quality Assurance: The above analyses are performed in accordance with ASTM, UOP, GPA guidelines for quality assurance, unless otherwise stated.

SPL, Inc.

Analysis Request Chain of Custody Record

							SPL Work Order No.:		Acct. Mate Code:		Dept. Code	Page	Pages				
Report To: (Company Name):		ERM					Project/Station Name:		Project/Station Number:		Project/Station Location:		Requested TAT*				
Address:		840 W. Sam Houston Parkway North Suite 600															
City/State/Zip:		Houston TX 77024-4613			Special Instructions:							10 business days					
Contact:		Scott Himes		Scott.Himes@erm.com			Indicate Billing Type: (Place "X", where appropriate)		Net 30 day Acct.		Check #						
Phone:		832-209-8811		Fax:					Credit Card		<<<Contact SPL, Inc for CC payment arrangements.		* Surcharges May Apply (See quote for details)				
Invoice To: (Company Name):		ERM															
Address:		840 W. Sam Houston Parkway North Suite 600					† Terms: Cylinders will be rented for \$10/cyl. All cylinders checked out are to be returned within 21 days, whether they contain sample or not. Cylinders not returned after 30 days will be considered lost and will be billed at current replacement cost.		Requested Analysis (Place an "X" next to Sample ID below)				In-person				
City/State/Zip:		Houston TX 77024-4613			AS-D-5002				AS-D-4294		ASTM D-5708				AS-D-3230		ASTM D-86-IBP-400°F
Contact:		Scott Himes		Scott.Himes@erm.com													
Phone:		832-209-8811		Fax:													
Client PO# or Ref. No.:																	
Contract/Proposal #: (i.e. SPLQ####)		SPLQ10978															
Sample ID (used to log/track sample)	Sample Date	Sample Time	Sample Type (Gas/Liq./Solid)	Duplicate	Composite	Spot	Cylinder Tracking Info [†]						Comments				
							Cylinder #	Date Out	Date In	X	X	X					X
TB OIL	3/30/23	1400	Liq			X	X	X	X	X	X						
Sampled By-Print Name: <u>David Sangwanekh</u> Signature: <u>Dsgt</u>							Received By-Company:										
Relinquished By-Print Name: <u>David Sangwanekh</u> Signature: <u>Dsgt</u>							Date: 4/13/23	Time:	Received By-Print Name: <u>Mittler Binc</u> Signature: <u>Mittler Binc</u>							Date:	Time:
Relinquished By-Print Name: _____ Signature: _____							Date:	Time:	Received By-Print Name: _____ Signature: _____							Date:	Time:
Relinquished By-Print Name: _____ Signature: _____							Date:	Time:	Received By-Print Name: _____ Signature: _____							Date:	Time:

Choose SPL Facility>> Corporate HQ - Houston, TX Ship to Address: 8820 Interchange Dr., Houston, TX 77054 Phone: 713.660.0901

Note - As a convenience to our clients, this form is available in an electronic format. Please contact one of our offices above for the form to be e-mailed to you.



right solutions.
right partner.

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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February 09, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23011349**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 9 sample(s) on Jan 26, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011349

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23011349-01	Brine Well 22 BS	Water		25-Jan-2023 12:30	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-02	6X Brine	Water		25-Jan-2023 13:30	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-03	Brine Well 7A BS	Water		25-Jan-2023 14:10	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-04	Culvert	Water		25-Jan-2023 16:00	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-05	Central Pond	Water		25-Jan-2023 16:30	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-06	019-1055	Water		26-Jan-2023 08:00	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-07	019-582	Water		26-Jan-2023 08:30	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-08	019-580	Water		26-Jan-2023 09:10	26-Jan-2023 16:13	<input type="checkbox"/>
HS23011349-09	019-995	Water		26-Jan-2023 09:45	26-Jan-2023 16:13	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011349

CASE NARRATIVE**GC Semivolatiles by Method MA EPH****Batch ID: 189091**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Volatiles by Method MA VPH**Batch ID: R427008,R427011**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R426800****Sample ID: 6X Brine (HS23011349-02)**

- Lowest practical dilution due to sample matrix and/or high concentration of non-target analyte(s).

Metals by Method SW7470A**Batch ID: 189499**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 189475****Sample ID: 6X Brine (HS23011349-02)**

- Sample ran at a 50X dilution due to high concentration of Sodium.

Sample ID: Central Pond (HS23011349-05)

- Sample ran at a 2X dilution due to high concentration of Sodium.

Sample ID: HS23011253-02MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SM2320B**Batch ID: R427613,R427664**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R427665**Sample ID: CCV-R427665**

- CCV marginally failed high, samples bracketed with this CCV were re-analyzed and confirmed. Therefore reporting the results from this run.

WetChemistry by Method E376.1**Batch ID: R427662**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011349

CASE NARRATIVE**WetChemistry by Method SW9056****Batch ID: R427323****Sample ID: 6X Brine (HS23011349-02)**

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Bromide)

Sample ID: Central Pond (HS23011349-05)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Bromide)

WetChemistry by Method M2540C**Batch ID: R427041,R427164**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F**Batch ID: R426965**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 22 BS
 Collection Date: 25-Jan-2023 12:30

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	1.2		0.20	1.0	ug/L	1	28-Jan-2023 14:18
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 14:18
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 14:18
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 14:18
Toluene	0.79	J	0.20	1.0	ug/L	1	28-Jan-2023 14:18
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 14:18
Surr: 1,2-Dichloroethane-d4	97.8			70-126	%REC	1	28-Jan-2023 14:18
Surr: 4-Bromofluorobenzene	99.0			77-113	%REC	1	28-Jan-2023 14:18
Surr: Dibromofluoromethane	97.7			77-123	%REC	1	28-Jan-2023 14:18
Surr: Toluene-d8	100			82-127	%REC	1	28-Jan-2023 14:18
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 11:42
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 11:42
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 11:42
Surr: 2,5-Dibromotoluene (Aliphatic)	122			70-130	%REC	1	01-Feb-2023 11:42
Surr: 2,5-Dibromotoluene (Aromatic)	123			70-130	%REC	1	01-Feb-2023 11:42
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 21:48
Aliphatics >C12 - C16	0.0746		0.00200	0.00200	mg/L	1	01-Feb-2023 21:48
Aliphatics >C16 - C35	0.249		0.00800	0.00800	mg/L	1	01-Feb-2023 21:48
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 21:48
Aromatics >C12 - C16	0.0417		0.00400	0.00400	mg/L	1	01-Feb-2023 21:48
Aromatics >C16 - C21	0.121		0.00300	0.00300	mg/L	1	01-Feb-2023 21:48
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Feb-2023 21:48
Surr: 1-Chlorooctadecane	75.8			40-140	%REC	1	01-Feb-2023 21:48
Surr: 2-Bromonaphthalene	99.6			40-140	%REC	1	01-Feb-2023 21:48
Surr: 2-Fluorobiphenyl	89.5			40-140	%REC	1	01-Feb-2023 21:48
Surr: o-Terphenyl	80.2			40-140	%REC	1	01-Feb-2023 21:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 22 BS
 Collection Date: 25-Jan-2023 12:30

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 08-Feb-2023		Analyst: JC	
Arsenic	0.00149	J	0.000400	0.00200	mg/L	1	08-Feb-2023 16:50
Barium	0.300		0.00190	0.00400	mg/L	1	08-Feb-2023 16:50
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 16:50
Calcium	71.2		0.0340	0.500	mg/L	1	08-Feb-2023 16:50
Chromium	0.000847	J	0.000400	0.00400	mg/L	1	08-Feb-2023 16:50
Iron	1.14		0.0120	0.200	mg/L	1	08-Feb-2023 16:50
Lead	0.00208		0.000600	0.00200	mg/L	1	08-Feb-2023 16:50
Magnesium	19.8		0.0100	0.200	mg/L	1	08-Feb-2023 16:50
Manganese	0.797		0.000700	0.00500	mg/L	1	08-Feb-2023 16:50
Potassium	2.57		0.0180	0.200	mg/L	1	08-Feb-2023 16:50
Selenium	U		0.00110	0.00200	mg/L	1	08-Feb-2023 16:50
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 16:50
Sodium	156		0.0140	0.200	mg/L	1	08-Feb-2023 16:50
Strontium	0.619		0.000200	0.00500	mg/L	1	08-Feb-2023 16:50
Zinc	0.00857		0.00200	0.00400	mg/L	1	08-Feb-2023 16:50
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 08-Feb-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 16:31
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	676		5.00	10.0	mg/L	1	31-Jan-2023 10:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	269		5.00	5.00	mg/L	1	08-Feb-2023 19:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	08-Feb-2023 19:49
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	04-Feb-2023 10:49
Chloride	317		2.00	5.00	mg/L	10	04-Feb-2023 10:55
Sulfate	45.2		0.200	0.500	mg/L	1	04-Feb-2023 10:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 6X Brine
 Collection Date: 25-Jan-2023 13:30

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED	
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260						
Benzene	170		2.0	10	ug/L	10	28-Jan-2023 19:20	
Ethylbenzene	7.5	J	3.0	10	ug/L	10	28-Jan-2023 19:20	
m,p-Xylene	13	J	5.0	20	ug/L	10	28-Jan-2023 19:20	
o-Xylene	9.1	J	3.0	10	ug/L	10	28-Jan-2023 19:20	
Toluene	110		2.0	10	ug/L	10	28-Jan-2023 19:20	
Xylenes, Total	22		3.0	10	ug/L	10	28-Jan-2023 19:20	
Surr: 1,2-Dichloroethane-d4	101			70-126	%REC	10	28-Jan-2023 19:20	
Surr: 4-Bromofluorobenzene	98.5			77-113	%REC	10	28-Jan-2023 19:20	
Surr: Dibromofluoromethane	99.3			77-123	%REC	10	28-Jan-2023 19:20	
Surr: Toluene-d8	99.6			82-127	%REC	10	28-Jan-2023 19:20	
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH						
Aliphatics >C6 - C8	0.0997		0.0100	0.0100	mg/L	1	01-Feb-2023 12:20	
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 12:20	
Aromatics >C8 - C10	0.0284		0.0100	0.0100	mg/L	1	01-Feb-2023 12:20	
Surr: 2,5-Dibromotoluene (Aliphatic)	104			70-130	%REC	1	01-Feb-2023 12:20	
Surr: 2,5-Dibromotoluene (Aromatic)	114			70-130	%REC	1	01-Feb-2023 12:20	
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH						
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 23:23	
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Feb-2023 23:23	
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Feb-2023 23:23	
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 23:23	
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Feb-2023 23:23	
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Feb-2023 23:23	
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Feb-2023 23:23	
Surr: 1-Chlorooctadecane	80.9			40-140	%REC	1	01-Feb-2023 23:23	
Surr: 2-Bromonaphthalene	92.8			40-140	%REC	1	01-Feb-2023 23:23	
Surr: 2-Fluorobiphenyl	84.3			40-140	%REC	1	01-Feb-2023 23:23	
Surr: o-Terphenyl	70.9			40-140	%REC	1	01-Feb-2023 23:23	

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 6X Brine
 Collection Date: 25-Jan-2023 13:30

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.0300	J	0.0200	0.100	mg/L	50	08-Feb-2023 17:42
Barium	0.220		0.0950	0.200	mg/L	50	08-Feb-2023 17:42
Cadmium		U	0.0100	0.100	mg/L	50	08-Feb-2023 17:42
Calcium	722		1.70	25.0	mg/L	50	08-Feb-2023 17:42
Chromium	0.243		0.0200	0.200	mg/L	50	08-Feb-2023 17:42
Iron	25.7		0.600	10.0	mg/L	50	08-Feb-2023 17:42
Lead		U	0.0300	0.100	mg/L	50	08-Feb-2023 17:42
Magnesium	8.16	J	0.500	10.0	mg/L	50	08-Feb-2023 17:42
Manganese	0.953		0.0350	0.250	mg/L	50	08-Feb-2023 17:42
Potassium	14.4		0.900	10.0	mg/L	50	08-Feb-2023 17:42
Selenium		U	0.0550	0.100	mg/L	50	08-Feb-2023 17:42
Silver		U	0.0100	0.100	mg/L	50	08-Feb-2023 17:42
Sodium	100,000		70.0	1000	mg/L	5000	08-Feb-2023 17:57
Strontium	2.66		0.0100	0.250	mg/L	50	08-Feb-2023 17:42
Zinc	0.481		0.100	0.200	mg/L	50	08-Feb-2023 17:42
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury		U	0.0000300	0.000200	mg/L	1	08-Feb-2023 16:33
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide		U	0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	239,000		5.00	10.0	mg/L	1	31-Jan-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	159		5.00	5.00	mg/L	1	08-Feb-2023 19:49
Alkalinity, Carbonate (As CaCO ₃)		U	5.00	5.00	mg/L	1	08-Feb-2023 19:49
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide		U	1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide		U	3.00	10.0	mg/L	100	04-Feb-2023 11:24
Chloride	213,000		1000	2500	mg/L	5000	04-Feb-2023 11:30
Sulfate	1,380		20.0	50.0	mg/L	100	04-Feb-2023 11:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 7A BS
 Collection Date: 25-Jan-2023 14:10

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C							
				Method:SW8260			Analyst: AKP
Benzene	0.34	J	0.20	1.0	ug/L	1	28-Jan-2023 14:39
Ethylbenzene	1.8		0.30	1.0	ug/L	1	28-Jan-2023 14:39
m,p-Xylene	2.0	J	0.50	2.0	ug/L	1	28-Jan-2023 14:39
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 14:39
Toluene	0.55	J	0.20	1.0	ug/L	1	28-Jan-2023 14:39
Xylenes, Total	2.0		0.30	1.0	ug/L	1	28-Jan-2023 14:39
Surr: 1,2-Dichloroethane-d4	99.6			70-126	%REC	1	28-Jan-2023 14:39
Surr: 4-Bromofluorobenzene	97.9			77-113	%REC	1	28-Jan-2023 14:39
Surr: Dibromofluoromethane	100			77-123	%REC	1	28-Jan-2023 14:39
Surr: Toluene-d8	98.7			82-127	%REC	1	28-Jan-2023 14:39
MASSACHUSETTS VPH, FEB 2018, REV 2.1							
				Method:MA VPH			Analyst: FT
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 12:58
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 12:58
Aromatics >C8 - C10	0.0285		0.0100	0.0100	mg/L	1	01-Feb-2023 12:58
Surr: 2,5-Dibromotoluene (Aliphatic)	124			70-130	%REC	1	01-Feb-2023 12:58
Surr: 2,5-Dibromotoluene (Aromatic)	113			70-130	%REC	1	01-Feb-2023 12:58
MASSACHUSETTS EPH R2.1, DEC 2019							
				Method:MA EPH	Prep:SW3510 / 31-Jan-2023		Analyst: PPM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 23:55
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Feb-2023 23:55
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Feb-2023 23:55
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Feb-2023 23:55
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Feb-2023 23:55
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Feb-2023 23:55
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Feb-2023 23:55
Surr: 1-Chlorooctadecane	72.2			40-140	%REC	1	01-Feb-2023 23:55
Surr: 2-Bromonaphthalene	92.6			40-140	%REC	1	01-Feb-2023 23:55
Surr: 2-Fluorobiphenyl	90.8			40-140	%REC	1	01-Feb-2023 23:55
Surr: o-Terphenyl	81.3			40-140	%REC	1	01-Feb-2023 23:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 7A BS
 Collection Date: 25-Jan-2023 14:10

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.000767	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:16
Barium	0.232		0.00190	0.00400	mg/L	1	08-Feb-2023 17:16
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:16
Calcium	24.5		0.0340	0.500	mg/L	1	08-Feb-2023 17:16
Chromium	0.000474	J	0.000400	0.00400	mg/L	1	08-Feb-2023 17:16
Iron	0.0406	J	0.0120	0.200	mg/L	1	08-Feb-2023 17:16
Lead	U		0.000600	0.00200	mg/L	1	08-Feb-2023 17:16
Magnesium	1.54		0.0100	0.200	mg/L	1	08-Feb-2023 17:16
Manganese	0.0215		0.000700	0.00500	mg/L	1	08-Feb-2023 17:16
Potassium	1.02		0.0180	0.200	mg/L	1	08-Feb-2023 17:16
Selenium	U		0.00110	0.00200	mg/L	1	08-Feb-2023 17:16
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:16
Sodium	8.45		0.0140	0.200	mg/L	1	08-Feb-2023 17:16
Strontium	0.167		0.000200	0.00500	mg/L	1	08-Feb-2023 17:16
Zinc	0.0466		0.00200	0.00400	mg/L	1	08-Feb-2023 17:16
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 16:35
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	320		5.00	10.0	mg/L	1	31-Jan-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	159		5.00	5.00	mg/L	1	08-Feb-2023 19:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	08-Feb-2023 19:49
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	04-Feb-2023 11:36
Chloride	6.45		0.200	0.500	mg/L	1	04-Feb-2023 11:36
Sulfate	2.97		0.200	0.500	mg/L	1	04-Feb-2023 11:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Culvert
 Collection Date: 25-Jan-2023 16:00

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:01
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:01
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 15:01
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:01
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:01
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 15:01
<i>Surr: 1,2-Dichloroethane-d4</i>	100.0			70-126	%REC	1	28-Jan-2023 15:01
<i>Surr: 4-Bromofluorobenzene</i>	95.9			77-113	%REC	1	28-Jan-2023 15:01
<i>Surr: Dibromofluoromethane</i>	97.7			77-123	%REC	1	28-Jan-2023 15:01
<i>Surr: Toluene-d8</i>	99.5			82-127	%REC	1	28-Jan-2023 15:01
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 13:37
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 13:37
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 13:37
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	119			70-130	%REC	1	01-Feb-2023 13:37
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	114			70-130	%REC	1	01-Feb-2023 13:37
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 00:26
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 00:26
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 00:26
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 00:26
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 00:26
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 00:26
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 00:26
<i>Surr: 1-Chlorooctadecane</i>	66.2			40-140	%REC	1	02-Feb-2023 00:26
<i>Surr: 2-Bromonaphthalene</i>	81.4			40-140	%REC	1	02-Feb-2023 00:26
<i>Surr: 2-Fluorobiphenyl</i>	54.1			40-140	%REC	1	02-Feb-2023 00:26
<i>Surr: o-Terphenyl</i>	62.1			40-140	%REC	1	02-Feb-2023 00:26

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Culvert
 Collection Date: 25-Jan-2023 16:00

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.00141	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:18
Barium	0.0832		0.00190	0.00400	mg/L	1	08-Feb-2023 17:18
Cadmium		U	0.000200	0.00200	mg/L	1	08-Feb-2023 17:18
Calcium	58.2		0.0340	0.500	mg/L	1	08-Feb-2023 17:18
Chromium	0.00101	J	0.000400	0.00400	mg/L	1	08-Feb-2023 17:18
Iron	0.207		0.0120	0.200	mg/L	1	08-Feb-2023 17:18
Lead		U	0.000600	0.00200	mg/L	1	08-Feb-2023 17:18
Magnesium	5.44		0.0100	0.200	mg/L	1	08-Feb-2023 17:18
Manganese	0.00934		0.000700	0.00500	mg/L	1	08-Feb-2023 17:18
Potassium	2.86		0.0180	0.200	mg/L	1	08-Feb-2023 17:18
Selenium		U	0.00110	0.00200	mg/L	1	08-Feb-2023 17:18
Silver		U	0.000200	0.00200	mg/L	1	08-Feb-2023 17:18
Sodium	158		0.0140	0.200	mg/L	1	08-Feb-2023 17:18
Strontium	0.341		0.000200	0.00500	mg/L	1	08-Feb-2023 17:18
Zinc	0.0153		0.00200	0.00400	mg/L	1	08-Feb-2023 17:18
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury		U	0.0000300	0.000200	mg/L	1	08-Feb-2023 16:54
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide		U	0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	498		5.00	10.0	mg/L	1	31-Jan-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	210		5.00	5.00	mg/L	1	08-Feb-2023 19:49
Alkalinity, Carbonate (As CaCO ₃)		U	5.00	5.00	mg/L	1	08-Feb-2023 19:49
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide		U	1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide		U	0.0300	0.100	mg/L	1	04-Feb-2023 11:41
Chloride	215		2.00	5.00	mg/L	10	04-Feb-2023 11:47
Sulfate	92.1		0.200	0.500	mg/L	1	04-Feb-2023 11:41

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Central Pond
 Collection Date: 25-Jan-2023 16:30

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:22
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:22
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 15:22
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:22
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:22
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 15:22
<i>Surr: 1,2-Dichloroethane-d4</i>	99.8			70-126	%REC	1	28-Jan-2023 15:22
<i>Surr: 4-Bromofluorobenzene</i>	97.1			77-113	%REC	1	28-Jan-2023 15:22
<i>Surr: Dibromofluoromethane</i>	98.8			77-123	%REC	1	28-Jan-2023 15:22
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	28-Jan-2023 15:22
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:15
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:15
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:15
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	01-Feb-2023 14:15
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	01-Feb-2023 14:15
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 00:57
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 00:57
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 00:57
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 00:57
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 00:57
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 00:57
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 00:57
<i>Surr: 1-Chlorooctadecane</i>	63.2			40-140	%REC	1	02-Feb-2023 00:57
<i>Surr: 2-Bromonaphthalene</i>	100			40-140	%REC	1	02-Feb-2023 00:57
<i>Surr: 2-Fluorobiphenyl</i>	104			40-140	%REC	1	02-Feb-2023 00:57
<i>Surr: o-Terphenyl</i>	72.3			40-140	%REC	1	02-Feb-2023 00:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Central Pond
 Collection Date: 25-Jan-2023 16:30

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 08-Feb-2023		Analyst: JC	
Arsenic	0.00192	J	0.000800	0.00400	mg/L	2	08-Feb-2023 17:52
Barium	0.146		0.00380	0.00800	mg/L	2	08-Feb-2023 17:52
Cadmium	U		0.000400	0.00400	mg/L	2	08-Feb-2023 17:52
Calcium	149		0.0680	1.00	mg/L	2	08-Feb-2023 17:52
Chromium	0.00458	J	0.000800	0.00800	mg/L	2	08-Feb-2023 17:52
Iron	2.07		0.0240	0.400	mg/L	2	08-Feb-2023 17:52
Lead	U		0.00120	0.00400	mg/L	2	08-Feb-2023 17:52
Magnesium	37.8		0.0200	0.400	mg/L	2	08-Feb-2023 17:52
Manganese	0.847		0.00140	0.0100	mg/L	2	08-Feb-2023 17:52
Potassium	3.22		0.0360	0.400	mg/L	2	08-Feb-2023 17:52
Selenium	U		0.00220	0.00400	mg/L	2	08-Feb-2023 17:52
Silver	U		0.000400	0.00400	mg/L	2	08-Feb-2023 17:52
Sodium	1,080		0.280	4.00	mg/L	20	08-Feb-2023 18:01
Strontium	0.941		0.000400	0.0100	mg/L	2	08-Feb-2023 17:52
Zinc	0.0258		0.00400	0.00800	mg/L	2	08-Feb-2023 17:52
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 08-Feb-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 17:08
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	3,600		5.00	10.0	mg/L	1	31-Jan-2023 10:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	495		5.00	5.00	mg/L	1	08-Feb-2023 19:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	08-Feb-2023 19:49
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0600	0.200	mg/L	2	04-Feb-2023 11:53
Chloride	2,090		8.00	20.0	mg/L	40	04-Feb-2023 11:59
Sulfate	183		0.400	1.00	mg/L	2	04-Feb-2023 11:53

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-1055
 Collection Date: 26-Jan-2023 08:00

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:44
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:44
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 15:44
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 15:44
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 15:44
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 15:44
<i>Surr: 1,2-Dichloroethane-d4</i>	98.2			70-126	%REC	1	28-Jan-2023 15:44
<i>Surr: 4-Bromofluorobenzene</i>	97.4			77-113	%REC	1	28-Jan-2023 15:44
<i>Surr: Dibromofluoromethane</i>	97.0			77-123	%REC	1	28-Jan-2023 15:44
<i>Surr: Toluene-d8</i>	99.2			82-127	%REC	1	28-Jan-2023 15:44
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:53
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:53
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 14:53
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	01-Feb-2023 14:53
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	120			70-130	%REC	1	01-Feb-2023 14:53
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 01:29
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 01:29
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 01:29
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 01:29
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 01:29
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 01:29
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 01:29
<i>Surr: 1-Chlorooctadecane</i>	82.8			40-140	%REC	1	02-Feb-2023 01:29
<i>Surr: 2-Bromonaphthalene</i>	91.1			40-140	%REC	1	02-Feb-2023 01:29
<i>Surr: 2-Fluorobiphenyl</i>	92.2			40-140	%REC	1	02-Feb-2023 01:29
<i>Surr: o-Terphenyl</i>	72.2			40-140	%REC	1	02-Feb-2023 01:29

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-1055
 Collection Date: 26-Jan-2023 08:00

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.000419	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:22
Barium	0.265		0.00190	0.00400	mg/L	1	08-Feb-2023 17:22
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:22
Calcium	28.7		0.0340	0.500	mg/L	1	08-Feb-2023 17:22
Chromium	U		0.000400	0.00400	mg/L	1	08-Feb-2023 17:22
Iron	3.81		0.0120	0.200	mg/L	1	08-Feb-2023 17:22
Lead	U		0.000600	0.00200	mg/L	1	08-Feb-2023 17:22
Magnesium	8.66		0.0100	0.200	mg/L	1	08-Feb-2023 17:22
Manganese	0.420		0.000700	0.00500	mg/L	1	08-Feb-2023 17:22
Potassium	3.10		0.0180	0.200	mg/L	1	08-Feb-2023 17:22
Selenium	0.00114	J	0.00110	0.00200	mg/L	1	08-Feb-2023 17:22
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:22
Sodium	34.4		0.0140	0.200	mg/L	1	08-Feb-2023 17:22
Strontium	0.262		0.000200	0.00500	mg/L	1	08-Feb-2023 17:22
Zinc	0.00993		0.00200	0.00400	mg/L	1	08-Feb-2023 17:22
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 16:58
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	244		5.00	10.0	mg/L	1	01-Feb-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	250		5.00	5.00	mg/L	1	07-Feb-2023 17:45
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	07-Feb-2023 17:45
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.0982	J	0.0300	0.100	mg/L	1	04-Feb-2023 12:05
Chloride	38.3		0.200	0.500	mg/L	1	04-Feb-2023 12:05
Sulfate	3.51		0.200	0.500	mg/L	1	04-Feb-2023 12:05

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-582
 Collection Date: 26-Jan-2023 08:30

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:05
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:05
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 16:05
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:05
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:05
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 16:05
<i>Surr: 1,2-Dichloroethane-d4</i>	100			70-126	%REC	1	28-Jan-2023 16:05
<i>Surr: 4-Bromofluorobenzene</i>	96.9			77-113	%REC	1	28-Jan-2023 16:05
<i>Surr: Dibromofluoromethane</i>	98.2			77-123	%REC	1	28-Jan-2023 16:05
<i>Surr: Toluene-d8</i>	98.7			82-127	%REC	1	28-Jan-2023 16:05
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 15:31
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 15:31
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 15:31
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	01-Feb-2023 15:31
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	118			70-130	%REC	1	01-Feb-2023 15:31
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 02:00
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 02:00
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 02:00
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 02:00
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 02:00
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 02:00
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 02:00
<i>Surr: 1-Chlorooctadecane</i>	71.6			40-140	%REC	1	02-Feb-2023 02:00
<i>Surr: 2-Bromonaphthalene</i>	95.1			40-140	%REC	1	02-Feb-2023 02:00
<i>Surr: 2-Fluorobiphenyl</i>	98.7			40-140	%REC	1	02-Feb-2023 02:00
<i>Surr: o-Terphenyl</i>	66.5			40-140	%REC	1	02-Feb-2023 02:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-582
 Collection Date: 26-Jan-2023 08:30

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.000812	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:24
Barium	0.239		0.00190	0.00400	mg/L	1	08-Feb-2023 17:24
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:24
Calcium	25.5		0.0340	0.500	mg/L	1	08-Feb-2023 17:24
Chromium	U		0.000400	0.00400	mg/L	1	08-Feb-2023 17:24
Iron	4.03		0.0120	0.200	mg/L	1	08-Feb-2023 17:24
Lead	U		0.000600	0.00200	mg/L	1	08-Feb-2023 17:24
Magnesium	7.81		0.0100	0.200	mg/L	1	08-Feb-2023 17:24
Manganese	0.417		0.000700	0.00500	mg/L	1	08-Feb-2023 17:24
Potassium	2.94		0.0180	0.200	mg/L	1	08-Feb-2023 17:24
Selenium	U		0.00110	0.00200	mg/L	1	08-Feb-2023 17:24
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:24
Sodium	28.0		0.0140	0.200	mg/L	1	08-Feb-2023 17:24
Strontium	0.240		0.000200	0.00500	mg/L	1	08-Feb-2023 17:24
Zinc	0.0107		0.00200	0.00400	mg/L	1	08-Feb-2023 17:24
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 17:10
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	212		5.00	10.0	mg/L	1	01-Feb-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	180		5.00	5.00	mg/L	1	07-Feb-2023 17:45
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	07-Feb-2023 17:45
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.0860	J	0.0300	0.100	mg/L	1	04-Feb-2023 12:10
Chloride	23.4		0.200	0.500	mg/L	1	04-Feb-2023 12:10
Sulfate	4.11		0.200	0.500	mg/L	1	04-Feb-2023 12:10

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-580
 Collection Date: 26-Jan-2023 09:10

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:26
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:26
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 16:26
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:26
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:26
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 16:26
<i>Surr: 1,2-Dichloroethane-d4</i>	99.5			70-126	%REC	1	28-Jan-2023 16:26
<i>Surr: 4-Bromofluorobenzene</i>	96.0			77-113	%REC	1	28-Jan-2023 16:26
<i>Surr: Dibromofluoromethane</i>	98.5			77-123	%REC	1	28-Jan-2023 16:26
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	28-Jan-2023 16:26
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:09
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:09
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:09
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	127			70-130	%REC	1	01-Feb-2023 16:09
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	01-Feb-2023 16:09
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 02:32
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 02:32
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 02:32
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 02:32
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 02:32
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 02:32
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 02:32
<i>Surr: 1-Chlorooctadecane</i>	79.1			40-140	%REC	1	02-Feb-2023 02:32
<i>Surr: 2-Bromonaphthalene</i>	93.1			40-140	%REC	1	02-Feb-2023 02:32
<i>Surr: 2-Fluorobiphenyl</i>	104			40-140	%REC	1	02-Feb-2023 02:32
<i>Surr: o-Terphenyl</i>	75.7			40-140	%REC	1	02-Feb-2023 02:32

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-580
 Collection Date: 26-Jan-2023 09:10

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.000477	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:26
Barium	0.230		0.00190	0.00400	mg/L	1	08-Feb-2023 17:26
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:26
Calcium	26.8		0.0340	0.500	mg/L	1	08-Feb-2023 17:26
Chromium	U		0.000400	0.00400	mg/L	1	08-Feb-2023 17:26
Iron	5.12		0.0120	0.200	mg/L	1	08-Feb-2023 17:26
Lead	0.00144	J	0.000600	0.00200	mg/L	1	08-Feb-2023 17:26
Magnesium	8.03		0.0100	0.200	mg/L	1	08-Feb-2023 17:26
Manganese	0.412		0.000700	0.00500	mg/L	1	08-Feb-2023 17:26
Potassium	2.93		0.0180	0.200	mg/L	1	08-Feb-2023 17:26
Selenium	U		0.00110	0.00200	mg/L	1	08-Feb-2023 17:26
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:26
Sodium	31.9		0.0140	0.200	mg/L	1	08-Feb-2023 17:26
Strontium	0.246		0.000200	0.00500	mg/L	1	08-Feb-2023 17:26
Zinc	0.0147		0.00200	0.00400	mg/L	1	08-Feb-2023 17:26
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 17:12
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	236		5.00	10.0	mg/L	1	01-Feb-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	200		5.00	5.00	mg/L	1	07-Feb-2023 17:45
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	07-Feb-2023 17:45
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.0992	J	0.0300	0.100	mg/L	1	04-Feb-2023 12:16
Chloride	35.7		0.200	0.500	mg/L	1	04-Feb-2023 12:16
Sulfate	2.91		0.200	0.500	mg/L	1	04-Feb-2023 12:16

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-995
 Collection Date: 26-Jan-2023 09:45

ANALYTICAL REPORT

WorkOrder:HS23011349
 Lab ID:HS23011349-09
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:48
Ethylbenzene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:48
m,p-Xylene	U		0.50	2.0	ug/L	1	28-Jan-2023 16:48
o-Xylene	U		0.30	1.0	ug/L	1	28-Jan-2023 16:48
Toluene	U		0.20	1.0	ug/L	1	28-Jan-2023 16:48
Xylenes, Total	U		0.30	1.0	ug/L	1	28-Jan-2023 16:48
<i>Surr: 1,2-Dichloroethane-d4</i>	97.5			70-126	%REC	1	28-Jan-2023 16:48
<i>Surr: 4-Bromofluorobenzene</i>	96.1			77-113	%REC	1	28-Jan-2023 16:48
<i>Surr: Dibromofluoromethane</i>	95.5			77-123	%REC	1	28-Jan-2023 16:48
<i>Surr: Toluene-d8</i>	99.4			82-127	%REC	1	28-Jan-2023 16:48
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:48
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:48
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	01-Feb-2023 16:48
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	01-Feb-2023 16:48
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	112			70-130	%REC	1	01-Feb-2023 16:48
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 03:03
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Feb-2023 03:03
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Feb-2023 03:03
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Feb-2023 03:03
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Feb-2023 03:03
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Feb-2023 03:03
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Feb-2023 03:03
<i>Surr: 1-Chlorooctadecane</i>	70.2			40-140	%REC	1	02-Feb-2023 03:03
<i>Surr: 2-Bromonaphthalene</i>	87.5			40-140	%REC	1	02-Feb-2023 03:03
<i>Surr: 2-Fluorobiphenyl</i>	50.6			40-140	%REC	1	02-Feb-2023 03:03
<i>Surr: o-Terphenyl</i>	73.9			40-140	%REC	1	02-Feb-2023 03:03

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-995
 Collection Date: 26-Jan-2023 09:45

ANALYTICAL REPORT
 WorkOrder:HS23011349
 Lab ID:HS23011349-09
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 08-Feb-2023 Analyst: JC
Arsenic	0.000762	J	0.000400	0.00200	mg/L	1	08-Feb-2023 17:28
Barium	0.214		0.00190	0.00400	mg/L	1	08-Feb-2023 17:28
Cadmium	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:28
Calcium	26.4		0.0340	0.500	mg/L	1	08-Feb-2023 17:28
Chromium	U		0.000400	0.00400	mg/L	1	08-Feb-2023 17:28
Iron	0.821		0.0120	0.200	mg/L	1	08-Feb-2023 17:28
Lead	U		0.000600	0.00200	mg/L	1	08-Feb-2023 17:28
Magnesium	8.02		0.0100	0.200	mg/L	1	08-Feb-2023 17:28
Manganese	0.388		0.000700	0.00500	mg/L	1	08-Feb-2023 17:28
Potassium	3.00		0.0180	0.200	mg/L	1	08-Feb-2023 17:28
Selenium	U		0.00110	0.00200	mg/L	1	08-Feb-2023 17:28
Silver	U		0.000200	0.00200	mg/L	1	08-Feb-2023 17:28
Sodium	29.9		0.0140	0.200	mg/L	1	08-Feb-2023 17:28
Strontium	0.241		0.000200	0.00500	mg/L	1	08-Feb-2023 17:28
Zinc	0.00426		0.00200	0.00400	mg/L	1	08-Feb-2023 17:28
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 08-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Feb-2023 17:14
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	31-Jan-2023 10:38
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	226		5.00	10.0	mg/L	1	01-Feb-2023 10:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	258		5.00	5.00	mg/L	1	07-Feb-2023 17:45
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	07-Feb-2023 17:45
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	31-Jan-2023 15:38
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.0931	J	0.0300	0.100	mg/L	1	04-Feb-2023 12:51
Chloride	28.7		0.200	0.500	mg/L	1	04-Feb-2023 12:51
Sulfate	3.63		0.200	0.500	mg/L	1	04-Feb-2023 12:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23011349**Batch ID:** 189091**Start Date:** 31 Jan 2023 06:30**End Date:** 31 Jan 2023 12:30**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011349-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-07	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-08	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011349-09	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 189475**Start Date:** 08 Feb 2023 09:30**End Date:** 08 Feb 2023 13:30**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011349-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-09		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 189499**Start Date:** 08 Feb 2023 10:00**End Date:** 08 Feb 2023 13:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011349-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011349-09		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 189091 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019				
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30		31 Jan 2023 07:00	01 Feb 2023 21:48	1
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30		31 Jan 2023 07:00	01 Feb 2023 21:48	1
HS23011349-02	6X Brine	25 Jan 2023 13:30		31 Jan 2023 07:00	01 Feb 2023 23:23	1
HS23011349-02	6X Brine	25 Jan 2023 13:30		31 Jan 2023 07:00	01 Feb 2023 23:23	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10		31 Jan 2023 07:00	01 Feb 2023 23:55	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10		31 Jan 2023 07:00	01 Feb 2023 23:55	1
HS23011349-04	Culvert	25 Jan 2023 16:00		31 Jan 2023 07:00	02 Feb 2023 00:26	1
HS23011349-04	Culvert	25 Jan 2023 16:00		31 Jan 2023 07:00	02 Feb 2023 00:26	1
HS23011349-05	Central Pond	25 Jan 2023 16:30		31 Jan 2023 07:00	02 Feb 2023 00:57	1
HS23011349-05	Central Pond	25 Jan 2023 16:30		31 Jan 2023 07:00	02 Feb 2023 00:57	1
HS23011349-06	019-1055	26 Jan 2023 08:00		31 Jan 2023 07:00	02 Feb 2023 01:29	1
HS23011349-06	019-1055	26 Jan 2023 08:00		31 Jan 2023 07:00	02 Feb 2023 01:29	1
HS23011349-07	019-582	26 Jan 2023 08:30		31 Jan 2023 07:00	02 Feb 2023 02:00	1
HS23011349-07	019-582	26 Jan 2023 08:30		31 Jan 2023 07:00	02 Feb 2023 02:00	1
HS23011349-08	019-580	26 Jan 2023 09:10		31 Jan 2023 07:00	02 Feb 2023 02:32	1
HS23011349-08	019-580	26 Jan 2023 09:10		31 Jan 2023 07:00	02 Feb 2023 02:32	1
HS23011349-09	019-995	26 Jan 2023 09:45		31 Jan 2023 07:00	02 Feb 2023 03:03	1
HS23011349-09	019-995	26 Jan 2023 09:45		31 Jan 2023 07:00	02 Feb 2023 03:03	1
Batch ID: 189475 (0)		Test Name : ICP-MS METALS BY SW6020A				
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30		08 Feb 2023 09:30	08 Feb 2023 16:50	1
HS23011349-02	6X Brine	25 Jan 2023 13:30		08 Feb 2023 09:30	08 Feb 2023 17:57	5000
HS23011349-02	6X Brine	25 Jan 2023 13:30		08 Feb 2023 09:30	08 Feb 2023 17:42	50
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10		08 Feb 2023 09:30	08 Feb 2023 17:16	1
HS23011349-04	Culvert	25 Jan 2023 16:00		08 Feb 2023 09:30	08 Feb 2023 17:18	1
HS23011349-05	Central Pond	25 Jan 2023 16:30		08 Feb 2023 09:30	08 Feb 2023 18:01	20
HS23011349-05	Central Pond	25 Jan 2023 16:30		08 Feb 2023 09:30	08 Feb 2023 17:52	2
HS23011349-06	019-1055	26 Jan 2023 08:00		08 Feb 2023 09:30	08 Feb 2023 17:22	1
HS23011349-07	019-582	26 Jan 2023 08:30		08 Feb 2023 09:30	08 Feb 2023 17:24	1
HS23011349-08	019-580	26 Jan 2023 09:10		08 Feb 2023 09:30	08 Feb 2023 17:26	1
HS23011349-09	019-995	26 Jan 2023 09:45		08 Feb 2023 09:30	08 Feb 2023 17:28	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 189499 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30		08 Feb 2023 10:00	08 Feb 2023 16:31	1
HS23011349-02	6X Brine	25 Jan 2023 13:30		08 Feb 2023 10:00	08 Feb 2023 16:33	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10		08 Feb 2023 10:00	08 Feb 2023 16:35	1
HS23011349-04	Culvert	25 Jan 2023 16:00		08 Feb 2023 10:00	08 Feb 2023 16:54	1
HS23011349-05	Central Pond	25 Jan 2023 16:30		08 Feb 2023 10:00	08 Feb 2023 17:08	1
HS23011349-06	019-1055	26 Jan 2023 08:00		08 Feb 2023 10:00	08 Feb 2023 16:58	1
HS23011349-07	019-582	26 Jan 2023 08:30		08 Feb 2023 10:00	08 Feb 2023 17:10	1
HS23011349-08	019-580	26 Jan 2023 09:10		08 Feb 2023 10:00	08 Feb 2023 17:12	1
HS23011349-09	019-995	26 Jan 2023 09:45		08 Feb 2023 10:00	08 Feb 2023 17:14	1
Batch ID: R426800 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			28 Jan 2023 14:18	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			28 Jan 2023 19:20	10
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			28 Jan 2023 14:39	1
HS23011349-04	Culvert	25 Jan 2023 16:00			28 Jan 2023 15:01	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			28 Jan 2023 15:22	1
HS23011349-06	019-1055	26 Jan 2023 08:00			28 Jan 2023 15:44	1
HS23011349-07	019-582	26 Jan 2023 08:30			28 Jan 2023 16:05	1
HS23011349-08	019-580	26 Jan 2023 09:10			28 Jan 2023 16:26	1
HS23011349-09	019-995	26 Jan 2023 09:45			28 Jan 2023 16:48	1
Batch ID: R426965 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			31 Jan 2023 15:38	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			31 Jan 2023 15:38	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			31 Jan 2023 15:38	1
HS23011349-04	Culvert	25 Jan 2023 16:00			31 Jan 2023 15:38	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			31 Jan 2023 15:38	1
HS23011349-06	019-1055	26 Jan 2023 08:00			31 Jan 2023 15:38	1
HS23011349-07	019-582	26 Jan 2023 08:30			31 Jan 2023 15:38	1
HS23011349-08	019-580	26 Jan 2023 09:10			31 Jan 2023 15:38	1
HS23011349-09	019-995	26 Jan 2023 09:45			31 Jan 2023 15:38	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R427008 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			01 Feb 2023 11:42	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			01 Feb 2023 12:20	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			01 Feb 2023 12:58	1
HS23011349-04	Culvert	25 Jan 2023 16:00			01 Feb 2023 13:37	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			01 Feb 2023 14:15	1
HS23011349-06	019-1055	26 Jan 2023 08:00			01 Feb 2023 14:53	1
HS23011349-07	019-582	26 Jan 2023 08:30			01 Feb 2023 15:31	1
HS23011349-08	019-580	26 Jan 2023 09:10			01 Feb 2023 16:09	1
HS23011349-09	019-995	26 Jan 2023 09:45			01 Feb 2023 16:48	1
Batch ID: R427011 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			01 Feb 2023 11:42	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			01 Feb 2023 12:20	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			01 Feb 2023 12:58	1
HS23011349-04	Culvert	25 Jan 2023 16:00			01 Feb 2023 13:37	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			01 Feb 2023 14:15	1
HS23011349-06	019-1055	26 Jan 2023 08:00			01 Feb 2023 14:53	1
HS23011349-07	019-582	26 Jan 2023 08:30			01 Feb 2023 15:31	1
HS23011349-08	019-580	26 Jan 2023 09:10			01 Feb 2023 16:09	1
HS23011349-09	019-995	26 Jan 2023 09:45			01 Feb 2023 16:48	1
Batch ID: R427041 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			31 Jan 2023 10:30	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			31 Jan 2023 10:30	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			31 Jan 2023 10:30	1
HS23011349-04	Culvert	25 Jan 2023 16:00			31 Jan 2023 10:30	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			31 Jan 2023 10:30	1
Batch ID: R427164 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23011349-06	019-1055	26 Jan 2023 08:00			01 Feb 2023 10:30	1
HS23011349-07	019-582	26 Jan 2023 08:30			01 Feb 2023 10:30	1
HS23011349-08	019-580	26 Jan 2023 09:10			01 Feb 2023 10:30	1
HS23011349-09	019-995	26 Jan 2023 09:45			01 Feb 2023 10:30	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R427323 (0)		Test Name : ANIONS BY SW9056A				
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			04 Feb 2023 10:55	10
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			04 Feb 2023 10:49	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			04 Feb 2023 11:30	5000
HS23011349-02	6X Brine	25 Jan 2023 13:30			04 Feb 2023 11:24	100
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			04 Feb 2023 11:36	1
HS23011349-04	Culvert	25 Jan 2023 16:00			04 Feb 2023 11:47	10
HS23011349-04	Culvert	25 Jan 2023 16:00			04 Feb 2023 11:41	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			04 Feb 2023 11:59	40
HS23011349-05	Central Pond	25 Jan 2023 16:30			04 Feb 2023 11:53	2
HS23011349-06	019-1055	26 Jan 2023 08:00			04 Feb 2023 12:05	1
HS23011349-07	019-582	26 Jan 2023 08:30			04 Feb 2023 12:10	1
HS23011349-08	019-580	26 Jan 2023 09:10			04 Feb 2023 12:16	1
HS23011349-09	019-995	26 Jan 2023 09:45			04 Feb 2023 12:51	1
Batch ID: R427613 (0)		Test Name : ALKALINITY BY SM 2320B-2011				
HS23011349-07	019-582	26 Jan 2023 08:30			07 Feb 2023 17:45	1
HS23011349-08	019-580	26 Jan 2023 09:10			07 Feb 2023 17:45	1
HS23011349-09	019-995	26 Jan 2023 09:45			07 Feb 2023 17:45	1
Batch ID: R427662 (0)		Test Name : HYDROGEN SULFIDE BY E376.1				
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			31 Jan 2023 10:38	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			31 Jan 2023 10:38	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			31 Jan 2023 10:38	1
HS23011349-04	Culvert	25 Jan 2023 16:00			31 Jan 2023 10:38	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			31 Jan 2023 10:38	1
HS23011349-06	019-1055	26 Jan 2023 08:00			31 Jan 2023 10:38	1
HS23011349-07	019-582	26 Jan 2023 08:30			31 Jan 2023 10:38	1
HS23011349-08	019-580	26 Jan 2023 09:10			31 Jan 2023 10:38	1
HS23011349-09	019-995	26 Jan 2023 09:45			31 Jan 2023 10:38	1
Batch ID: R427664 (0)		Test Name : ALKALINITY BY SM 2320B-2011				
HS23011349-01	Brine Well 22 BS	25 Jan 2023 12:30			08 Feb 2023 19:49	1
HS23011349-02	6X Brine	25 Jan 2023 13:30			08 Feb 2023 19:49	1
HS23011349-03	Brine Well 7A BS	25 Jan 2023 14:10			08 Feb 2023 19:49	1
HS23011349-04	Culvert	25 Jan 2023 16:00			08 Feb 2023 19:49	1
HS23011349-05	Central Pond	25 Jan 2023 16:30			08 Feb 2023 19:49	1
Batch ID: R427665 (0)		Test Name : ALKALINITY BY SM 2320B-2011				
HS23011349-06	019-1055	26 Jan 2023 08:00			07 Feb 2023 17:45	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189091 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK		Sample ID:	MLBK-189091	Units: mg/L		Analysis Date: 01-Feb-2023 17:05			
Client ID:		Run ID:	FID-7_427121	SeqNo:	7103461	PrepDate:	31-Jan-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		U	0.00100						
Aliphatics >C12 - C16		U	0.00200						
Aliphatics >C16 - C35		U	0.00800						
Surr: 1-Chlorooctadecane		0.02893	0	0.04	0	72.3	40 - 140		

MLBK		Sample ID:	MLBK-189091	Units: mg/L		Analysis Date: 01-Feb-2023 17:05			
Client ID:		Run ID:	FID-8_427109	SeqNo:	7103178	PrepDate:	31-Jan-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		U	0.00100						
Aromatics >C12 - C16		U	0.00400						
Aromatics >C16 - C21		U	0.00300						
Aromatics >C21 - C35		U	0.00900						
Surr: 2-Bromonaphthalene		0.02192	0	0.04	0	54.8	40 - 140		
Surr: 2-Fluorobiphenyl		0.01714	0	0.04	0	42.8	40 - 140		
Surr: o-Terphenyl		0.02735	0	0.04	0	68.4	40 - 140		

LCS		Sample ID:	LCS-189091	Units: mg/L		Analysis Date: 01-Feb-2023 17:36			
Client ID:		Run ID:	FID-7_427121	SeqNo:	7103462	PrepDate:	31-Jan-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.04844	0.00100	0.05	0	96.9	40 - 140		
Aliphatics >C12 - C16		0.1232	0.00200	0.1	0	123	40 - 140		
Aliphatics >C16 - C35		0.5322	0.00800	0.4	0	133	40 - 140		
Surr: 1-Chlorooctadecane		0.0369	0	0.04	0	92.2	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189091 (0)		Instrument: FID-7		Method: MASSACHUSETTS EPH R2.1, DEC 2019						
LCS	Sample ID: LCS-189091				Units: mg/L		Analysis Date: 01-Feb-2023 17:36			
Client ID:		Run ID: FID-8_427109		SeqNo: 7103179		PrepDate: 31-Jan-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12	0.02523	0.00100	0.05	0	50.5	40 - 140				
Aromatics >C12 - C16	0.1251	0.00400	0.2	0	62.5	40 - 140				
Aromatics >C16 - C21	0.1546	0.00300	0.15	0	103	40 - 140				
Aromatics >C21 - C35	0.4123	0.00900	0.45	0	91.6	40 - 140				
Surr: 2-Bromonaphthalene	0.02128	0	0.04	0	53.2	40 - 140				
Surr: 2-Fluorobiphenyl	0.01917	0	0.04	0	47.9	40 - 140				
Surr: o-Terphenyl	0.03395	0	0.04	0	84.9	40 - 140				
MS	Sample ID: HS23011232-06MS				Units: mg/L		Analysis Date: 01-Feb-2023 18:39			
Client ID:		Run ID: FID-7_427121		SeqNo: 7103464		PrepDate: 31-Jan-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12	0.05254	0.00100	0.05	0	105	40 - 140				
Aliphatics >C12 - C16	0.1046	0.00200	0.1	0	105	40 - 140				
Aliphatics >C16 - C35	0.4204	0.00800	0.4	0	105	40 - 140				
Surr: 1-Chlorooctadecane	0.03351	0	0.04	0	83.8	40 - 140				
MS	Sample ID: HS23011232-06MS				Units: mg/L		Analysis Date: 01-Feb-2023 18:39			
Client ID:		Run ID: FID-8_427109		SeqNo: 7103181		PrepDate: 31-Jan-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12	0.045	0.00100	0.05	0	90.0	40 - 140				
Aromatics >C12 - C16	0.1958	0.00400	0.2	0	97.9	40 - 140				
Aromatics >C16 - C21	0.1643	0.00300	0.15	0	110	40 - 140				
Aromatics >C21 - C35	0.393	0.00900	0.45	0	87.3	40 - 140				
Surr: 2-Bromonaphthalene	0.03863	0	0.04	0	96.6	40 - 140				
Surr: 2-Fluorobiphenyl	0.01798	0	0.04	0	45.0	40 - 140				
Surr: o-Terphenyl	0.03571	0	0.04	0	89.3	40 - 140				

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189091 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23011232-06MSD		Units: mg/L		Analysis Date: 01-Feb-2023 19:11			
Client ID:		Run ID: FID-7_427121		SeqNo: 7103465		PrepDate: 31-Jan-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.04473	0.00100	0.05	0	89.5	40 - 140	0.05254	16.1 50
Aliphatics >C12 - C16		0.08843	0.00200	0.1	0	88.4	40 - 140	0.1046	16.8 50
Aliphatics >C16 - C35		0.3935	0.00800	0.4	0	98.4	40 - 140	0.4204	6.6 50
Surr: 1-Chlorooctadecane		0.02813	0	0.04	0	70.3	40 - 140	0.03351	17.5 50

MSD	Sample ID:	HS23011232-06MSD		Units: mg/L		Analysis Date: 01-Feb-2023 19:11			
Client ID:		Run ID: FID-8_427109		SeqNo: 7103182		PrepDate: 31-Jan-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05114	0.00100	0.05	0	102	40 - 140	0.045	12.8 50
Aromatics >C12 - C16		0.2026	0.00400	0.2	0	101	40 - 140	0.1958	3.38 50
Aromatics >C16 - C21		0.1609	0.00300	0.15	0	107	40 - 140	0.1643	2.09 50
Aromatics >C21 - C35		0.3987	0.00900	0.45	0	88.6	40 - 140	0.393	1.45 50
Surr: 2-Bromonaphthalene		0.03349	0	0.04	0	83.7	40 - 140	0.03863	14.2 50
Surr: 2-Fluorobiphenyl		0.02087	0	0.04	0	52.2	40 - 140	0.01798	14.9 50
Surr: o-Terphenyl		0.03494	0	0.04	0	87.3	40 - 140	0.03571	2.19 50

The following samples were analyzed in this batch:	HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04
	HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08
	HS23011349-09			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427008 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1			
MLBK Sample ID: MBLK-230131		Units: mg/L				Analysis Date: 01-Feb-2023 05:20	
Client ID:		Run ID: FID-14_427008		SeqNo: 7100413	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100					
Aliphatics >C8 - C10	U	0.0100					
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3136	0.0100	0.25	0	125	70 - 130	
LCS Sample ID: LCS-230131		Units: mg/L				Analysis Date: 01-Feb-2023 04:41	
Client ID:		Run ID: FID-14_427008		SeqNo: 7100412	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.02277	0.0100	0.025	0	91.1	70 - 130	
Aliphatics >C8 - C10	0.02222	0.0100	0.025	0	88.9	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3161	0.0100	0.25	0	126	70 - 130	
MS Sample ID: HS23011232-06MS		Units: mg/L				Analysis Date: 01-Feb-2023 09:09	
Client ID:		Run ID: FID-14_427008		SeqNo: 7100649	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.02964	0.0100	0.025	0	119	70 - 130	
Aliphatics >C8 - C10	0.02649	0.0100	0.025	0	106	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.28	0.0100	0.25	0	112	70 - 130	
MSD Sample ID: HS23011232-06MSD		Units: mg/L				Analysis Date: 01-Feb-2023 09:47	
Client ID:		Run ID: FID-14_427008		SeqNo: 7100650	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.02858	0.0100	0.025	0	114	70 - 130	0.02964 3.63 25
Aliphatics >C8 - C10	0.02613	0.0100	0.025	0	105	70 - 130	0.02649 1.38 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3019	0.0100	0.25	0	121	70 - 130	0.28 7.53 25
The following samples were analyzed in this batch:		HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04		
		HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08		
		HS23011349-09					

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427011 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230131	Units: mg/L			Analysis Date: 01-Feb-2023 05:20
Client ID:		Run ID: FID-15_427011	SeqNo: 7100442	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.2808	0.0100	0.25	0 112	70 - 130
LCS	Sample ID: LCS-230131	Units: mg/L			Analysis Date: 01-Feb-2023 04:41
Client ID:		Run ID: FID-15_427011	SeqNo: 7100441	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.09523	0.0100	0.1	0 95.2	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.3081	0.0100	0.25	0 123	70 - 130
MS	Sample ID: HS23011232-06MS	Units: mg/L			Analysis Date: 01-Feb-2023 09:09
Client ID:		Run ID: FID-15_427011	SeqNo: 7100706	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.1126	0.0100	0.1	0 113	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.3092	0.0100	0.25	0 124	70 - 130
MSD	Sample ID: HS23011232-06MSD	Units: mg/L			Analysis Date: 01-Feb-2023 09:47
Client ID:		Run ID: FID-15_427011	SeqNo: 7100707	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.11	0.0100	0.1	0 110	70 - 130 0.1126 2.32 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.274	0.0100	0.25	0 110	70 - 130 0.3092 12.1 25
The following samples were analyzed in this batch:		HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04
		HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08
		HS23011349-09			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-189475	Units:	mg/L	Analysis Date: 08-Feb-2023 16:26				
Client ID:		Run ID:	ICPMS06_427569	SeqNo:	7114887	PrepDate:	08-Feb-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	0.01266	0.200							J
Manganese	U	0.00500							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	0.0812	0.200							J
Strontium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0)		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A				
LCS	Sample ID: LCS-189475	Units: mg/L			Analysis Date: 08-Feb-2023 16:28			
Client ID:		Run ID: ICPMS06_427569		SeqNo: 7114888	PrepDate: 08-Feb-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.05321	0.00200	0.05	0	106	80 - 120		
Barium	0.0526	0.00400	0.05	0	105	80 - 120		
Cadmium	0.05362	0.00200	0.05	0	107	80 - 120		
Calcium	5.286	0.500	5	0	106	80 - 120		
Chromium	0.05038	0.00400	0.05	0	101	80 - 120		
Iron	5.166	0.200	5	0	103	80 - 120		
Lead	0.05278	0.00200	0.05	0	106	80 - 120		
Magnesium	5.333	0.200	5	0	107	80 - 120		
Manganese	0.05285	0.00500	0.05	0	106	80 - 120		
Potassium	5.276	0.200	5	0	106	80 - 120		
Selenium	0.05356	0.00200	0.05	0	107	80 - 120		
Silver	0.05446	0.00200	0.05	0	109	80 - 120		
Sodium	5.155	0.200	5	0	103	80 - 120		
Strontium	0.1079	0.00500	0.1	0	108	80 - 120		
Zinc	0.05377	0.00400	0.05	0	108	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23011253-02MS		Units:	mg/L	Analysis Date: 08-Feb-2023 16:36			
Client ID:		Run ID: ICPMS06_427569		SeqNo:	7114892	PrepDate:	08-Feb-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05468	0.00200	0.05	0.003453	102	80 - 120		
Barium		0.06918	0.00400	0.05	0.01637	106	80 - 120		
Cadmium		0.05256	0.00200	0.05	0.000007	105	80 - 120		
Calcium		46.1	0.500	5	43.08	60.3	80 - 120		SO
Chromium		0.04874	0.00400	0.05	0.000238	97.0	80 - 120		
Iron		6.75	0.200	5	1.848	98.0	80 - 120		
Lead		0.05219	0.00200	0.05	0.000315	104	80 - 120		
Magnesium		8.345	0.200	5	3.599	94.9	80 - 120		
Manganese		0.2335	0.00500	0.05	0.1892	88.5	80 - 120		
Potassium		5.565	0.200	5	0.5658	100.0	80 - 120		
Selenium		0.05138	0.00200	0.05	0.00015	102	80 - 120		
Silver		0.05325	0.00200	0.05	-0.000003	107	80 - 120		
Sodium		17.64	0.200	5	13.25	87.9	80 - 120		
Strontium		0.2116	0.00500	0.1	0.1001	111	80 - 120		
Zinc		0.05577	0.00400	0.05	0.005267	101	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23011253-02MSD		Units:	mg/L	Analysis Date: 08-Feb-2023 16:38				
Client ID:		Run ID: ICPMS06_427569		SeqNo:	7114893	PrepDate:	08-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	Limit Qual
Arsenic		0.05516	0.00200	0.05	0.003453	103	80 - 120	0.05468	0.874	20
Barium		0.06688	0.00400	0.05	0.01637	101	80 - 120	0.06918	3.39	20
Cadmium		0.05117	0.00200	0.05	0.000007	102	80 - 120	0.05256	2.68	20
Calcium		46.92	0.500	5	43.08	76.7	80 - 120	46.1	1.76	20
Chromium		0.04895	0.00400	0.05	0.000238	97.4	80 - 120	0.04874	0.434	20
Iron		6.798	0.200	5	1.848	99.0	80 - 120	6.75	0.711	20
Lead		0.05176	0.00200	0.05	0.000315	103	80 - 120	0.05219	0.831	20
Magnesium		8.33	0.200	5	3.599	94.6	80 - 120	8.345	0.176	20
Manganese		0.2355	0.00500	0.05	0.1892	92.6	80 - 120	0.2335	0.887	20
Potassium		5.598	0.200	5	0.5658	101	80 - 120	5.565	0.586	20
Selenium		0.05302	0.00200	0.05	0.00015	106	80 - 120	0.05138	3.15	20
Silver		0.05213	0.00200	0.05	-0.000003	104	80 - 120	0.05325	2.14	20
Sodium		17.55	0.200	5	13.25	86.1	80 - 120	17.64	0.514	20
Strontium		0.2065	0.00500	0.1	0.1001	106	80 - 120	0.2116	2.42	20
Zinc		0.05597	0.00400	0.05	0.005267	101	80 - 120	0.05577	0.353	20

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23011253-02PDS		Units:	mg/L	Analysis Date: 08-Feb-2023 16:40			
Client ID:		Run ID: ICPMS06_427569		SeqNo:	7114894	PrepDate:	08-Feb-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.1088	0.00200	0.1	0.003453	105	75 - 125		
Barium		0.122	0.00400	0.1	0.01637	106	75 - 125		
Cadmium		0.1055	0.00200	0.1	0.000007	105	75 - 125		
Calcium		51.92	0.500	10	43.08	88.4	75 - 125	O	
Chromium		0.09926	0.00400	0.1	0.000238	99.0	75 - 125		
Iron		11.95	0.200	10	1.848	101	75 - 125		
Lead		0.1039	0.00200	0.1	0.000315	104	75 - 125		
Magnesium		13.46	0.200	10	3.599	98.6	75 - 125		
Manganese		0.285	0.00500	0.1	0.1892	95.7	75 - 125		
Potassium		10.64	0.200	10	0.5658	101	75 - 125		
Selenium		0.1086	0.00200	0.1	0.00015	108	75 - 125		
Silver		0.105	0.00200	0.1	-0.000003	105	75 - 125		
Sodium		22.59	0.200	10	13.25	93.4	75 - 125		
Strontium		0.1995	0.00500	0.1	0.1001	99.3	75 - 125		
Zinc		0.1076	0.00400	0.1	0.005267	102	75 - 125		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189475 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID:	HS23011253-02SD		Units:	mg/L	Analysis Date: 08-Feb-2023 16:34				
Client ID:		Run ID: ICPMS06_427569		SeqNo:	7114891	PrepDate:	08-Feb-2023	DF:	5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic		0.004472	0.0100					0.003453	0	10 J
Barium		0.01589	0.0200					0.01637	0	10 J
Cadmium		U	0.0100					0.000007	0	10
Calcium		42.57	2.50					43.08	1.19	10
Chromium		0.01043	0.0200					0.000238	0	10 J
Iron		1.879	1.00					1.848	1.67	10
Lead		U	0.0100					0.000315	0	10
Magnesium		3.649	1.00					3.599	1.4	10
Manganese		0.1891	0.0250					0.1892	0.0523	10
Potassium		0.634	1.00					0.5658	0	10 J
Selenium		U	0.0100					0.00015	0	10
Silver		U	0.0100					-0.000003	0	10
Sodium		13.93	1.00					13.25	5.17	10
Strontium		0.1003	0.0250					0.1001	0.129	10
Zinc		U	0.0200					0.005267	0	10

The following samples were analyzed in this batch: HS23011349-01 HS23011349-02 HS23011349-03 HS23011349-04
 HS23011349-05 HS23011349-06 HS23011349-07 HS23011349-08
 HS23011349-09

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: 189499 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-189499	Units:	mg/L	Analysis Date: 08-Feb-2023 16:28			
Client ID:		Run ID:	HG04_427624	SeqNo:	7115073	PrepDate:	08-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-189499	Units:	mg/L	Analysis Date: 08-Feb-2023 16:30			
Client ID:		Run ID:	HG04_427624	SeqNo:	7115074	PrepDate:	08-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00486 0.000200 0.005 0 97.2 80 - 120

MS	Sample ID:	HS23011349-03MS	Units:	mg/L	Analysis Date: 08-Feb-2023 16:51			
Client ID:	Brine Well 7A BS	Run ID:	HG04_427624	SeqNo:	7115078	PrepDate:	08-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00485 0.000200 0.005 0.000007 96.9 75 - 125

MSD	Sample ID:	HS23011349-03MSD	Units:	mg/L	Analysis Date: 08-Feb-2023 16:53			
Client ID:	Brine Well 7A BS	Run ID:	HG04_427624	SeqNo:	7115079	PrepDate:	08-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00486 0.000200 0.005 0.000007 97.1 75 - 125 0.00485 0.206 20

The following samples were analyzed in this batch:	HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04
	HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08
	HS23011349-09			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R426800 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230128			Units: ug/L		Analysis Date: 28-Jan-2023 12:31			
Client ID:		Run ID: VOA7_426800		SeqNo: 7095095	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	1.0							
Ethylbenzene	U	1.0							
m,p-Xylene	U	2.0							
o-Xylene	U	1.0							
Toluene	U	1.0							
Xylenes, Total	U	1.0							
Surr: 1,2-Dichloroethane-d4	48.82	1.0	50	0	97.6	70 - 123			
Surr: 4-Bromofluorobenzene	48.43	1.0	50	0	96.9	77 - 113			
Surr: Dibromofluoromethane	49.11	1.0	50	0	98.2	73 - 126			
Surr: Toluene-d8	50.19	1.0	50	0	100	81 - 120			
LCS	Sample ID: VLCSW-230128			Units: ug/L		Analysis Date: 28-Jan-2023 11:48			
Client ID:		Run ID: VOA7_426800		SeqNo: 7095094	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	19.32	1.0	20	0	96.6	74 - 120			
Ethylbenzene	20.51	1.0	20	0	103	77 - 117			
m,p-Xylene	40.93	2.0	40	0	102	77 - 122			
o-Xylene	20.13	1.0	20	0	101	75 - 119			
Toluene	19.75	1.0	20	0	98.7	77 - 118			
Xylenes, Total	61.07	1.0	60	0	102	75 - 122			
Surr: 1,2-Dichloroethane-d4	51.12	1.0	50	0	102	70 - 123			
Surr: 4-Bromofluorobenzene	49.77	1.0	50	0	99.5	77 - 113			
Surr: Dibromofluoromethane	49.23	1.0	50	0	98.5	73 - 126			
Surr: Toluene-d8	49.92	1.0	50	0	99.8	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R426800 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23011349-09MS			Units: ug/L		Analysis Date: 28-Jan-2023 20:03		
Client ID:	019-995	Run ID: VOA7_426800		SeqNo: 7095116	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	18.84	1.0	20	0	94.2	70 - 127		
Ethylbenzene	19.88	1.0	20	0	99.4	70 - 124		
m,p-Xylene	39.08	2.0	40	0	97.7	70 - 130		
o-Xylene	19.32	1.0	20	0	96.6	70 - 124		
Toluene	19.06	1.0	20	0	95.3	70 - 123		
Xylenes, Total	58.4	1.0	60	0	97.3	70 - 130		
Surr: 1,2-Dichloroethane-d4	50.98	1.0	50	0	102	70 - 126		
Surr: 4-Bromofluorobenzene	49.44	1.0	50	0	98.9	77 - 113		
Surr: Dibromofluoromethane	50.26	1.0	50	0	101	77 - 123		
Surr: Toluene-d8	49.74	1.0	50	0	99.5	82 - 127		
MSD	Sample ID: HS23011349-09MSD			Units: ug/L		Analysis Date: 28-Jan-2023 20:24		
Client ID:	019-995	Run ID: VOA7_426800		SeqNo: 7095117	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	17.76	1.0	20	0	88.8	70 - 127	18.84	5.89 20
Ethylbenzene	18.64	1.0	20	0	93.2	70 - 124	19.88	6.45 20
m,p-Xylene	37.05	2.0	40	0	92.6	70 - 130	39.08	5.32 20
o-Xylene	18.13	1.0	20	0	90.6	70 - 124	19.32	6.35 20
Toluene	17.82	1.0	20	0	89.1	70 - 123	19.06	6.74 20
Xylenes, Total	55.18	1.0	60	0	92.0	70 - 130	58.4	5.66 20
Surr: 1,2-Dichloroethane-d4	51.7	1.0	50	0	103	70 - 126	50.98	1.4 20
Surr: 4-Bromofluorobenzene	49.39	1.0	50	0	98.8	77 - 113	49.44	0.0912 20
Surr: Dibromofluoromethane	49.43	1.0	50	0	98.9	77 - 123	50.26	1.66 20
Surr: Toluene-d8	49.35	1.0	50	0	98.7	82 - 127	49.74	0.793 20
The following samples were analyzed in this batch:		HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04			
		HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08			
		HS23011349-09						

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R426965 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R426965	Units:	mg/L	Analysis Date: 31-Jan-2023 15:38			
Client ID:		Run ID: WetChem_HS_426965	SeqNo:	7099187	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 1.00

LCS	Sample ID:	LCS-R426965	Units:	mg/L	Analysis Date: 31-Jan-2023 15:38			
Client ID:		Run ID: WetChem_HS_426965	SeqNo:	7099186	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 21.96 1.00 25 0 87.8 85 - 115

LCSD	Sample ID:	LCSD-R426965	Units:	mg/L	Analysis Date: 31-Jan-2023 15:38			
Client ID:		Run ID: WetChem_HS_426965	SeqNo:	7099185	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.16 1.00 25 0 88.6 85 - 115 21.96 0.907 20

MS	Sample ID:	HS23011349-01MS	Units:	mg/L	Analysis Date: 31-Jan-2023 15:38			
Client ID:	Brine Well 22 BS	Run ID: WetChem_HS_426965	SeqNo:	7099188	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.16 1.00 25 -1.64 95.2 80 - 120

The following samples were analyzed in this batch:	HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04
	HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08
	HS23011349-09			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427041 (0) Instrument: Balance1 Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MLBK Sample ID: WBLK-01312023 Units: mg/L Analysis Date: 31-Jan-2023 10:30
Client ID: Run ID: Balance1_427041 SeqNo: 7101298 PrepDate: DF: 1
Analyte Result PQL SPK Val SPK Ref Control RPD Ref RPD Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS Sample ID: LCS-01312023 Units: mg/L Analysis Date: 31-Jan-2023 10:30
Client ID: Run ID: Balance1_427041 SeqNo: 7101297 PrepDate: DF: 1
Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1114 10.0 1000 0 111 85 - 115

Sample ID: HS23011380-01DUP Units: mg/L Analysis Date: 31-Jan-2023 10:30
Client ID: Run ID: Balance1_427041 SeqNo: 7101291 PrepDate: DF: 1
Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 838 10.0 838 0 5

DUP Sample ID: HS23011349-03DUP Units: mg/L Analysis Date: 31-Jan-2023 10:30
 Client ID: Brine Well 7A BS Run ID: Balance1_427041 SeqNo: 7101281 PrepDate: DF: 1
 Analyte Result PQL SPK Val SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 320 10.0 320 0 5

The following samples were analyzed in this batch: HS23011349-01 HS23011349-02 HS23011349-03 HS23011349-04
HS23011349-05

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427164 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-02012023	Units:	mg/L	Analysis Date: 01-Feb-2023 10:30			
Client ID:		Run ID:	Balance1_427164	SeqNo: 7104341	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-02012023	Units:	mg/L	Analysis Date: 01-Feb-2023 10:30			
Client ID:		Run ID:	Balance1_427164	SeqNo: 7104340	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1106 10.0 1000 0 111 85 - 115

DUP	Sample ID:	HS23011472-21DUP	Units:	mg/L	Analysis Date: 01-Feb-2023 10:30			
Client ID:		Run ID:	Balance1_427164	SeqNo: 7104335	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 270 10.0 270 0 5

DUP	Sample ID:	HS23011407-04DUP	Units:	mg/L	Analysis Date: 01-Feb-2023 10:30			
Client ID:		Run ID:	Balance1_427164	SeqNo: 7104326	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 74 10.0 74 0 5

The following samples were analyzed in this batch: HS23011349-06 HS23011349-07 HS23011349-08 HS23011349-09

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427323 (0) **Instrument:** ICS-Integriion **Method:** ANIONS BY SW9056A

MLK		Sample ID: MBLK		Units: mg/L		Analysis Date: 04-Feb-2023 10:15			
Client ID:		Run ID: ICS-Integriion_427323		SeqNo: 7108558		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		U		0.100					
Chloride		U		0.500					
Sulfate		U		0.500					
LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 04-Feb-2023 10:32			
Client ID:		Run ID: ICS-Integriion_427323		SeqNo: 7108559		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		4.366	0.100	4	0	109	80 - 120		
Chloride		20.06	0.500	20	0	100	80 - 120		
Sulfate		21.06	0.500	20	0	105	80 - 120		
MS		Sample ID: HS23011349-09MS		Units: mg/L		Analysis Date: 04-Feb-2023 12:57			
Client ID: 019-995		Run ID: ICS-Integriion_427323		SeqNo: 7108579		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		2.109	0.100	2	0.0931	101	80 - 120		
Chloride		36.99	0.500	10	28.66	83.2	80 - 120		
Sulfate		14.15	0.500	10	3.634	105	80 - 120		
MSD		Sample ID: HS23011349-09MSD		Units: mg/L		Analysis Date: 04-Feb-2023 13:02			
Client ID: 019-995		Run ID: ICS-Integriion_427323		SeqNo: 7108580		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		2.108	0.100	2	0.0931	101	80 - 120	2.109	0.019 20
Chloride		36.86	0.500	10	28.66	81.9	80 - 120	36.99	0.349 20
Sulfate		14.09	0.500	10	3.634	105	80 - 120	14.15	0.399 20

The following samples were analyzed in this batch: HS23011349-01 HS23011349-02 HS23011349-03 HS23011349-04
HS23011349-05 HS23011349-06 HS23011349-07 HS23011349-08
HS23011349-09

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427613 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R427613		Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:		Run ID: Skalar 03_427613		SeqNo: 7115003		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U		5.00					
Alkalinity, Carbonate (As CaCO3)		U		5.00					
LCS		Sample ID: LCS-R427613		Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:		Run ID: Skalar 03_427613		SeqNo: 7115002		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		1071	5.00	1000	0	107	85 - 115		
LCSD		Sample ID: LCSD-R427613		Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:		Run ID: Skalar 03_427613		SeqNo: 7115001		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		919.6	5.00	1000	0	92.0	85 - 115	1071	15.2 20
DUP		Sample ID: HS23011335-02DUP		Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:		Run ID: Skalar 03_427613		SeqNo: 7115004		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		567.4	5.00					613.9	7.87 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23011349-07 HS23011349-08 HS23011349-09

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427662 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MBLK	Sample ID:	MBLK-R427662	Units:	mg/L	Analysis Date: 31-Jan-2023 10:38			
Client ID:		Run ID: WetChem_HS_427662 SeqNo: 7116115	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide U 1.00

LCS	Sample ID:	LCS-R427662	Units:	mg/L	Analysis Date: 31-Jan-2023 10:38			
Client ID:		Run ID: WetChem_HS_427662 SeqNo: 7116114	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.33 1.00 25 0 93.3 80 - 120

LCSD	Sample ID:	LCSD-R427662	Units:	mg/L	Analysis Date: 31-Jan-2023 10:38			
Client ID:		Run ID: WetChem_HS_427662 SeqNo: 7116113	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.54 1.00 25 0 94.2 80 - 120 23.33 0.907 20

The following samples were analyzed in this batch:	HS23011349-01	HS23011349-02	HS23011349-03	HS23011349-04
	HS23011349-05	HS23011349-06	HS23011349-07	HS23011349-08
	HS23011349-09			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427664 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R427664		Units: mg/L		Analysis Date: 08-Feb-2023 19:49			
Client ID:		Run ID:	Skalar 03_427664	SeqNo:	7116099	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00						
Alkalinity, Carbonate (As CaCO3)		U	5.00						

LCS		Sample ID: LCS-R427664		Units: mg/L		Analysis Date: 08-Feb-2023 19:49			
Client ID:		Run ID:	Skalar 03_427664	SeqNo:	7116098	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		969.4	5.00	1000	0	96.9	85 - 115		

LCSD		Sample ID: LCSD-R427664		Units: mg/L		Analysis Date: 08-Feb-2023 19:49			
Client ID:		Run ID:	Skalar 03_427664	SeqNo:	7116097	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		979.8	5.00	1000	0	98.0	85 - 115	969.4	1.07 20

DUP		Sample ID: HS23011253-03DUP		Units: mg/L		Analysis Date: 08-Feb-2023 19:49			
Client ID:		Run ID:	Skalar 03_427664	SeqNo:	7116100	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		445.7	5.00					447.9	0.492 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23011349-01 HS23011349-02 HS23011349-03 HS23011349-04
HS23011349-05

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

QC BATCH REPORT

Batch ID: R427665 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK	Sample ID:	MLBK-R427665	Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:	Run ID:	Skalar 03_427665	SeqNo:	7116127	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	U	5.00						
Alkalinity, Carbonate (As CaCO3)	U	5.00						

LCS	Sample ID:	LCS-R427665	Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:	Run ID:	Skalar 03_427665	SeqNo:	7116126	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	987.2	5.00	1000	0	98.7	85 - 115		

LCSD	Sample ID:	LCSD-R427665	Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:	Run ID:	Skalar 03_427665	SeqNo:	7116125	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	990.2	5.00	1000	0	99.0	85 - 115	987.2	0.303 20

DUP	Sample ID:	HS23011253-01DUP	Units: mg/L		Analysis Date: 07-Feb-2023 17:45			
Client ID:	Run ID:	Skalar 03_427665	SeqNo:	7116353	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	493.2	5.00					601.7	19.8 20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0 20

The following samples were analyzed in this batch: HS23011349-06

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011349

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23011349

Date/Time Received:

26-Jan-2023 16:13

Client Name: ERMSW-HOU

Received by:

Corey GranditsCompleted By: /S/ Corey Grandits

eSignature

27-Jan-2023 17:34

Date/Time

Reviewed by: /S/ Bernadette A. Fini

eSignature

30-Jan-2023 09:15

Date/Time

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes No Not Present

Custody seals intact on shipping container/cooler?

Yes No Not Present

Custody seals intact on sample bottles?

Yes No Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes No Not Present

Chain of custody present?

Yes No

1 Page(s)

Chain of custody signed when relinquished and received?

Yes No

COC IDs:287175

Samplers name present on COC?

Yes No

Chain of custody agrees with sample labels?

Yes No

Samples in proper container/bottle?

Yes No

Sample containers intact?

Yes No

Sufficient sample volume for indicated test?

Yes No

All samples received within holding time?

Yes No

Container/Temp Blank temperature in compliance?

Yes No

Temperature(s)/Thermometer(s):

1.4UC/0.9C , 1.3UC/0.8C , 2.0UC/1.5C

IR31

Cooler(s)/Kit(s):

Lg Blue 1-3

Date/Time sample(s) sent to storage:

1/27/23

Water - VOA vials have zero headspace?

Yes No No VOA vials submitted

Water - pH acceptable upon receipt?

Yes No N/A

pH adjusted?

Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

--

Corrective Action:

--

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 287175

HS23011349

Environmental Resources Mgmt.
Sulphur Dome

Customer Information		Project Information		ALS Project Manager:														
Purchase Order		Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)													
Work Order		Project Number	0677804	B	MA EPH_W La (MA EPH)													
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA VPH_LA_W (MA VPH)													
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056_anions_W (Cl,SO4,Br)													
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	E	ALK_W2320B (carb, bicarb)													
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	F	H2S_W (H2S)													
Phone	(281) 600-1000	Phone	(281) 600-1000	G	HG_W (Mercury)													
Fax	(281) 600-1001	Fax	(281) 600-1001	H	ICP_TW (As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)													
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	I	SULFD_4500S F (Sulfide)													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	Brine Well 22 BS	1/25/23	1230	W		12	X	X	X	X	X	X	X	X	X	X	X	
2	6X Brine		1330	W														
3	Brine Well 7A BS		1410	W														
4	Culvert		1600	W														
5	Central Pond		1630	W														
6	019-1055	1/26/23	0800	W														
7	019-582		0830	W														
8	019-580		0910	W														
9	019-995		0945	W														
10																		
Sampler(s) Please Print & Sign				Shipment Method		Required Turnaround Time: (Check Box)			Other _____			Results Due Date:						
Scott Himes				Drop off		<input checked="" type="checkbox"/> STD 10 Wk Days			<input type="checkbox"/> 5 Wk Days			<input type="checkbox"/> 2 Wk Days			<input type="checkbox"/> 24 Hour			
Relinquished by:		Date: 1/26/23	Time: 1617	Received by:		Notes: ERM Sulphur Dome												
Relinquished by:		Date: 1/26/23	Time: 1617	Received by (Laboratory): <i>(LRE)</i> 1-26-23 1617		Cooler ID			Cooler Temp.			QC Package: (Check One Box Below)						
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory): <i>(LH)</i>		LH_PIVE			141			<input checked="" type="checkbox"/> Level II Std QC						
						LH_PIVE			1.3			<input type="checkbox"/> TRRP Checklist						
						LH_TEAL			2.0			<input type="checkbox"/> Level III Std QC/Raw Data						
												<input type="checkbox"/> Level IV SW846/CLP						
												<input type="checkbox"/> Other						
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035																		

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 The Chain of Custody is a legal document. All information must be completed accurately.

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February 14, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23011621**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 3 sample(s) on Jan 30, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011621

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23011621-01	CP BS 1	Water		30-Jan-2023 11:00	30-Jan-2023 16:00	<input type="checkbox"/>
HS23011621-02	CP BS 2	Water		30-Jan-2023 11:30	30-Jan-2023 16:00	<input type="checkbox"/>
HS23011621-03	CP BS 3	Water		30-Jan-2023 12:30	30-Jan-2023 16:00	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011621

CASE NARRATIVE**GC Semivolatiles by Method MA EPH****Batch ID: 189369**

Sample ID: HS23020048-04MS

- MS and MSD are for an unrelated sample

GC Volatiles by Method MA VPH**Batch ID: R427540,R427549**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R427341**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 189598**

Sample ID: HS23011436-01MS

- MS and MSD are for an unrelated sample

Metals by Method SW7470A**Batch ID: 189560**

Sample ID: HS23020298-01MS

- MS and MSD are for an unrelated sample

WetChemistry by Method E376.1**Batch ID: R427869**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056**Batch ID: R427935**

Sample ID: CP BS 1 (HS23011621-01MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)
- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Bromide)

WetChemistry by Method SM2320B**Batch ID: R427809**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23011621

CASE NARRATIVE

WetChemistry by Method M2540C

Batch ID: R427370

Sample ID: CP BS 3(HS23011621-03DUP)

- Duplicate RPD was above the control limits.

WetChemistry by Method SM4500 S2-F

Batch ID: R427230

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 1
 Collection Date: 30-Jan-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Feb-2023 11:49
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Feb-2023 11:49
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Feb-2023 11:49
o-Xylene	U		0.30	1.0	ug/L	1	04-Feb-2023 11:49
Toluene	U		0.20	1.0	ug/L	1	04-Feb-2023 11:49
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Feb-2023 11:49
<i>Surr: 1,2-Dichloroethane-d4</i>	99.7			70-126	%REC	1	04-Feb-2023 11:49
<i>Surr: 4-Bromofluorobenzene</i>	91.0			77-113	%REC	1	04-Feb-2023 11:49
<i>Surr: Dibromofluoromethane</i>	94.9			77-123	%REC	1	04-Feb-2023 11:49
<i>Surr: Toluene-d8</i>	109			82-127	%REC	1	04-Feb-2023 11:49
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2023 18:57
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 18:57
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 18:57
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	118			70-130	%REC	1	07-Feb-2023 18:57
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	113			70-130	%REC	1	07-Feb-2023 18:57
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	11-Feb-2023 03:56
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	11-Feb-2023 03:56
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	11-Feb-2023 03:56
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	14-Feb-2023 02:23
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	14-Feb-2023 02:23
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	14-Feb-2023 02:23
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	14-Feb-2023 02:23
<i>Surr: 1-Chlorooctadecane</i>	84.8			40-140	%REC	1	11-Feb-2023 03:56
<i>Surr: 2-Bromonaphthalene</i>	111			40-140	%REC	1	14-Feb-2023 02:23
<i>Surr: 2-Fluorobiphenyl</i>	72.1			40-140	%REC	1	14-Feb-2023 02:23
<i>Surr: o-Terphenyl</i>	97.4			40-140	%REC	1	14-Feb-2023 02:23

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 1
 Collection Date: 30-Jan-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 10-Feb-2023		Analyst: JC	
Arsenic	0.000862	J	0.000400	0.00200	mg/L	1	10-Feb-2023 22:17
Barium	0.160		0.00190	0.00400	mg/L	1	10-Feb-2023 22:17
Cadmium	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:17
Calcium	75.3		0.0340	0.500	mg/L	1	10-Feb-2023 22:17
Chromium	U		0.000400	0.00400	mg/L	1	10-Feb-2023 22:17
Iron	0.132	J	0.0120	0.200	mg/L	1	10-Feb-2023 22:17
Lead	U		0.000600	0.00200	mg/L	1	10-Feb-2023 22:17
Magnesium	15.0		0.0100	0.200	mg/L	1	10-Feb-2023 22:17
Manganese	0.266		0.000700	0.00500	mg/L	1	10-Feb-2023 22:17
Potassium	2.90		0.0180	0.200	mg/L	1	10-Feb-2023 22:17
Selenium	U		0.00110	0.00200	mg/L	1	10-Feb-2023 22:17
Silver	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:17
Sodium	174		0.140	2.00	mg/L	10	13-Feb-2023 13:02
Strontium	0.556		0.000200	0.00500	mg/L	1	10-Feb-2023 22:17
Zinc	0.00452		0.00200	0.00400	mg/L	1	10-Feb-2023 22:17
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 09-Feb-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	09-Feb-2023 17:28
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	03-Feb-2023 12:28
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	80.0		5.00	10.0	mg/L	1	03-Feb-2023 16:00
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	241		5.00	5.00	mg/L	1	10-Feb-2023 12:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	10-Feb-2023 12:49
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	03-Feb-2023 11:23
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Feb-2023 01:32
Chloride	308		2.00	5.00	mg/L	10	14-Feb-2023 01:49
Sulfate	113		2.00	5.00	mg/L	10	14-Feb-2023 01:49

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 2
 Collection Date: 30-Jan-2023 11:30

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Feb-2023 12:11
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Feb-2023 12:11
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Feb-2023 12:11
o-Xylene	U		0.30	1.0	ug/L	1	04-Feb-2023 12:11
Toluene	U		0.20	1.0	ug/L	1	04-Feb-2023 12:11
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Feb-2023 12:11
<i>Surr: 1,2-Dichloroethane-d4</i>	99.9			70-126	%REC	1	04-Feb-2023 12:11
<i>Surr: 4-Bromofluorobenzene</i>	91.5			77-113	%REC	1	04-Feb-2023 12:11
<i>Surr: Dibromofluoromethane</i>	96.3			77-123	%REC	1	04-Feb-2023 12:11
<i>Surr: Toluene-d8</i>	109			82-127	%REC	1	04-Feb-2023 12:11
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2023 19:35
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 19:35
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 19:35
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	119			70-130	%REC	1	07-Feb-2023 19:35
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	111			70-130	%REC	1	07-Feb-2023 19:35
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	11-Feb-2023 04:28
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	11-Feb-2023 04:28
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	11-Feb-2023 04:28
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	14-Feb-2023 02:55
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	14-Feb-2023 02:55
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	14-Feb-2023 02:55
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	14-Feb-2023 02:55
<i>Surr: 1-Chlorooctadecane</i>	77.2			40-140	%REC	1	11-Feb-2023 04:28
<i>Surr: 2-Bromonaphthalene</i>	122			40-140	%REC	1	14-Feb-2023 02:55
<i>Surr: 2-Fluorobiphenyl</i>	67.3			40-140	%REC	1	14-Feb-2023 02:55
<i>Surr: o-Terphenyl</i>	114			40-140	%REC	1	14-Feb-2023 02:55

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 2
 Collection Date: 30-Jan-2023 11:30

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 10-Feb-2023		Analyst: JC	
Arsenic	0.000868	J	0.000400	0.00200	mg/L	1	10-Feb-2023 22:19
Barium	0.367		0.00190	0.00400	mg/L	1	10-Feb-2023 22:19
Cadmium	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:19
Calcium	64.2		0.0340	0.500	mg/L	1	10-Feb-2023 22:19
Chromium	U		0.000400	0.00400	mg/L	1	10-Feb-2023 22:19
Iron	0.0258	J	0.0120	0.200	mg/L	1	10-Feb-2023 22:19
Lead	U		0.000600	0.00200	mg/L	1	10-Feb-2023 22:19
Magnesium	12.6		0.0100	0.200	mg/L	1	10-Feb-2023 22:19
Manganese	0.458		0.000700	0.00500	mg/L	1	10-Feb-2023 22:19
Potassium	2.58		0.0180	0.200	mg/L	1	10-Feb-2023 22:19
Selenium	U		0.00110	0.00200	mg/L	1	10-Feb-2023 22:19
Silver	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:19
Sodium	166		0.0140	0.200	mg/L	1	10-Feb-2023 22:19
Strontium	0.482		0.000200	0.00500	mg/L	1	10-Feb-2023 22:19
Zinc	0.00213	J	0.00200	0.00400	mg/L	1	10-Feb-2023 22:19
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 09-Feb-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	09-Feb-2023 17:30
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	03-Feb-2023 12:28
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	512		5.00	10.0	mg/L	1	03-Feb-2023 16:00
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	238		5.00	5.00	mg/L	1	10-Feb-2023 12:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	10-Feb-2023 12:49
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	03-Feb-2023 11:23
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Feb-2023 01:55
Chloride	296		2.00	5.00	mg/L	10	14-Feb-2023 02:01
Sulfate	111		2.00	5.00	mg/L	10	14-Feb-2023 02:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 3
 Collection Date: 30-Jan-2023 12:30

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Feb-2023 12:32
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Feb-2023 12:32
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Feb-2023 12:32
o-Xylene	U		0.30	1.0	ug/L	1	04-Feb-2023 12:32
Toluene	U		0.20	1.0	ug/L	1	04-Feb-2023 12:32
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Feb-2023 12:32
<i>Surr: 1,2-Dichloroethane-d4</i>	99.3			70-126	%REC	1	04-Feb-2023 12:32
<i>Surr: 4-Bromofluorobenzene</i>	91.9			77-113	%REC	1	04-Feb-2023 12:32
<i>Surr: Dibromofluoromethane</i>	97.1			77-123	%REC	1	04-Feb-2023 12:32
<i>Surr: Toluene-d8</i>	109			82-127	%REC	1	04-Feb-2023 12:32
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2023 20:13
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 20:13
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2023 20:13
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	117			70-130	%REC	1	07-Feb-2023 20:13
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	117			70-130	%REC	1	07-Feb-2023 20:13
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	11-Feb-2023 04:59
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	11-Feb-2023 04:59
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	11-Feb-2023 04:59
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	14-Feb-2023 03:27
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	14-Feb-2023 03:27
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	14-Feb-2023 03:27
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	14-Feb-2023 03:27
<i>Surr: 1-Chlorooctadecane</i>	63.5			40-140	%REC	1	11-Feb-2023 04:59
<i>Surr: 2-Bromonaphthalene</i>	131			40-140	%REC	1	14-Feb-2023 03:27
<i>Surr: 2-Fluorobiphenyl</i>	128			40-140	%REC	1	14-Feb-2023 03:27
<i>Surr: o-Terphenyl</i>	103			40-140	%REC	1	14-Feb-2023 03:27

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: CP BS 3
 Collection Date: 30-Jan-2023 12:30

ANALYTICAL REPORT

WorkOrder:HS23011621
 Lab ID:HS23011621-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 10-Feb-2023 Analyst: JC
Arsenic	0.000769	J	0.000400	0.00200	mg/L	1	10-Feb-2023 22:21
Barium	0.155		0.00190	0.00400	mg/L	1	10-Feb-2023 22:21
Cadmium	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:21
Calcium	77.7		0.0340	0.500	mg/L	1	10-Feb-2023 22:21
Chromium	U		0.000400	0.00400	mg/L	1	10-Feb-2023 22:21
Iron	0.125	J	0.0120	0.200	mg/L	1	10-Feb-2023 22:21
Lead	U		0.000600	0.00200	mg/L	1	10-Feb-2023 22:21
Magnesium	15.0		0.0100	0.200	mg/L	1	10-Feb-2023 22:21
Manganese	0.232		0.000700	0.00500	mg/L	1	10-Feb-2023 22:21
Potassium	2.86		0.0180	0.200	mg/L	1	10-Feb-2023 22:21
Selenium	U		0.00110	0.00200	mg/L	1	10-Feb-2023 22:21
Silver	U		0.000200	0.00200	mg/L	1	10-Feb-2023 22:21
Sodium	19.1		0.140	2.00	mg/L	10	13-Feb-2023 13:04
Strontium	0.578		0.000200	0.00500	mg/L	1	10-Feb-2023 22:21
Zinc	0.00748		0.00200	0.00400	mg/L	1	10-Feb-2023 22:21
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 09-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	09-Feb-2023 17:31
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	03-Feb-2023 12:28
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	892		5.00	10.0	mg/L	1	03-Feb-2023 16:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	245		5.00	5.00	mg/L	1	10-Feb-2023 12:49
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	10-Feb-2023 12:49
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	03-Feb-2023 11:23
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Feb-2023 02:07
Chloride	343		2.00	5.00	mg/L	10	14-Feb-2023 02:12
Sulfate	135		2.00	5.00	mg/L	10	14-Feb-2023 02:12

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23011621**Batch ID:** 189369**Start Date:** 06 Feb 2023 11:52**End Date:** 06 Feb 2023 14:30**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011621-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011621-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23011621-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 189560**Start Date:** 09 Feb 2023 10:00**End Date:** 09 Feb 2023 13:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011621-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011621-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011621-03		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 189598**Start Date:** 10 Feb 2023 13:00**End Date:** 10 Feb 2023 17:00**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23011621-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011621-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23011621-03		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 189369 (0)	Test Name : MASSACHUSETTS EPH R2.1, DEC 2019					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00		06 Feb 2023 11:52	14 Feb 2023 02:23	1
HS23011621-01	CP BS 1	30 Jan 2023 11:00		06 Feb 2023 11:52	11 Feb 2023 03:56	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30		06 Feb 2023 11:52	14 Feb 2023 02:55	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30		06 Feb 2023 11:52	11 Feb 2023 04:28	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30		06 Feb 2023 11:52	14 Feb 2023 03:27	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30		06 Feb 2023 11:52	11 Feb 2023 04:59	1
Batch ID: 189560 (0)	Test Name : MERCURY BY SW7470A					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00		09 Feb 2023 10:00	09 Feb 2023 17:28	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30		09 Feb 2023 10:00	09 Feb 2023 17:30	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30		09 Feb 2023 10:00	09 Feb 2023 17:31	1
Batch ID: 189598 (0)	Test Name : ICP-MS METALS BY SW6020A					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00		10 Feb 2023 13:00	13 Feb 2023 13:02	10
HS23011621-01	CP BS 1	30 Jan 2023 11:00		10 Feb 2023 13:00	10 Feb 2023 22:17	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30		10 Feb 2023 13:00	10 Feb 2023 22:19	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30		10 Feb 2023 13:00	13 Feb 2023 13:04	10
HS23011621-03	CP BS 3	30 Jan 2023 12:30		10 Feb 2023 13:00	10 Feb 2023 22:21	1
Batch ID: R427230 (0)	Test Name : SULFIDE BY SM4500 S2-F-2011					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00			03 Feb 2023 11:23	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			03 Feb 2023 11:23	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			03 Feb 2023 11:23	1
Batch ID: R427341 (0)	Test Name : LOW LEVEL VOLATILES BY SW8260C					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00			04 Feb 2023 11:49	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			04 Feb 2023 12:11	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			04 Feb 2023 12:32	1
Batch ID: R427370 (0)	Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00			03 Feb 2023 16:00	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			03 Feb 2023 16:00	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			03 Feb 2023 16:00	1
Batch ID: R427540 (0)	Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00			07 Feb 2023 18:57	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			07 Feb 2023 19:35	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			07 Feb 2023 20:13	1
Batch ID: R427549 (0)	Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1					Matrix: Water
HS23011621-01	CP BS 1	30 Jan 2023 11:00			07 Feb 2023 18:57	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			07 Feb 2023 19:35	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			07 Feb 2023 20:13	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R427809 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS23011621-01	CP BS 1	30 Jan 2023 11:00			10 Feb 2023 12:49	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			10 Feb 2023 12:49	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			10 Feb 2023 12:49	1
Batch ID: R427869 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS23011621-01	CP BS 1	30 Jan 2023 11:00			03 Feb 2023 12:28	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			03 Feb 2023 12:28	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			03 Feb 2023 12:28	1
Batch ID: R427935 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS23011621-01	CP BS 1	30 Jan 2023 11:00			14 Feb 2023 01:49	10
HS23011621-01	CP BS 1	30 Jan 2023 11:00			14 Feb 2023 01:32	1
HS23011621-02	CP BS 2	30 Jan 2023 11:30			14 Feb 2023 02:01	10
HS23011621-02	CP BS 2	30 Jan 2023 11:30			14 Feb 2023 01:55	1
HS23011621-03	CP BS 3	30 Jan 2023 12:30			14 Feb 2023 02:12	10
HS23011621-03	CP BS 3	30 Jan 2023 12:30			14 Feb 2023 02:07	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189369 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MBLK	Sample ID:	MBLK-189369	Units:	mg/L	Analysis Date: 10-Feb-2023 21:38			
Client ID:		Run ID:	FID-7_427962	SeqNo:	7122864	PrepDate:	06-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aliphatics >C10 - C12	U	0.00100						
Aliphatics >C12 - C16	U	0.00200						
Aliphatics >C16 - C35	U	0.00800						
Surr: 1-Chlorooctadecane	0.02901	0	0.04	0	72.5	40 - 140		

MBLK	Sample ID:	MBLK-189369	Units:	mg/L	Analysis Date: 13-Feb-2023 20:05			
Client ID:		Run ID:	FID-8_427951	SeqNo:	7122643	PrepDate:	06-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Al aromatics >C10 - C12	U	0.00100						
Aromatics >C12 - C16	U	0.00400						
Aromatics >C16 - C21	U	0.00300						
Aromatics >C21 - C35	U	0.00900						
Surr: 2-Bromonaphthalene	0.04412	0	0.04	0	110	40 - 140		
Surr: 2-Fluorobiphenyl	0.04002	0	0.04	0	100	40 - 140		
Surr: o-Terphenyl	0.03357	0	0.04	0	83.9	40 - 140		

LCS	Sample ID:	LCS-189369	Units:	mg/L	Analysis Date: 10-Feb-2023 22:10			
Client ID:		Run ID:	FID-7_427962	SeqNo:	7122865	PrepDate:	06-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aliphatics >C10 - C12	0.05792	0.00100	0.05	0	116	40 - 140		
Aliphatics >C12 - C16	0.1203	0.00200	0.1	0	120	40 - 140		
Aliphatics >C16 - C35	0.4216	0.00800	0.4	0	105	40 - 140		
Surr: 1-Chlorooctadecane	0.03294	0	0.04	0	82.3	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189369 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-189369		Units:	mg/L		Analysis Date: 13-Feb-2023 20:36			
Client ID:		Run ID: FID-8_427951		SeqNo:	7122644	PrepDate:	06-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		0.05207	0.00100	0.05	0	104	40 - 140			
Aromatics >C12 - C16		0.2177	0.00400	0.2	0	109	40 - 140			
Aromatics >C16 - C21		0.1905	0.00300	0.15	0	127	40 - 140			
Aromatics >C21 - C35		0.5759	0.00900	0.45	0	128	40 - 140			
Surr: 2-Bromonaphthalene		0.04841	0	0.04	0	121	40 - 140			
Surr: 2-Fluorobiphenyl		0.02984	0	0.04	0	74.6	40 - 140			
Surr: o-Terphenyl		0.04001	0	0.04	0	100	40 - 140			

MS	Sample ID:	HS23020048-04MS		Units:	mg/L		Analysis Date: 11-Feb-2023 07:37			
Client ID:		Run ID: FID-7_427962		SeqNo:	7122882	PrepDate:	06-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12		0.05096	0.00100	0.05	0	102	40 - 140			
Aliphatics >C12 - C16		0.1068	0.00200	0.1	0	107	40 - 140			
Aliphatics >C16 - C35		0.4667	0.00800	0.4	0	117	40 - 140			
Surr: 1-Chlorooctadecane		0.03437	0	0.04	0	85.9	40 - 140			

MS	Sample ID:	HS23020048-04MS		Units:	mg/L		Analysis Date: 14-Feb-2023 06:04			
Client ID:		Run ID: FID-8_427951		SeqNo:	7122667	PrepDate:	06-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		0.06965	0.00100	0.05	0	139	40 - 140			
Aromatics >C12 - C16		0.2691	0.00400	0.2	0	135	40 - 140			
Aromatics >C16 - C21		0.2228	0.00300	0.15	0	149	40 - 140		S	
Aromatics >C21 - C35		0.6892	0.00900	0.45	0	153	40 - 140		S	
Surr: 2-Bromonaphthalene		0.05281	0	0.04	0	132	40 - 140			
Surr: 2-Fluorobiphenyl		0.04429	0	0.04	0	111	40 - 140			
Surr: o-Terphenyl		0.04594	0	0.04	0	115	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189369 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23020048-04MSD		Units: mg/L		Analysis Date: 11-Feb-2023 08:08				
Client ID:		Run ID: FID-7_427962		SeqNo: 7122883		PrepDate: 06-Feb-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12		0.04895	0.00100	0.05	0	97.9	40 - 140	0.05096	4.02	50
Aliphatics >C12 - C16		0.103	0.00200	0.1	0	103	40 - 140	0.1068	3.68	50
Aliphatics >C16 - C35		0.4655	0.00800	0.4	0	116	40 - 140	0.4667	0.25	50
Surr: 1-Chlorooctadecane		0.03332	0	0.04	0	83.3	40 - 140	0.03437	3.12	50

MSD	Sample ID:	HS23020048-04MSD		Units: mg/L		Analysis Date: 14-Feb-2023 06:36				
Client ID:		Run ID: FID-8_427951		SeqNo: 7122668		PrepDate: 06-Feb-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12		0.05973	0.00100	0.05	0	119	40 - 140	0.06965	15.3	50
Aromatics >C12 - C16		0.2318	0.00400	0.2	0	116	40 - 140	0.2691	14.9	50
Aromatics >C16 - C21		0.1951	0.00300	0.15	0	130	40 - 140	0.2228	13.3	50
Aromatics >C21 - C35		0.6294	0.00900	0.45	0	140	40 - 140	0.6892	9.08	50
Surr: 2-Bromonaphthalene		0.04487	0	0.04	0	112	40 - 140	0.05281	16.3	50
Surr: 2-Fluorobiphenyl		0.03961	0	0.04	0	99.0	40 - 140	0.04429	11.2	50
Surr: o-Terphenyl		0.04115	0	0.04	0	103	40 - 140	0.04594	11	50

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427540 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1				
MLBK	Sample ID: MBLK-230207			Units: mg/L		Analysis Date: 07-Feb-2023 18:18		
Client ID:		Run ID: FID-14_427540		SeqNo: 7113700	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100						
Aliphatics >C8 - C10	U	0.0100						
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2933	0.0100	0.25	0	117	70 - 130		
LCS	Sample ID: LCS-230207			Units: mg/L		Analysis Date: 07-Feb-2023 16:24		
Client ID:		Run ID: FID-14_427540		SeqNo: 7113697	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02447	0.0100	0.025	0	97.9	70 - 130		
Aliphatics >C8 - C10	0.02458	0.0100	0.025	0	98.3	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2964	0.0100	0.25	0	119	70 - 130		
LCSD	Sample ID: LCSD-230207			Units: mg/L		Analysis Date: 07-Feb-2023 17:02		
Client ID:		Run ID: FID-14_427540		SeqNo: 7113698	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02544	0.0100	0.025	0	102	70 - 130	0.02447	3.89 25
Aliphatics >C8 - C10	0.02482	0.0100	0.025	0	99.3	70 - 130	0.02458	0.955 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2959	0.0100	0.25	0	118	70 - 130	0.2964	0.141 25
The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03								

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427549 (0)	Instrument: FID-15	Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1
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MLBK	Sample ID: MBLK-230207	Units: mg/L	Analysis Date: 07-Feb-2023 18:18					
Client ID:	Run ID: FID-15_427549	SeqNo: 7113997	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	U	0.0100				
Surr: 2,5-Dibromotoluene (Aromatic)	0.2825	0.0100	0.25	0	113	70 - 130

LCS	Sample ID: LCS-230207	Units: mg/L	Analysis Date: 07-Feb-2023 16:24					
Client ID:	Run ID: FID-15_427549	SeqNo: 7113995	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	0.09332	0.0100	0.1	0	93.3	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2962	0.0100	0.25	0	118	70 - 130

LCSD	Sample ID: LCSD-230207	Units: mg/L	Analysis Date: 07-Feb-2023 17:02					
Client ID:	Run ID: FID-15_427549	SeqNo: 7113996	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	0.09502	0.0100	0.1	0	95.0	70 - 130	0.09332	1.81 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2974	0.0100	0.25	0	119	70 - 130	0.2962	0.403 25

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189560 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-189560	Units:	mg/L	Analysis Date: 09-Feb-2023 17:24			
Client ID:		Run ID:	HG04_427717	SeqNo:	7117340	PrepDate:	09-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-189560	Units:	mg/L	Analysis Date: 09-Feb-2023 17:26			
Client ID:		Run ID:	HG04_427717	SeqNo:	7117341	PrepDate:	09-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00499 0.000200 0.005 0 99.8 80 - 120

MS	Sample ID:	HS23020298-01MS	Units:	mg/L	Analysis Date: 09-Feb-2023 17:58			
Client ID:		Run ID:	HG04_427717	SeqNo:	7117349	PrepDate:	09-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00172 0.000200 0.005 0.000014 34.1 75 - 125 S

MSD	Sample ID:	HS23020298-01MSD	Units:	mg/L	Analysis Date: 09-Feb-2023 17:59			
Client ID:		Run ID:	HG04_427717	SeqNo:	7117350	PrepDate:	09-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00159 0.000200 0.005 0.000014 31.5 75 - 125 0.00172 7.85 20 S

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189598 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-189598	Units:	mg/L	Analysis Date: 10-Feb-2023 19:38				
Client ID:		Run ID:	ICPMS06_427759	SeqNo:	7120141	PrepDate:	10-Feb-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	0.01078	0.200							J
Manganese	U	0.00500							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189598 (0)		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A				
LCS	Sample ID: LCS-189598	Units: mg/L			Analysis Date: 10-Feb-2023 19:40			
Client ID:		Run ID: ICPMS06_427759		SeqNo: 7120142	PrepDate: 10-Feb-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.046	0.00200	0.05	0	92.0	80 - 120		
Barium	0.04713	0.00400	0.05	0	94.3	80 - 120		
Cadmium	0.04794	0.00200	0.05	0	95.9	80 - 120		
Calcium	4.742	0.500	5	0	94.8	80 - 120		
Chromium	0.04613	0.00400	0.05	0	92.3	80 - 120		
Iron	4.609	0.200	5	0	92.2	80 - 120		
Lead	0.04782	0.00200	0.05	0	95.6	80 - 120		
Magnesium	4.58	0.200	5	0	91.6	80 - 120		
Manganese	0.04608	0.00500	0.05	0	92.2	80 - 120		
Potassium	4.595	0.200	5	0	91.9	80 - 120		
Selenium	0.04608	0.00200	0.05	0	92.2	80 - 120		
Silver	0.04853	0.00200	0.05	0	97.1	80 - 120		
Sodium	4.715	0.200	5	0	94.3	80 - 120		
Strontium	0.09576	0.00500	0.1	0	95.8	80 - 120		
Zinc	0.04802	0.00400	0.05	0	96.0	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189598 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23011436-01MS		Units:	mg/L	Analysis Date: 10-Feb-2023 19:46			
Client ID:		Run ID: ICPMS06_427759		SeqNo:	7120145	PrepDate:	10-Feb-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05557	0.00200	0.05	0.008224	94.7	80 - 120		
Barium		0.2066	0.00400	0.05	0.1511	111	80 - 120		
Cadmium		0.04772	0.00200	0.05	0.000007	95.4	80 - 120		
Calcium		160.5	0.500	5	157.1	67.6	80 - 120		SO
Chromium		0.04668	0.00400	0.05	0.000102	93.2	80 - 120		
Iron		7.715	0.200	5	3.166	91.0	80 - 120		
Lead		0.0499	0.00200	0.05	0.000113	99.6	80 - 120		
Magnesium		18.82	0.200	5	14.15	93.5	80 - 120		
Manganese		0.6736	0.00500	0.05	0.6235	100	80 - 120		O
Potassium		6.944	0.200	5	2.323	92.4	80 - 120		
Selenium		0.04534	0.00200	0.05	0.000269	90.1	80 - 120		
Silver		0.04738	0.00200	0.05	0.000002	94.8	80 - 120		
Sodium		80.45	0.200	5	75.1	107	80 - 120		O
Strontium		1.938	0.00500	0.1	1.8	138	80 - 120		SEO
Zinc		0.04785	0.00400	0.05	0.002329	91.0	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189598 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23011436-01MSD		Units:	mg/L	Analysis Date: 10-Feb-2023 19:48				
Client ID:		Run ID: ICPMS06_427759		SeqNo:	7120146	PrepDate:	10-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic		0.05515	0.00200	0.05	0.008224	93.9	80 - 120	0.05557	0.755	20
Barium		0.2041	0.00400	0.05	0.1511	106	80 - 120	0.2066	1.18	20
Cadmium		0.0473	0.00200	0.05	0.000007	94.6	80 - 120	0.04772	0.901	20
Calcium		160.4	0.500	5	157.1	66.0	80 - 120	160.5	0.0515	20 SO
Chromium		0.04648	0.00400	0.05	0.000102	92.8	80 - 120	0.04668	0.423	20
Iron		7.694	0.200	5	3.166	90.6	80 - 120	7.715	0.27	20
Lead		0.04847	0.00200	0.05	0.000113	96.7	80 - 120	0.0499	2.9	20
Magnesium		18.71	0.200	5	14.15	91.3	80 - 120	18.82	0.576	20
Manganese		0.677	0.00500	0.05	0.6235	107	80 - 120	0.6736	0.509	20 O
Potassium		6.922	0.200	5	2.323	92.0	80 - 120	6.944	0.313	20
Selenium		0.04589	0.00200	0.05	0.000269	91.2	80 - 120	0.04534	1.21	20
Silver		0.04707	0.00200	0.05	0.000002	94.1	80 - 120	0.04738	0.671	20
Sodium		80.09	0.200	5	75.1	99.9	80 - 120	80.45	0.441	20 O
Strontium		1.951	0.00500	0.1	1.8	152	80 - 120	1.938	0.704	20 SEO
Zinc		0.04911	0.00400	0.05	0.002329	93.6	80 - 120	0.04785	2.61	20

PDS	Sample ID:	HS23011436-01PDS		Units:	mg/L	Analysis Date: 10-Feb-2023 19:50				
Client ID:		Run ID: ICPMS06_427759		SeqNo:	7120147	PrepDate:	10-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic		0.1049	0.00200	0.1	0.008224	96.7	75 - 125			
Barium		0.2486	0.00400	0.1	0.1511	97.5	75 - 125			
Cadmium		0.09679	0.00200	0.1	0.000007	96.8	75 - 125			
Calcium		165.8	0.500	10	157.1	87.0	75 - 125			O
Chromium		0.09569	0.00400	0.1	0.000102	95.6	75 - 125			
Iron		12.55	0.200	10	3.166	93.9	75 - 125			
Lead		0.09731	0.00200	0.1	0.000113	97.2	75 - 125			
Magnesium		23.39	0.200	10	14.15	92.5	75 - 125			
Manganese		0.7173	0.00500	0.1	0.6235	93.8	75 - 125			O
Potassium		11.83	0.200	10	2.323	95.1	75 - 125			
Selenium		0.09459	0.00200	0.1	0.000269	94.3	75 - 125			
Silver		0.09264	0.00200	0.1	0.000002	92.6	75 - 125			
Sodium		85.2	0.200	10	75.1	101	75 - 125			
Zinc		0.09723	0.00400	0.1	0.002329	94.9	75 - 125			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: 189598 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23011436-01PDS		Units: mg/L		Analysis Date: 13-Feb-2023 13:37			
Client ID:		Run ID: ICPMS06_427871		SeqNo: 7120970		PrepDate: 10-Feb-2023		DF: 20	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Strontium		3.397	0.100	2	1.771	81.3	75 - 125		

SD	Sample ID:	HS23011436-01SD		Units: mg/L		Analysis Date: 10-Feb-2023 19:44			
Client ID:		Run ID: ICPMS06_427759		SeqNo: 7120144		PrepDate: 10-Feb-2023		DF: 5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Arsenic		0.008387	0.0100					0.008224	0 10 J

Barium	0.1499	0.0200						0.1511	0.836 10
Cadmium	U	0.0100						0.000007	0 10
Calcium	149.9	2.50						157.1	4.58 10
Chromium	0.004771	0.0200						0.000102	0 10 J
Iron	3.088	1.00						3.166	2.48 10
Lead	U	0.0100						0.000113	0 10
Magnesium	13.7	1.00						14.15	3.12 10
Manganese	0.6354	0.0250						0.6235	1.9 10
Potassium	2.243	1.00						2.323	3.47 10
Selenium	U	0.0100						0.000269	0 10
Silver	U	0.0100						0.000002	0 10
Sodium	74.46	1.00						75.1	0.856 10
Zinc	U	0.0200						0.002329	0 10

SD	Sample ID:	HS23011436-01SD		Units: mg/L		Analysis Date: 13-Feb-2023 12:54			
Client ID:		Run ID: ICPMS06_427871		SeqNo: 7120801		PrepDate: 10-Feb-2023		DF: 100	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Strontium		1.837	0.500					1.771	3.76 10

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427341 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230203			Units: ug/L		Analysis Date: 04-Feb-2023 08:15			
Client ID:		Run ID: VOA7_427341		SeqNo: 7109149	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	1.0							
Ethylbenzene	U	1.0							
m,p-Xylene	U	2.0							
o-Xylene	U	1.0							
Toluene	U	1.0							
Xylenes, Total	U	1.0							
Surr: 1,2-Dichloroethane-d4	49.88	1.0	50	0	99.8	70 - 123			
Surr: 4-Bromofluorobenzene	45.87	1.0	50	0	91.7	77 - 113			
Surr: Dibromofluoromethane	48.11	1.0	50	0	96.2	73 - 126			
Surr: Toluene-d8	54.63	1.0	50	0	109	81 - 120			
LCS	Sample ID: VLCSW-230203			Units: ug/L		Analysis Date: 04-Feb-2023 07:32			
Client ID:		Run ID: VOA7_427341		SeqNo: 7109148	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.57	1.0	20	0	92.8	74 - 120			
Ethylbenzene	21.38	1.0	20	0	107	77 - 117			
m,p-Xylene	41.65	2.0	40	0	104	77 - 122			
o-Xylene	20.89	1.0	20	0	104	75 - 119			
Toluene	20.44	1.0	20	0	102	77 - 118			
Xylenes, Total	62.54	1.0	60	0	104	75 - 122			
Surr: 1,2-Dichloroethane-d4	48.57	1.0	50	0	97.1	70 - 123			
Surr: 4-Bromofluorobenzene	46.64	1.0	50	0	93.3	77 - 113			
Surr: Dibromofluoromethane	47.35	1.0	50	0	94.7	73 - 126			
Surr: Toluene-d8	53.87	1.0	50	0	108	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427341 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23011585-01MS			Units: ug/L		Analysis Date: 04-Feb-2023 15:54		
Client ID:		Run ID: VOA7_427341		SeqNo: 7109170	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	50.95	1.0	20	30.82	101	70 - 127		
Ethylbenzene	21.22	1.0	20	0	106	70 - 124		
m,p-Xylene	41.83	2.0	40	0	105	70 - 130		
o-Xylene	20.88	1.0	20	0	104	70 - 124		
Toluene	20.84	1.0	20	0	104	70 - 123		
Xylenes, Total	62.71	1.0	60	0	105	70 - 130		
Surr: 1,2-Dichloroethane-d4	51.08	1.0	50	0	102	70 - 126		
Surr: 4-Bromofluorobenzene	46.42	1.0	50	0	92.8	77 - 113		
Surr: Dibromofluoromethane	48.04	1.0	50	0	96.1	77 - 123		
Surr: Toluene-d8	53.73	1.0	50	0	107	82 - 127		
MSD	Sample ID: HS23011585-01MSD			Units: ug/L		Analysis Date: 04-Feb-2023 16:16		
Client ID:		Run ID: VOA7_427341		SeqNo: 7109171	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	46.18	1.0	20	30.82	76.8	70 - 127	50.95	9.82 20
Ethylbenzene	19.32	1.0	20	0	96.6	70 - 124	21.22	9.35 20
m,p-Xylene	38.26	2.0	40	0	95.7	70 - 130	41.83	8.92 20
o-Xylene	19.15	1.0	20	0	95.8	70 - 124	20.88	8.63 20
Toluene	19.28	1.0	20	0	96.4	70 - 123	20.84	7.77 20
Xylenes, Total	57.41	1.0	60	0	95.7	70 - 130	62.71	8.82 20
Surr: 1,2-Dichloroethane-d4	50.04	1.0	50	0	100	70 - 126	51.08	2.05 20
Surr: 4-Bromofluorobenzene	46.89	1.0	50	0	93.8	77 - 113	46.42	1.01 20
Surr: Dibromofluoromethane	47.46	1.0	50	0	94.9	77 - 123	48.04	1.21 20
Surr: Toluene-d8	53.83	1.0	50	0	108	82 - 127	53.73	0.195 20

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427230 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R427230	Units:	mg/L	Analysis Date: 03-Feb-2023 11:23			
Client ID:		Run ID: WetChem_HS_427230 SeqNo: 7106163	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 1.00

LCS	Sample ID:	LCS-R427230	Units:	mg/L	Analysis Date: 03-Feb-2023 11:23			
Client ID:		Run ID: WetChem_HS_427230 SeqNo: 7106162	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.12 1.00 25 0 88.5 85 - 115

LCSD	Sample ID:	LCSD-R427230	Units:	mg/L	Analysis Date: 03-Feb-2023 11:23			
Client ID:		Run ID: WetChem_HS_427230 SeqNo: 7106161	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.32 1.00 25 0 89.3 85 - 115 22.12 0.9 20

MS	Sample ID:	HS23011590-04MS	Units:	mg/L	Analysis Date: 03-Feb-2023 11:23			
Client ID:		Run ID: WetChem_HS_427230 SeqNo: 7106164	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.32 1.00 25 -1.48 95.2 80 - 120

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427370 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-02032023	Units:	mg/L	Analysis Date: 03-Feb-2023 16:00		
Client ID:		Run ID:	Balance1_427370	SeqNo: 7109836	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-02032023	Units:	mg/L	Analysis Date: 03-Feb-2023 16:00		
Client ID:		Run ID:	Balance1_427370	SeqNo: 7109835	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1072 10.0 1000 0 107 85 - 115

DUP	Sample ID:	HS23020011-02DUP	Units:	mg/L	Analysis Date: 03-Feb-2023 16:00		
Client ID:		Run ID:	Balance1_427370	SeqNo: 7109824	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1348 10.0 1352 0.296 5

DUP	Sample ID:	HS23011621-03DUP	Units:	mg/L	Analysis Date: 03-Feb-2023 16:00		
Client ID:	CP BS 3	Run ID:	Balance1_427370	SeqNo: 7109821	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 940 10.0 892 5.24 5 R

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427809 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R427809		Units: mg/L		Analysis Date: 10-Feb-2023 12:49			
Client ID:		Run ID:	Skalar 03_427809	SeqNo:	7119408	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U		5.00					
Alkalinity, Carbonate (As CaCO3)		U		5.00					

LCS		Sample ID: LCS-R427809		Units: mg/L		Analysis Date: 10-Feb-2023 12:49			
Client ID:		Run ID:	Skalar 03_427809	SeqNo:	7119407	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		1005	5.00	1000	0	101	85 - 115		

LCSD		Sample ID: LCSD-R427809		Units: mg/L		Analysis Date: 10-Feb-2023 12:49			
Client ID:		Run ID:	Skalar 03_427809	SeqNo:	7119406	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		1030	5.00	1000	0	103	85 - 115	1005	2.42 20

DUP		Sample ID: HS23011590-04DUP		Units: mg/L		Analysis Date: 10-Feb-2023 12:49			
Client ID:		Run ID:	Skalar 03_427809	SeqNo:	7119409	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		814.7	5.00					788.4	3.28 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427869 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MLBK	Sample ID:	MLBK-R427869	Units:	mg/L	Analysis Date: 03-Feb-2023 12:28			
Client ID:	Run ID:	WetChem_HS_427869	SeqNo:	7120729	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	U	1.00						

LCS	Sample ID:	LCS-R427869	Units:	mg/L	Analysis Date: 03-Feb-2023 12:28			
Client ID:	Run ID:	WetChem_HS_427869	SeqNo:	7120728	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.5	1.00	25	0	94.0	80 - 120		

LCSD	Sample ID:	LCSD-R427869	Units:	mg/L	Analysis Date: 03-Feb-2023 12:28			
Client ID:	Run ID:	WetChem_HS_427869	SeqNo:	7120727	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.72	1.00	25	0	94.9	80 - 120	23.5	0.9 20

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

QC BATCH REPORT

Batch ID: R427935 (0) **Instrument:** ICS-Integriion **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 14-Feb-2023 01:14			
Client ID:		Run ID: ICS-Integriion_427935		SeqNo: 7122262		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		U		0.100					
Chloride		U		0.500					
Sulfate		U		0.500					

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 14-Feb-2023 01:26			
Client ID:		Run ID: ICS-Integriion_427935		SeqNo: 7122263		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		3.978	0.100	4	0	99.4	80 - 120		
Chloride		19.91	0.500	20	0	99.6	80 - 120		
Sulfate		20.19	0.500	20	0	101	80 - 120		

MS		Sample ID: HS23011621-01MS		Units: mg/L		Analysis Date: 14-Feb-2023 01:38			
Client ID: CP BS 1		Run ID: ICS-Integriion_427935		SeqNo: 7122265		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		0.9198	0.100	2	0	46.0	80 - 120		S
Chloride		305.8	0.500	10	305.5	3.03	80 - 120		SEO
Sulfate		117.6	0.500	10	113.1	45.5	80 - 120		SEO

MSD		Sample ID: HS23011621-01MSD		Units: mg/L		Analysis Date: 14-Feb-2023 01:43			
Client ID: CP BS 1		Run ID: ICS-Integriion_427935		SeqNo: 7122266		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		0.9352	0.100	2	0	46.8	80 - 120	0.9198	1.66 20 S
Chloride		305.5	0.500	10	305.5	0.190	80 - 120	305.8	0.0929 20 SEO
Sulfate		117.5	0.500	10	113.1	44.5	80 - 120	117.6	0.0875 20 SEO

The following samples were analyzed in this batch: HS23011621-01 HS23011621-02 HS23011621-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23011621

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23011621
Client Name: ERMSW-HOU

Date/Time Received: 30-Jan-2023 16:00
Received by: Paul Matta

Completed By: /S/ Corey Grandits

eSignature

31-Jan-2023 15:34

Date/Time

Reviewed by: /S/ Tyler Monroe

eSignature

01-Feb-2023 09:24

Date/Time

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes

No

Not Present

Custody seals intact on shipping container/cooler?

Yes

No

Not Present

Custody seals intact on sample bottles?

Yes

No

Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes

No

Not Present

Chain of custody present?

Yes

No

1 Page(s)

Chain of custody signed when relinquished and received?

Yes

No

COC IDs:288554

Samplers name present on COC?

Yes

No

Chain of custody agrees with sample labels?

Yes

No

Samples in proper container/bottle?

Yes

No

Sample containers intact?

Yes

No

Sufficient sample volume for indicated test?

Yes

No

All samples received within holding time?

Yes

No

Container/Temp Blank temperature in compliance?

Yes

No

Temperature(s)/Thermometer(s):

1.5UC/1.0C

|IR31

Cooler(s)/Kit(s):

47598

Date/Time sample(s) sent to storage:

1/31/23

Water - VOA vials have zero headspace?

Yes

No

No VOA vials submitted

Water - pH acceptable upon receipt?

Yes

No

N/A

pH adjusted?

Yes

No

N/A

pH adjusted by:

--	--	--

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

--

Corrective Action:

--



Cincinnati, OH

+1 513 733 5336

Fort Collins, CO

+1 970 490 1511

Everett, WA

+1 425 356 2600

Holland, MI

+1 616 399 6070

Chain of Custody Form

Page of

Houston, TX

+1 281 530 5656

Spring City, PA

+1 610 948 4903

South Charleston, WV

+1 304 356 3168

Middletown, PA

+1 717 944 5541

Salt Lake City, UT

+1 801 266 7700

York, PA

+1 717 505 5280

COC ID: 288554

Customer Information		Project Information			Parameter/Method Request for Analysis												
Purchase Order	0677804	Project Name	Sulphur Dome			A	8260_LL_W (Low Level VOC (8260) BTEX)										
Work Order		Project Number				B	MA EPH_W_La (MA EPH)										
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.			C	MA VPH_LA_W (MA VPH)										
Send Report To	Scott Himes	Invoice Attn	Accounts Payable			D	9056_anions_W (Cl,SO4,Br)										
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four			E	ALK_W 2320B (carb, bicarb)										
			840 W. Sam Houston Pkwy., Suite 6			F	H2S_W (H2S)										
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024			G	HG_W (Mercury)										
Phone	(281) 600-1000	Phone	(281) 600-1000			H	ICP_TW (As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)										
Fax	(281) 600-1001	Fax	(281) 600-1001			I	SULFD_4500S F (Sulfide)										
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com			J	TDS_W 2540C (TDS)										
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	CP BS 1	1/30/23	1100	W		12	X	X	X	X	X	X	X	X	X	X	
2	CP BS 2		1130														
3	CP BS 3		1230														
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign

Scott Himes

Shipment Method

Drop off

Required Turnaround Time: (Check Box)

 STD 10 Wk Days 5 Wk Days 3 Wk Days 24 Hour

Results Due Date:

Relinquished by:

Date: *1/30/23*Time: *1600*

Received by:

Notes: ERM Sulphur Dome

Relinquished by:

Date: *1/30/23*Time: *1600*Received by (Laboratory): *Scott*Cooler ID: *475A8*Cooler Temp: *-15*

QC Package: (Check One Box Below)

 Level II Std QC Level III Std QC/Raw Data Level IV SW846/CLP Other TRRP Checklist TRRP Level IV

Logged by (Laboratory):

Date: *1/30/23*Time: *1600*Checked by (Laboratory): *Scott*

475A8

-15

475R31

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

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February 24, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23020536**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 2 sample(s) on Feb 10, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads 'Bernadette Fini'.

Generated By: DAYNA.FISHER

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020536

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23020536-01	1101529-BS	Water		10-Feb-2023 11:20	10-Feb-2023 16:30	<input type="checkbox"/>
HS23020536-02	Brine Pond 4	Water		10-Feb-2023 12:15	10-Feb-2023 16:30	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020536

CASE NARRATIVE**GC Semivolatiles by Method MA EPH****Batch ID: 189815**

Sample ID: HS23020462-07MS

- MS and MSD are for an unrelated sample

GC Volatiles by Method MA VPH**Batch ID: R428336,R428350**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R428439**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 190037**

Sample ID: HS23020553-04MS

- MS and MSD are for an unrelated sample

Metals by Method SW7470A**Batch ID: 189919**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056**Batch ID: R428633**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R428518

Sample ID: 1101529-BS (HS23020536-01MS/MSD)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Sulfate)
- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Bromide)

WetChemistry by Method SM2320B**Batch ID: R428629**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020536

CASE NARRATIVE**WetChemistry by Method E376.1****Batch ID: R428412**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540C**Batch ID: R428243**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F**Batch ID: R428053**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 1101529-BS
 Collection Date: 10-Feb-2023 11:20

ANALYTICAL REPORT
 WorkOrder:HS23020536
 Lab ID:HS23020536-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	21-Feb-2023 02:03
Ethylbenzene	U		0.30	1.0	ug/L	1	21-Feb-2023 02:03
m,p-Xylene	U		0.50	2.0	ug/L	1	21-Feb-2023 02:03
o-Xylene	U		0.30	1.0	ug/L	1	21-Feb-2023 02:03
Toluene	U		0.20	1.0	ug/L	1	21-Feb-2023 02:03
Xylenes, Total	U		0.30	1.0	ug/L	1	21-Feb-2023 02:03
<i>Surr: 1,2-Dichloroethane-d4</i>	81.9			70-126	%REC	1	21-Feb-2023 02:03
<i>Surr: 4-Bromofluorobenzene</i>	88.7			77-113	%REC	1	21-Feb-2023 02:03
<i>Surr: Dibromofluoromethane</i>	94.0			77-123	%REC	1	21-Feb-2023 02:03
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	21-Feb-2023 02:03
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:20
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:20
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:20
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	108			70-130	%REC	1	18-Feb-2023 02:20
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	114			70-130	%REC	1	18-Feb-2023 02:20
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Feb-2023 10:57
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	23-Feb-2023 10:57
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	23-Feb-2023 10:57
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Feb-2023 09:22
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	23-Feb-2023 09:22
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	23-Feb-2023 09:22
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	23-Feb-2023 09:22
<i>Surr: 1-Chlorooctadecane</i>	73.6			40-140	%REC	1	23-Feb-2023 10:57
<i>Surr: 2-Bromonaphthalene</i>	77.6			40-140	%REC	1	23-Feb-2023 09:22
<i>Surr: 2-Fluorobiphenyl</i>	49.2			40-140	%REC	1	23-Feb-2023 09:22
<i>Surr: o-Terphenyl</i>	92.0			40-140	%REC	1	23-Feb-2023 09:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 1101529-BS
 Collection Date: 10-Feb-2023 11:20

ANALYTICAL REPORT

WorkOrder:HS23020536
 Lab ID:HS23020536-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 23-Feb-2023			Analyst: MSC
Arsenic	0.000896	J	0.000400	0.00200	mg/L	1	24-Feb-2023 16:12
Barium	0.0594		0.00190	0.00400	mg/L	1	24-Feb-2023 16:12
Cadmium	U		0.000200	0.00200	mg/L	1	24-Feb-2023 16:12
Calcium	55.8		0.0340	0.500	mg/L	1	24-Feb-2023 16:12
Chromium	U		0.000400	0.00400	mg/L	1	24-Feb-2023 16:12
Iron	0.0432	J	0.0120	0.200	mg/L	1	24-Feb-2023 16:12
Lead	U		0.000600	0.00200	mg/L	1	24-Feb-2023 16:12
Magnesium	5.64		0.0100	0.200	mg/L	1	24-Feb-2023 16:12
Manganese	0.0295		0.000700	0.00500	mg/L	1	24-Feb-2023 16:12
Potassium	2.44		0.0180	0.200	mg/L	1	24-Feb-2023 16:12
Selenium	U		0.00110	0.00200	mg/L	1	24-Feb-2023 16:12
Silver	U		0.000200	0.00200	mg/L	1	24-Feb-2023 16:12
Sodium	37.6		0.0140	0.200	mg/L	1	24-Feb-2023 16:12
Strontium	0.237		0.000200	0.00500	mg/L	1	24-Feb-2023 16:12
Zinc	0.00654		0.00200	0.00400	mg/L	1	24-Feb-2023 16:12
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 21-Feb-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	21-Feb-2023 14:12
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	23.9		0.500	1.00	mg/L	1	15-Feb-2023 15:48
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	412		5.00	10.0	mg/L	1	16-Feb-2023 11:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	107		5.00	5.00	mg/L	1	22-Feb-2023 16:01
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	22-Feb-2023 16:01
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	15-Feb-2023 15:16
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	21-Feb-2023 16:19
Chloride	47.0		0.200	0.500	mg/L	1	21-Feb-2023 16:19
Sulfate	133		1.00	2.50	mg/L	5	22-Feb-2023 18:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Pond 4
 Collection Date: 10-Feb-2023 12:15

ANALYTICAL REPORT

WorkOrder:HS23020536
 Lab ID:HS23020536-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	21-Feb-2023 02:25
Ethylbenzene	U		0.30	1.0	ug/L	1	21-Feb-2023 02:25
m,p-Xylene	U		0.50	2.0	ug/L	1	21-Feb-2023 02:25
o-Xylene	U		0.30	1.0	ug/L	1	21-Feb-2023 02:25
Toluene	U		0.20	1.0	ug/L	1	21-Feb-2023 02:25
Xylenes, Total	U		0.30	1.0	ug/L	1	21-Feb-2023 02:25
<i>Surr: 1,2-Dichloroethane-d4</i>	85.8			70-126	%REC	1	21-Feb-2023 02:25
<i>Surr: 4-Bromofluorobenzene</i>	88.8			77-113	%REC	1	21-Feb-2023 02:25
<i>Surr: Dibromofluoromethane</i>	94.4			77-123	%REC	1	21-Feb-2023 02:25
<i>Surr: Toluene-d8</i>	98.8			82-127	%REC	1	21-Feb-2023 02:25
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:58
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:58
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	18-Feb-2023 02:58
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	111			70-130	%REC	1	18-Feb-2023 02:58
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	113			70-130	%REC	1	18-Feb-2023 02:58
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Feb-2023 11:29
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	23-Feb-2023 11:29
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	23-Feb-2023 11:29
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Feb-2023 09:54
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	23-Feb-2023 09:54
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	23-Feb-2023 09:54
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	23-Feb-2023 09:54
<i>Surr: 1-Chlorooctadecane</i>	84.9			40-140	%REC	1	23-Feb-2023 11:29
<i>Surr: 2-Bromonaphthalene</i>	88.8			40-140	%REC	1	23-Feb-2023 09:54
<i>Surr: 2-Fluorobiphenyl</i>	41.8			40-140	%REC	1	23-Feb-2023 09:54
<i>Surr: o-Terphenyl</i>	83.5			40-140	%REC	1	23-Feb-2023 09:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Pond 4
 Collection Date: 10-Feb-2023 12:15

ANALYTICAL REPORT

WorkOrder:HS23020536
 Lab ID:HS23020536-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 23-Feb-2023			Analyst: MSC
Arsenic	0.00176	J	0.000400	0.00200	mg/L	1	24-Feb-2023 16:14
Barium	0.118		0.00190	0.00400	mg/L	1	24-Feb-2023 16:14
Cadmium	U		0.000200	0.00200	mg/L	1	24-Feb-2023 16:14
Calcium	38.6		0.0340	0.500	mg/L	1	24-Feb-2023 16:14
Chromium	U		0.000400	0.00400	mg/L	1	24-Feb-2023 16:14
Iron	0.609		0.0120	0.200	mg/L	1	24-Feb-2023 16:14
Lead	U		0.000600	0.00200	mg/L	1	24-Feb-2023 16:14
Magnesium	4.20		0.0100	0.200	mg/L	1	24-Feb-2023 16:14
Manganese	0.204		0.000700	0.00500	mg/L	1	24-Feb-2023 16:14
Potassium	1.17		0.0180	0.200	mg/L	1	24-Feb-2023 16:14
Selenium	U		0.00110	0.00200	mg/L	1	24-Feb-2023 16:14
Silver	U		0.000200	0.00200	mg/L	1	24-Feb-2023 16:14
Sodium	64.6		0.0140	0.200	mg/L	1	24-Feb-2023 16:14
Strontium	0.243		0.000200	0.00500	mg/L	1	24-Feb-2023 16:14
Zinc	0.00496		0.00200	0.00400	mg/L	1	24-Feb-2023 16:14
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 21-Feb-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	21-Feb-2023 14:14
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	15-Feb-2023 15:48
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	290		5.00	10.0	mg/L	1	16-Feb-2023 11:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	163		5.00	5.00	mg/L	1	22-Feb-2023 16:01
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	22-Feb-2023 16:01
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	15-Feb-2023 15:16
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	21-Feb-2023 16:36
Chloride	95.8		0.200	0.500	mg/L	1	21-Feb-2023 16:36
Sulfate	16.5		0.200	0.500	mg/L	1	21-Feb-2023 16:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23020536**Batch ID:** 189815**Start Date:** 17 Feb 2023 06:30**End Date:** 17 Feb 2023 10:30**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020536-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23020536-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 189919**Start Date:** 21 Feb 2023 07:00**End Date:** 21 Feb 2023 15:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020536-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23020536-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 190037**Start Date:** 23 Feb 2023 14:00**End Date:** 23 Feb 2023 18:00**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020536-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23020536-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 189815 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20		17 Feb 2023 12:42	23 Feb 2023 10:57	1
HS23020536-01	1101529-BS	10 Feb 2023 11:20		17 Feb 2023 12:42	23 Feb 2023 09:22	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15		17 Feb 2023 12:42	23 Feb 2023 11:29	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15		17 Feb 2023 12:42	23 Feb 2023 09:54	1
Batch ID: 189919 (0)		Test Name : MERCURY BY SW7470A				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20		21 Feb 2023 07:00	21 Feb 2023 14:12	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15		21 Feb 2023 07:00	21 Feb 2023 14:14	1
Batch ID: 190037 (0)		Test Name : ICP-MS METALS BY SW6020A				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20		23 Feb 2023 14:00	24 Feb 2023 16:12	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15		23 Feb 2023 14:00	24 Feb 2023 16:14	1
Batch ID: R428053 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			15 Feb 2023 15:16	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			15 Feb 2023 15:16	1
Batch ID: R428243 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			16 Feb 2023 11:30	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			16 Feb 2023 11:30	1
Batch ID: R428336 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			18 Feb 2023 02:20	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			18 Feb 2023 02:58	1
Batch ID: R428350 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			18 Feb 2023 02:20	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			18 Feb 2023 02:58	1
Batch ID: R428412 (0)		Test Name : HYDROGEN SULFIDE BY E376.1				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			15 Feb 2023 15:48	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			15 Feb 2023 15:48	1
Batch ID: R428439 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			21 Feb 2023 02:03	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			21 Feb 2023 02:25	1
Batch ID: R428518 (0)		Test Name : ANIONS BY SW9056A				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			21 Feb 2023 16:19	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			21 Feb 2023 16:36	1
Batch ID: R428629 (0)		Test Name : ALKALINITY BY SM 2320B-2011				Matrix: Water
HS23020536-01	1101529-BS	10 Feb 2023 11:20			22 Feb 2023 16:01	1
HS23020536-02	Brine Pond 4	10 Feb 2023 12:15			22 Feb 2023 16:01	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R428633 (0)		Test Name : ANIONS BY SW9056A				
HS23020536-01	1101529-BS	10 Feb 2023 11:20			22 Feb 2023 18:11	5

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 189815 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK		Sample ID: MBLK-189815		Units: mg/L		Analysis Date: 22-Feb-2023 21:48			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141475		PrepDate: 17-Feb-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		U	0.00100						
Aliphatics >C12 - C16		U	0.00200						
Aliphatics >C16 - C35		U	0.00800						
Surr: 1-Chlorooctadecane		0.03449	0	0.04	0	86.2	40 - 140		

MLBK		Sample ID: MBLK-189815		Units: mg/L		Analysis Date: 22-Feb-2023 20:13			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141873		PrepDate: 17-Feb-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		U	0.00100						
Aromatics >C12 - C16		U	0.00400						
Aromatics >C16 - C21		U	0.00300						
Aromatics >C21 - C35		U	0.00900						
Surr: 2-Bromonaphthalene		0.03991	0	0.04	0	99.8	40 - 140		
Surr: 2-Fluorobiphenyl		0.02977	0	0.04	0	74.4	40 - 140		
Surr: o-Terphenyl		0.03312	0	0.04	0	82.8	40 - 140		

LCS		Sample ID: LCS-189815		Units: mg/L		Analysis Date: 22-Feb-2023 22:19			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141565		PrepDate: 17-Feb-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05934	0.00100	0.05	0	119	40 - 140		
Aliphatics >C12 - C16		0.1206	0.00200	0.1	0	121	40 - 140		
Aliphatics >C16 - C35		0.4431	0.00800	0.4	0	111	40 - 140		
Surr: 1-Chlorooctadecane		0.03511	0	0.04	0	87.8	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 189815 (0)		Instrument: FID-7		Method: MASSACHUSETTS EPH R2.1, DEC 2019						
LCS	Sample ID: LCS-189815				Units: mg/L		Analysis Date: 22-Feb-2023 20:45			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141912		PrepDate: 17-Feb-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12	0.02758	0.00100	0.05	0	55.2	40 - 140				
Aromatics >C12 - C16	0.1217	0.00400	0.2	0	60.9	40 - 140				
Aromatics >C16 - C21	0.1203	0.00300	0.15	0	80.2	40 - 140				
Aromatics >C21 - C35	0.3644	0.00900	0.45	0	81.0	40 - 140				
Surr: 2-Bromonaphthalene	0.02525	0	0.04	0	63.1	40 - 140				
Surr: 2-Fluorobiphenyl	0.0181	0	0.04	0	45.3	40 - 140				
Surr: o-Terphenyl	0.03127	0	0.04	0	78.2	40 - 140				
MS	Sample ID: HS23020462-07MS				Units: mg/L		Analysis Date: 23-Feb-2023 07:48			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141493		PrepDate: 17-Feb-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12	0.08298	0.00100	0.05	0.02385	118	40 - 140				
Aliphatics >C12 - C16	0.1636	0.00200	0.1	0.0318	132	40 - 140				
Aliphatics >C16 - C35	0.5997	0.00800	0.4	0.07777	130	40 - 140				
Surr: 1-Chlorooctadecane	0.04577	0	0.04	0	114	40 - 140				
MS	Sample ID: HS23020460-05MS				Units: mg/L		Analysis Date: 23-Feb-2023 00:26			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141480		PrepDate: 17-Feb-2023		DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12	0.04942	0.00100	0.05	0	98.8	40 - 140				
Aliphatics >C12 - C16	0.09136	0.00200	0.1	0	91.4	40 - 140				
Aliphatics >C16 - C35	0.4332	0.00800	0.4	0	108	40 - 140				
Surr: 1-Chlorooctadecane	0.03433	0	0.04	0	85.8	40 - 140				

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 189815 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MS	Sample ID:	HS23020462-07MS		Units: mg/L		Analysis Date: 23-Feb-2023 06:13			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141891		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.06794	0.00100	0.05	0.06802	-0.174	40 - 140		S
Aromatics >C12 - C16		0.4795	0.00400	0.2	0.4939	-7.17	40 - 140		S
Aromatics >C16 - C21		0.3549	0.00300	0.15	0.3546	0.209	40 - 140		S
Aromatics >C21 - C35		0.5091	0.00900	0.45	0.1494	79.9	40 - 140		
<i>Surr:</i> 2-Bromonaphthalene		0.04637	0	0.04	0	116	40 - 140		
<i>Surr:</i> 2-Fluorobiphenyl		0.02637	0	0.04	0	65.9	40 - 140		
<i>Surr:</i> o-Terphenyl		0.04581	0	0.04	0	115	40 - 140		

MS	Sample ID:	HS23020460-05MS		Units: mg/L		Analysis Date: 22-Feb-2023 22:51			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141878		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.04292	0.00100	0.05	0	85.8	40 - 140		
Aromatics >C12 - C16		0.1861	0.00400	0.2	0	93.0	40 - 140		
Aromatics >C16 - C21		0.1547	0.00300	0.15	0	103	40 - 140		
Aromatics >C21 - C35		0.3983	0.00900	0.45	0	88.5	40 - 140		
<i>Surr:</i> 2-Bromonaphthalene		0.03951	0	0.04	0	98.8	40 - 140		
<i>Surr:</i> 2-Fluorobiphenyl		0.0216	0	0.04	0	54.0	40 - 140		
<i>Surr:</i> o-Terphenyl		0.03756	0	0.04	0	93.9	40 - 140		

MSD	Sample ID:	HS23020462-07MSD		Units: mg/L		Analysis Date: 23-Feb-2023 08:19			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141494		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.07977	0.00100	0.05	0.02385	112	40 - 140	0.08298	3.95 50
Aliphatics >C12 - C16		0.1505	0.00200	0.1	0.0318	119	40 - 140	0.1636	8.38 50
Aliphatics >C16 - C35		0.6067	0.00800	0.4	0.07777	132	40 - 140	0.5997	1.15 50
<i>Surr:</i> 1-Chlorooctadecane		0.04192	0	0.04	0	105	40 - 140	0.04577	8.79 50

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 189815 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23020460-05MSD		Units: mg/L		Analysis Date: 23-Feb-2023 00:58			
Client ID:		Run ID: FID-7_428624		SeqNo: 7141481		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05905	0.00100	0.05	0	118	40 - 140	0.04942	17.8 50
Aliphatics >C12 - C16		0.1138	0.00200	0.1	0	114	40 - 140	0.09136	21.8 50
Aliphatics >C16 - C35		0.4591	0.00800	0.4	0	115	40 - 140	0.4332	5.81 50
Surr: 1-Chlorooctadecane		0.03711	0	0.04	0	92.8	40 - 140	0.03433	7.77 50

MSD	Sample ID:	HS23020462-07MSD		Units: mg/L		Analysis Date: 23-Feb-2023 06:44			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141892		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.1033	0.00100	0.05	0.06802	70.6	40 - 140	0.06794	41.3 50
Aromatics >C12 - C16		0.6643	0.00400	0.2	0.4939	85.2	40 - 140	0.4795	32.3 50
Aromatics >C16 - C21		0.4958	0.00300	0.15	0.3546	94.1	40 - 140	0.3549	33.1 50
Aromatics >C21 - C35		0.6053	0.00900	0.45	0.1494	101	40 - 140	0.5091	17.3 50
Surr: 2-Bromonaphthalene		0.06179	0	0.04	0	154	40 - 140	0.04637	28.5 50
Surr: 2-Fluorobiphenyl		0.03632	0	0.04	0	90.8	40 - 140	0.02637	31.7 50
Surr: o-Terphenyl		0.05512	0	0.04	0	138	40 - 140	0.04581	18.4 50

MSD	Sample ID:	HS23020460-05MSD		Units: mg/L		Analysis Date: 22-Feb-2023 23:23			
Client ID:		Run ID: FID-8_428640		SeqNo: 7141879		PrepDate: 17-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.03769	0.00100	0.05	0	75.4	40 - 140	0.04292	13 50
Aromatics >C12 - C16		0.1795	0.00400	0.2	0	89.7	40 - 140	0.1861	3.61 50
Aromatics >C16 - C21		0.1723	0.00300	0.15	0	115	40 - 140	0.1547	10.7 50
Aromatics >C21 - C35		0.4704	0.00900	0.45	0	105	40 - 140	0.3983	16.6 50
Surr: 2-Bromonaphthalene		0.03696	0	0.04	0	92.4	40 - 140	0.03951	6.65 50
Surr: 2-Fluorobiphenyl		0.01608	0	0.04	0	40.2	40 - 140	0.0216	29.3 50
Surr: o-Terphenyl		0.04245	0	0.04	0	106	40 - 140	0.03756	12.2 50

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428336 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1			
MLBK Sample ID: MBLK-230217		Units: mg/L				Analysis Date: 17-Feb-2023 15:30	
Client ID:		Run ID:	FID-14_428336	SeqNo: 7135091	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100					
Aliphatics >C8 - C10	U	0.0100					
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2731	0.0100	0.25	0	109	70 - 130	
LCS Sample ID: LCS-230217		Units: mg/L				Analysis Date: 17-Feb-2023 14:52	
Client ID:		Run ID:	FID-14_428336	SeqNo: 7135090	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.02124	0.0100	0.025	0	84.9	70 - 130	
Aliphatics >C8 - C10	0.02062	0.0100	0.025	0	82.5	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2743	0.0100	0.25	0	110	70 - 130	
MS Sample ID: HS23020555-04MS		Units: mg/L				Analysis Date: 17-Feb-2023 17:25	
Client ID:		Run ID:	FID-14_428336	SeqNo: 7135094	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.02348	0.0100	0.025	0	93.9	70 - 130	
Aliphatics >C8 - C10	0.02156	0.0100	0.025	0	86.2	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2748	0.0100	0.25	0	110	70 - 130	
MS Sample ID: HS23020462-07MS		Units: mg/L				Analysis Date: 17-Feb-2023 19:20	
Client ID:		Run ID:	FID-14_428336	SeqNo: 7135162	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Aliphatics >C6 - C8	0.04418	0.0100	0.025	0.02365	82.1	70 - 130	
Aliphatics >C8 - C10	0.04355	0.0100	0.025	0.02066	91.6	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2778	0.0100	0.25	0	111	70 - 130	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428336 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MSD	Sample ID: HS23020555-04MSD	Units: mg/L			Analysis Date: 17-Feb-2023 18:03				
Client ID:	Run ID: FID-14_428336	SeqNo: 7135095		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02232	0.0100	0.025	0	89.3	70 - 130	0.02348	5.03	25
Aliphatics >C8 - C10	0.02116	0.0100	0.025	0	84.6	70 - 130	0.02156	1.87	25
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	0.2774	0.0100	0.25	0	111	70 - 130	0.2748	0.949	25

MSD	Sample ID: HS23020462-07MSD	Units: mg/L			Analysis Date: 17-Feb-2023 19:58				
Client ID:	Run ID: FID-14_428336	SeqNo: 7135098		PrepDate:			DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.04461	0.0100	0.025	0.02365	83.9	70 - 130	0.04418	0.978	25
Aliphatics >C8 - C10	0.0391	0.0100	0.025	0.02066	73.8	70 - 130	0.04355	10.8	25
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	0.2727	0.0100	0.25	0	109	70 - 130	0.2778	1.86	25

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428350 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230217	Units: mg/L		Analysis Date: 17-Feb-2023 15:30	
Client ID:		Run ID: FID-15_428350	SeqNo: 7135365	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.2723	0.0100	0.25	0 109	70 - 130
LCS	Sample ID: LCS-230217	Units: mg/L		Analysis Date: 17-Feb-2023 14:52	
Client ID:		Run ID: FID-15_428350	SeqNo: 7135364	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08705	0.0100	0.1	0 87.1	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.274	0.0100	0.25	0 110	70 - 130
MS	Sample ID: HS23020555-04MS	Units: mg/L		Analysis Date: 17-Feb-2023 17:25	
Client ID:		Run ID: FID-15_428350	SeqNo: 7135368	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08842	0.0100	0.1	0 88.4	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2766	0.0100	0.25	0 111	70 - 130
MS	Sample ID: HS23020462-07MS	Units: mg/L		Analysis Date: 17-Feb-2023 19:20	
Client ID:		Run ID: FID-15_428350	SeqNo: 7135414	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.16118	0.0100	0.1	0.08535 76.4	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2891	0.0100	0.25	0 116	70 - 130
MSD	Sample ID: HS23020555-04MSD	Units: mg/L		Analysis Date: 17-Feb-2023 18:03	
Client ID:		Run ID: FID-15_428350	SeqNo: 7135369	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08664	0.0100	0.1	0 86.6	70 - 130 0.08842 2.04 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2766	0.0100	0.25	0 111	70 - 130 0.2766 0 25

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428350 (0) **Instrument:** FID-15 **Method:** MASSACHUSETTS VPH, FEB 2018, REV 2.1

MSD	Sample ID:	HS23020462-07MSD		Units:	mg/L		Analysis Date: 17-Feb-2023 19:58			
Client ID:		Run ID: FID-15_428350		SeqNo:	7135372	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Aromatics >C8 - C10	0.1569	0.0100	0.1	0.08535	71.5	70 - 130	0.1618	3.08	25	
Surr: 2,5-Dibromotoluene (Aromatic)	0.2891	0.0100	0.25	0	116	70 - 130	0.2891	0	25	

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 189919 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MLBK	Sample ID:	MLBK-189919	Units:	mg/L	Analysis Date: 21-Feb-2023 13:11			
Client ID:		Run ID:	HG04_428485	SeqNo:	7138543	PrepDate:	21-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-189919	Units:	mg/L	Analysis Date: 21-Feb-2023 13:15			
Client ID:		Run ID:	HG04_428485	SeqNo:	7138544	PrepDate:	21-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00495 0.000200 0.005 0 99.0 80 - 120

MS	Sample ID:	HS23020523-02MS	Units:	mg/L	Analysis Date: 21-Feb-2023 14:05			
Client ID:		Run ID:	HG04_428485	SeqNo:	7138561	PrepDate:	21-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00438 0.000200 0.005 -0.000003 87.7 75 - 125

MSD	Sample ID:	HS23020523-02MSD	Units:	mg/L	Analysis Date: 21-Feb-2023 14:07			
Client ID:		Run ID:	HG04_428485	SeqNo:	7138562	PrepDate:	21-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00506 0.000200 0.005 -0.000003 101 75 - 125 0.00438 14.4 20

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 190037 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-190037	Units:	mg/L	Analysis Date: 23-Feb-2023 23:46					
Client ID:		Run ID:	ICPMS06_428628	SeqNo: 7143682	PrepDate: 23-Feb-2023	DF: 1	SPK Ref Value	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Analyte		Result	PQL	SPK Val	%REC					
Arsenic		U 0.00200								
Barium		U 0.00400								
Cadmium		U 0.00200								
Calcium		U 0.500								
Chromium		U 0.00400								
Iron		U 0.200								
Lead		U 0.00200								
Magnesium	0.01321	0.200								J
Manganese		U 0.00500								
Potassium		U 0.200								
Selenium		U 0.00200								
Silver		U 0.00200								
Sodium		U 0.200								
Strontium		U 0.00500								
Zinc		U 0.00400								

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 190037 (0)		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A				
LCS	Sample ID: LCS-190037	Units: mg/L			Analysis Date: 23-Feb-2023 23:48			
Client ID:		Run ID: ICPMS06_428628		SeqNo: 7143683	PrepDate: 23-Feb-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.05266	0.00200	0.05	0	105	80 - 120		
Barium	0.0485	0.00400	0.05	0	97.0	80 - 120		
Cadmium	0.04978	0.00200	0.05	0	99.6	80 - 120		
Calcium	5.189	0.500	5	0	104	80 - 120		
Chromium	0.04778	0.00400	0.05	0	95.6	80 - 120		
Iron	5.089	0.200	5	0	102	80 - 120		
Lead	0.04784	0.00200	0.05	0	95.7	80 - 120		
Magnesium	5.054	0.200	5	0	101	80 - 120		
Manganese	0.0501	0.00500	0.05	0	100	80 - 120		
Potassium	5.082	0.200	5	0	102	80 - 120		
Selenium	0.05458	0.00200	0.05	0	109	80 - 120		
Silver	0.04904	0.00200	0.05	0	98.1	80 - 120		
Sodium	4.924	0.200	5	0	98.5	80 - 120		
Strontium	0.09649	0.00500	0.1	0	96.5	80 - 120		
Zinc	0.05251	0.00400	0.05	0	105	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 190037 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23020553-04MS		Units:	mg/L	Analysis Date: 23-Feb-2023 23:58			
Client ID:		Run ID: ICPMS06_428628		SeqNo:	7143688	PrepDate:	23-Feb-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05777	0.00200	0.05	0.002957	110	80 - 120		
Barium		3.387	0.00400	0.05	3.307	161	80 - 120		SEO
Cadmium		0.04702	0.00200	0.05	0.000022	94.0	80 - 120		
Calcium		1366	0.500	5	1326	812	80 - 120		SEO
Chromium		0.05241	0.00400	0.05	0.001921	101	80 - 120		
Iron		31.51	0.200	5	25.72	116	80 - 120		O
Lead		0.05278	0.00200	0.05	0.000099	105	80 - 120		
Magnesium		466.9	0.200	5	449.2	354	80 - 120		SEO
Manganese		7.423	0.00500	0.05	7.064	719	80 - 120		SEO
Potassium		44.43	0.200	5	37.63	136	80 - 120		SO
Selenium		0.05362	0.00200	0.05	0.000643	106	80 - 120		
Silver		0.04683	0.00200	0.05	0.000029	93.6	80 - 120		
Sodium		1062	0.200	5	1035	538	80 - 120		SEO
Strontium		13.92	0.00500	0.1	13.72	197	80 - 120		SEO
Zinc		0.05424	0.00400	0.05	0.006581	95.3	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 190037 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23020553-04MSD		Units:	mg/L	Analysis Date: 24-Feb-2023 00:00				
Client ID:		Run ID:	ICPMS06_428628	SeqNo:	7143689	PrepDate:	23-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.06087	0.00200	0.05	0.002957	116	80 - 120	0.05777	5.23	20
Barium		3.574	0.00400	0.05	3.307	534	80 - 120	3.387	5.36	20 SEO
Cadmium		0.04944	0.00200	0.05	0.000022	98.8	80 - 120	0.04702	5	20
Calcium		1443	0.500	5	1326	2360	80 - 120	1366	5.5	20 SEO
Chromium		0.05408	0.00400	0.05	0.001921	104	80 - 120	0.05241	3.14	20
Iron		32.97	0.200	5	25.72	145	80 - 120	31.51	4.52	20 SO
Lead		0.05481	0.00200	0.05	0.000099	109	80 - 120	0.05278	3.77	20
Magnesium		484.7	0.200	5	449.2	710	80 - 120	466.9	3.74	20 SEO
Manganese		7.749	0.00500	0.05	7.064	1370	80 - 120	7.423	4.29	20 SEO
Potassium		46.99	0.200	5	37.63	187	80 - 120	44.43	5.59	20 SO
Selenium		0.05714	0.00200	0.05	0.000643	113	80 - 120	0.05362	6.36	20
Silver		0.04908	0.00200	0.05	0.000029	98.1	80 - 120	0.04683	4.7	20
Sodium		1112	0.200	5	1035	1550	80 - 120	1062	4.65	20 SEO
Strontium		14.69	0.00500	0.1	13.72	973	80 - 120	13.92	5.43	20 SEO
Zinc		0.05668	0.00400	0.05	0.006581	100	80 - 120	0.05424	4.39	20

PDS	Sample ID:	HS23020553-04PDS		Units:	mg/L	Analysis Date: 24-Feb-2023 00:03				
Client ID:		Run ID:	ICPMS06_428628	SeqNo:	7143690	PrepDate:	23-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.1117	0.00200	0.1	0.002957	109	75 - 125			
Cadmium		0.09301	0.00200	0.1	0.000022	93.0	75 - 125			
Chromium		0.1007	0.00400	0.1	0.001921	98.8	75 - 125			
Iron		36.47	0.200	10	25.72	107	75 - 125			
Lead		0.1031	0.00200	0.1	0.000099	103	75 - 125			
Potassium		48.95	0.200	10	37.63	113	75 - 125			
Selenium		0.1069	0.00200	0.1	0.000643	106	75 - 125			
Silver		0.09095	0.00200	0.1	0.000029	90.9	75 - 125			
Zinc		0.1007	0.00400	0.1	0.006581	94.1	75 - 125			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: 190037 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23020553-04PDS		Units: mg/L		Analysis Date: 24-Feb-2023 15:23			
Client ID:		Run ID: ICPMS06_428763		SeqNo: 7145206		PrepDate: 23-Feb-2023		DF: 100	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Barium		14.97	0.400	10	3.412	116	75 - 125		
Calcium		2238	50.0	1000	1283	95.5	75 - 125		
Magnesium		1500	20.0	1000	462.7	104	75 - 125		
Manganese		16.97	0.500	10	7.271	97.0	75 - 125		
Sodium		2065	20.0	1000	1064	100	75 - 125		
Strontium		25.07	0.500	10	13.27	118	75 - 125		

SD	Sample ID:	HS23020553-04SD		Units: mg/L		Analysis Date: 23-Feb-2023 23:56			
Client ID:		Run ID: ICPMS06_428628		SeqNo: 7143687		PrepDate: 23-Feb-2023		DF: 5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Arsenic		0.005567	0.0100					0.002957	0 10 J
Cadmium		U	0.0100					0.000022	0 10
Chromium		0.01026	0.0200					0.001921	0 10 J
Iron		25.92	1.00					25.72	0.792 10
Lead		U	0.0100					0.000099	0 10
Potassium		35.84	1.00					37.63	4.73 10
Selenium		U	0.0100					0.000643	0 10
Silver		U	0.0100					0.000029	0 10
Zinc		0.01075	0.0200					0.006581	0 10 J

SD	Sample ID:	HS23020553-04SD		Units: mg/L		Analysis Date: 24-Feb-2023 15:21			
Client ID:		Run ID: ICPMS06_428763		SeqNo: 7145205		PrepDate: 23-Feb-2023		DF: 500	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Barium		3.415	2.00					3.412	0.0893 10
Calcium		1281	250					1283	0.18 10
Magnesium		478.4	100					462.7	3.38 10
Manganese		7.235	2.50					7.271	0.493 10
Sodium		1153	100					1064	8.42 10
Strontium		13.35	2.50					13.27	0.581 10

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428439 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230220			Units: ug/L		Analysis Date: 20-Feb-2023 22:08			
Client ID:		Run ID: VOA7_428439		SeqNo: 7137448	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	43.6	1.0	50	0	87.2	70 - 123			
<i>Surr: 4-Bromofluorobenzene</i>	43.34	1.0	50	0	86.7	77 - 113			
<i>Surr: Dibromofluoromethane</i>	46.55	1.0	50	0	93.1	73 - 126			
<i>Surr: Toluene-d8</i>	49.48	1.0	50	0	99.0	81 - 120			
LCS	Sample ID: VLCSW-230220			Units: ug/L	Analysis Date: 20-Feb-2023 21:25				
Client ID:		Run ID: VOA7_428439		SeqNo: 7137447	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		17.71	1.0	20	0	88.5	74 - 120		
Ethylbenzene		19.04	1.0	20	0	95.2	77 - 117		
m,p-Xylene		37.47	2.0	40	0	93.7	77 - 122		
o-Xylene		18.41	1.0	20	0	92.1	75 - 119		
Toluene		17.82	1.0	20	0	89.1	77 - 118		
Xylenes, Total		55.88	1.0	60	0	93.1	75 - 122		
<i>Surr: 1,2-Dichloroethane-d4</i>	45.13	1.0	50	0	90.3	70 - 123			
<i>Surr: 4-Bromofluorobenzene</i>	47.07	1.0	50	0	94.1	77 - 113			
<i>Surr: Dibromofluoromethane</i>	48.29	1.0	50	0	96.6	73 - 126			
<i>Surr: Toluene-d8</i>	49.1	1.0	50	0	98.2	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428439 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23020584-07MS			Units: ug/L		Analysis Date: 21-Feb-2023 05:37		
Client ID:		Run ID: VOA7_428439		SeqNo: 7137469	PrepDate:	DF: 25		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	1447	25	500	980.8	93.2	70 - 127		
Ethylbenzene	475.5	25	500	0	95.1	70 - 124		
m,p-Xylene	931.8	50	1000	0	93.2	70 - 130		
o-Xylene	468.1	25	500	0	93.6	70 - 124		
Toluene	452.6	25	500	0	90.5	70 - 123		
Xylenes, Total	1400	25	1500	0	93.3	70 - 130		
Surr: 1,2-Dichloroethane-d4	1116	25	1250	0	89.2	70 - 126		
Surr: 4-Bromofluorobenzene	1180	25	1250	0	94.4	77 - 113		
Surr: Dibromofluoromethane	1206	25	1250	0	96.5	77 - 123		
Surr: Toluene-d8	1229	25	1250	0	98.3	82 - 127		
MSD	Sample ID: HS23020584-07MSD			Units: ug/L		Analysis Date: 21-Feb-2023 05:59		
Client ID:		Run ID: VOA7_428439		SeqNo: 7137470	PrepDate:	DF: 25		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	1403	25	500	980.8	84.5	70 - 127	1447	3.03 20
Ethylbenzene	460.5	25	500	0	92.1	70 - 124	475.5	3.2 20
m,p-Xylene	906.4	50	1000	0	90.6	70 - 130	931.8	2.77 20
o-Xylene	447.9	25	500	0	89.6	70 - 124	468.1	4.41 20
Toluene	433.8	25	500	0	86.8	70 - 123	452.6	4.25 20
Xylenes, Total	1354	25	1500	0	90.3	70 - 130	1400	3.31 20
Surr: 1,2-Dichloroethane-d4	1096	25	1250	0	87.7	70 - 126	1116	1.74 20
Surr: 4-Bromofluorobenzene	1174	25	1250	0	93.9	77 - 113	1180	0.557 20
Surr: Dibromofluoromethane	1198	25	1250	0	95.8	77 - 123	1206	0.685 20
Surr: Toluene-d8	1236	25	1250	0	98.9	82 - 127	1229	0.603 20

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428053 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R428053	Units:	mg/L	Analysis Date: 15-Feb-2023 15:16			
Client ID:		Run ID: WetChem_HS_428053	SeqNo:	7125029	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 1.00

LCS	Sample ID:	LCS-R428053	Units:	mg/L	Analysis Date: 15-Feb-2023 15:16			
Client ID:		Run ID: WetChem_HS_428053	SeqNo:	7125028	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.32 1.00 25 0 89.3 85 - 115

LCSD	Sample ID:	LCSD-R428053	Units:	mg/L	Analysis Date: 15-Feb-2023 15:16			
Client ID:		Run ID: WetChem_HS_428053	SeqNo:	7125031	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.52 1.00 25 0 90.1 85 - 115 22.32 0.892 20

MS	Sample ID:	HS23020536-01MS	Units:	mg/L	Analysis Date: 15-Feb-2023 15:16			
Client ID:	1101529-BS	Run ID: WetChem_HS_428053	SeqNo:	7125030	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.52 1.00 25 -1.68 96.8 80 - 120

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428243 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-02162023	Units:	mg/L	Analysis Date: 16-Feb-2023 11:30			
Client ID:		Run ID:	Balance1_428243	SeqNo: 7133271	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-021623	Units:	mg/L	Analysis Date: 16-Feb-2023 11:30			
Client ID:		Run ID:	Balance1_428243	SeqNo: 7133270	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1060 10.0 1000 0 106 85 - 115

DUP	Sample ID:	HS23020716-01DUP	Units:	mg/L	Analysis Date: 16-Feb-2023 11:30			
Client ID:		Run ID:	Balance1_428243	SeqNo: 7133267	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 282 10.0 282 0 20

DUP	Sample ID:	HS23020536-01DUP	Units:	mg/L	Analysis Date: 16-Feb-2023 11:30			
Client ID:	1101529-BS	Run ID:	Balance1_428243	SeqNo: 7133252	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 412 10.0 412 0 20

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428412 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MLBK	Sample ID:	MLBK-R428412	Units:	mg/L	Analysis Date: 15-Feb-2023 15:48			
Client ID:	Run ID:	WetChem_HS_428412	SeqNo:	7136348	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	U	1.00						

LCS	Sample ID:	LCS-R428412	Units:	mg/L	Analysis Date: 15-Feb-2023 15:48			
Client ID:	Run ID:	WetChem_HS_428412	SeqNo:	7136347	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.72	1.00	25	0	94.9	80 - 120		

LCSD	Sample ID:	LCSD-R428412	Units:	mg/L	Analysis Date: 15-Feb-2023 15:48			
Client ID:	Run ID:	WetChem_HS_428412	SeqNo:	7136346	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.93	1.00	25	0	95.7	80 - 120	23.72	0.892 20

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428518 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 21-Feb-2023 16:01			
Client ID:		Run ID: ICS-Integrion_428518		SeqNo: 7139569		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Bromide	U	0.100							
Chloride	U	0.500							
Fluoride	U	0.100							
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 21-Feb-2023 16:13			
Client ID:		Run ID: ICS-Integrion_428518		SeqNo: 7139570		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Bromide	4.11	0.100	4	0	103	80 - 120			
Chloride	20.01	0.500	20	0	100	80 - 120			
Fluoride	4.007	0.100	4	0	100	80 - 120			
Sulfate	20.33	0.500	20	0	102	80 - 120			

MS		Sample ID: HS23020536-01MS		Units: mg/L		Analysis Date: 21-Feb-2023 16:25			
Client ID: 1101529-BS		Run ID: ICS-Integrion_428518		SeqNo: 7139572		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Bromide	0.9775	0.100	2	0	48.9	80 - 120		S	
Chloride	55.82	0.500	10	46.99	88.3	80 - 120		O	
Fluoride	1.893	0.100	2	0.0662	91.3	80 - 120			
Sulfate	140.6	0.500	10	138.6	20.0	80 - 120		SEO	

MSD		Sample ID: HS23020536-01MSD		Units: mg/L		Analysis Date: 21-Feb-2023 16:30			
Client ID: 1101529-BS		Run ID: ICS-Integrion_428518		SeqNo: 7139573		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Bromide	0.9883	0.100	2	0	49.4	80 - 120	0.9775	1.1 20 S	
Chloride	55.76	0.500	10	46.99	87.7	80 - 120	55.82	0.0968 20 O	
Fluoride	1.891	0.100	2	0.0662	91.2	80 - 120	1.893	0.132 20	
Sulfate	140.6	0.500	10	138.6	20.4	80 - 120	140.6	0.0304 20 SEO	

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428629 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R428629		Units: mg/L		Analysis Date: 22-Feb-2023 16:01			
Client ID:		Run ID:	Skalar 03_428629	SeqNo:	7141640	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00						
Alkalinity, Carbonate (As CaCO3)		U	5.00						

LCS		Sample ID: LCS-R428629		Units: mg/L		Analysis Date: 22-Feb-2023 16:01			
Client ID:		Run ID:	Skalar 03_428629	SeqNo:	7142635	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		970.4	5.00	1000	0	97.0	85 - 115		

LCSD		Sample ID: LCSD-R428629		Units: mg/L		Analysis Date: 22-Feb-2023 16:01			
Client ID:		Run ID:	Skalar 03_428629	SeqNo:	7142634	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		932.2	5.00	1000	0	93.2	85 - 115	970.4	4.02 20

DUP		Sample ID: HS23020497-01DUP		Units: mg/L		Analysis Date: 22-Feb-2023 16:01			
Client ID:		Run ID:	Skalar 03_428629	SeqNo:	7141641	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		850.3	5.00					912.6	7.07 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23020536-01 HS23020536-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

QC BATCH REPORT

Batch ID: R428633 (0) **Instrument:** ICS-Integriion **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 22-Feb-2023 17:42			
Client ID:		Run ID: ICS-Integriion_428633		SeqNo: 7141701		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 22-Feb-2023 17:59			
Client ID:		Run ID: ICS-Integriion_428633		SeqNo: 7141702		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Sulfate	19.78	0.500	20	0	98.9	80 - 120			

MS		Sample ID: HS23020756-02MS		Units: mg/L		Analysis Date: 22-Feb-2023 18:28			
Client ID:		Run ID: ICS-Integriion_428633		SeqNo: 7141706		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Sulfate	12.92	0.500	10	2.76	102	80 - 120			

MSD		Sample ID: HS23020756-02MSD		Units: mg/L		Analysis Date: 22-Feb-2023 18:34			
Client ID:		Run ID: ICS-Integriion_428633		SeqNo: 7141707		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Sulfate	12.96	0.500	10	2.76	102	80 - 120	12.92	0.346	20

The following samples were analyzed in this batch: HS23020536-01

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020536

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23020536
Client Name: ERMSW-HOU

Date/Time Received: 10-Feb-2023 16:30
Received by: Malcolm Burleson

Completed By: /S/ Corey Grandits

eSignature

11-Feb-2023 09:40

Date/Time

Reviewed by: /S/ Bernadette A. Fini

eSignature

14-Feb-2023 11:36

Date/Time

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes

No

Not Present

Custody seals intact on shipping container/cooler?

Yes

No

Not Present

Custody seals intact on sample bottles?

Yes

No

Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes

No

Not Present

Chain of custody present?

Yes

No

1 Page(s)

Chain of custody signed when relinquished and received?

Yes

No

COC IDs:284580

Samplers name present on COC?

Yes

No

Chain of custody agrees with sample labels?

Yes

No

Samples in proper container/bottle?

Yes

No

Sample containers intact?

Yes

No

Sufficient sample volume for indicated test?

Yes

No

All samples received within holding time?

Yes

No

Container/Temp Blank temperature in compliance?

Yes

No

Temperature(s)/Thermometer(s):

4.0UC/3.5C

|IR31

Cooler(s)/Kit(s):

50357

Date/Time sample(s) sent to storage:

2/10/23

Water - VOA vials have zero headspace?

Yes

No

No VOA vials submitted

Water - pH acceptable upon receipt?

Yes

No

N/A

pH adjusted?

Yes

No

N/A

pH adjusted by:

Login Notes: Received 12 containers per sample, COC indicates 9. ID discrepancy: COC=1101529-BS Label=110159-BS

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

--

Corrective Action:

--



Cincinnati, OH

+1 513 733 5336

Fort Collins, CO

+1 970 490 1511

Everett, WA

+1 425 356 2600

Holland, MI

+1 616 399 6070

Chain of Custody Form

Houston, TX

+1 281 530 5656

Spring City, PA

+1 610 948 4903

South Charleston, WV

+1 304 356 3168

Middletown, PA

+1 717 944 5541

Salt Lake City, UT

+1 801 266 7700

York, PA

+1 717 505 5280

COC ID: 284580

Page _____ of _____

ALS Project Manager:

ALS Work Order #:

Customer Information		Project Information				Parameter/Method Request for Analysis											
Purchase Order	0677804	Project Name	Sulphur Dome			A	8260_LL_W (Low Level VOC (8260) BTEX)										
Work Order		Project Number				B	MA EPH_W La (MA EPH)										
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.			C	MA VPH_LA_W (MA VPH)										
Send Report To	Scott Himes	Invoice Attn	Accounts Payable			D	9056_anions_W (Cl,SO4,Br)										
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four			E	ALK_W 2320B (carb, bicarb)										
			840 W. Sam Houston Pkwy., Suite 6			F	H2S_W (H2S)										
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024			G	HG_W (Mercury)										
Phone	(281) 600-1000	Phone	(281) 600-1000			H	ICP_TW (As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)										
Fax	(281) 600-1001	Fax	(281) 600-1001			I	SULFD_4500S F (Sulfide)										
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com			J	TDS_W 2540C (TDS)										
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	1101529-BS	2/10/2023	1120	W		9	X	X	X	X	X	X	X	X	X	X	
2	Brine pond 4	2/10/2023	1215	W		9	X	X	X	X	X	X	X	X	X	X	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign

David Sanguinetti DSGJ

Shipment Method

Required Turnaround Time: (Check Box)

 Other _____

Results Due Date:

 STD 10 Wk Days 5 Wk Days 2 Wk Days 24-hour

Relinquished by:

Date: 2/10/2023

Time: 1630

Received by:

Notes: ERM Sulphur Dome

Relinquished by:

Date:

Time:

Received by (Laboratory):

Cooler ID: 50357

Cooler Temp: 4.0°C

QC Package: (Check One Box Below)

- Level II Std QC
 Level III Stc QC/Raw Date
 Level IV SV843/CLP
 Other

- TRRP Check st
 TRRP Level IV

Logged by (Laboratory): Date: Time: Checked by (Laboratory):

-0.3°C

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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March 02, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23020862**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 2 sample(s) on Feb 16, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020862

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23020862-01	Brine Well 007-B (3,000')	Water		16-Feb-2023 08:25	16-Feb-2023 17:05	<input type="checkbox"/>
HS23020862-02	Brine Well 7B-BS	Water		16-Feb-2023 11:45	16-Feb-2023 17:05	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020862

CASE NARRATIVE**GC Semivolatiles by Method MA EPH****Batch ID: 189930**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Volatiles by Method MA VPH**Batch ID: R428336,R428350**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R428926****Sample ID: Brine Well 007-B (3,000') (HS23020862-01)**

- Lowest practical dilution due to sample matrix and/or high concentration of non-target analyte(s).

Metals by Method SW6020A**Batch ID: 190201****Sample ID: HS23020797-02MS**

- MS and MSD are for an unrelated sample

Sample ID: HS23020798-02MS

- MS and MSD are for an unrelated sample

Sample ID: HS23020800-02MS

- MS and MSD are for an unrelated sample

Sample ID: Brine Well 007-B (3,000') (HS23020862-01)

- Sample ran at a 100X dilution due to high concentration of Sodium.

Sample ID: Brine Well 7B-BS (HS23020862-02)

- Sample ran at a 50X dilution due to high concentration of Sodium.

Sample ID: HS23020797-02PDS

- PDS is for an unrelated sample

Metals by Method SW7470A**Batch ID: 190172**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E376.1**Batch ID: R428963**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23020862

CASE NARRATIVE**WetChemistry by Method SW9056****Batch ID: R429123****Sample ID: HS23021125-01MS**

- MS and MSD are for an unrelated sample

Sample ID: Brine Well 007-B (3,000') (HS23020862-01)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Bromide)

Sample ID: Brine Well 7B-BS (HS23020862-02)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Bromide)

WetChemistry by Method SM2320B**Batch ID: R429040**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540C**Batch ID: R428539**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F**Batch ID: R428482**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 007-B (3,000')
 Collection Date: 16-Feb-2023 08:25

ANALYTICAL REPORT
 WorkOrder:HS23020862
 Lab ID:HS23020862-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	92		2.0	10	ug/L	10	28-Feb-2023 06:02
Ethylbenzene	U		3.0	10	ug/L	10	28-Feb-2023 06:02
m,p-Xylene	U		5.0	20	ug/L	10	28-Feb-2023 06:02
o-Xylene	U		3.0	10	ug/L	10	28-Feb-2023 06:02
Toluene	25		2.0	10	ug/L	10	28-Feb-2023 06:02
Xylenes, Total	U		3.0	10	ug/L	10	28-Feb-2023 06:02
Surr: 1,2-Dichloroethane-d4	112			70-126	%REC	10	28-Feb-2023 06:02
Surr: 4-Bromofluorobenzene	101			77-113	%REC	10	28-Feb-2023 06:02
Surr: Dibromofluoromethane	114			77-123	%REC	10	28-Feb-2023 06:02
Surr: Toluene-d8	96.9			82-127	%REC	10	28-Feb-2023 06:02
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	0.0803		0.0100	0.0100	mg/L	1	18-Feb-2023 03:36
Aliphatics >C8 - C10	0.107		0.0100	0.0100	mg/L	1	18-Feb-2023 03:36
Aromatics >C8 - C10	0.422		0.0100	0.0100	mg/L	1	18-Feb-2023 03:36
Surr: 2,5-Dibromotoluene (Aliphatic)	112			70-130	%REC	1	18-Feb-2023 03:36
Surr: 2,5-Dibromotoluene (Aromatic)	116			70-130	%REC	1	18-Feb-2023 03:36
ICP-MS METALS BY SW6020A		Method:SW6020A					
Arsenic	U		0.0400	0.200	mg/L	100	01-Mar-2023 13:52
Barium	U		0.190	0.400	mg/L	100	01-Mar-2023 13:52
Cadmium	U		0.0200	0.200	mg/L	100	01-Mar-2023 13:52
Calcium	1,320		3.40	50.0	mg/L	100	01-Mar-2023 13:52
Chromium	0.722		0.0400	0.400	mg/L	100	01-Mar-2023 13:52
Iron	9.65	J	1.20	20.0	mg/L	100	01-Mar-2023 13:52
Lead	U		0.0600	0.200	mg/L	100	01-Mar-2023 13:52
Magnesium	8.64	J	1.00	20.0	mg/L	100	01-Mar-2023 13:52
Manganese	0.487	J	0.0700	0.500	mg/L	100	01-Mar-2023 13:52
Potassium	13.8	J	1.80	20.0	mg/L	100	01-Mar-2023 13:52
Selenium	U		0.110	0.200	mg/L	100	01-Mar-2023 13:52
Silver	U		0.0200	0.200	mg/L	100	01-Mar-2023 13:52
Sodium	82,600		14.0	200	mg/L	1000	01-Mar-2023 16:33
Strontium	11.0		0.0200	0.500	mg/L	100	01-Mar-2023 13:52
Zinc	1.70		0.200	0.400	mg/L	100	01-Mar-2023 13:52
MERCURY BY SW7470A		Method:SW7470A					
Mercury	U		0.0000300	0.000200	mg/L	1	27-Feb-2023 13:58
HYDROGEN SULFIDE BY E376.1		Method:E376.1					
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	21-Feb-2023 17:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 007-B (3,000')
 Collection Date: 16-Feb-2023 08:25

ANALYTICAL REPORT

WorkOrder:HS23020862
 Lab ID:HS23020862-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL DISSOLVED SOLIDS BY SM2540C -2011							Analyst: DC
Total Dissolved Solids (Residue, Filterable)	300,000		5.00	10.0	mg/L	1	21-Feb-2023 01:00
ALKALINITY BY SM 2320B-2011							Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	140		5.00	5.00	mg/L	1	27-Feb-2023 13:03
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	27-Feb-2023 13:03
SULFIDE BY SM4500 S2-F-2011							Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	21-Feb-2023 15:15
ANIONS BY SW9056A							Analyst: TH
Bromide	U		7.50	25.0	mg/L	250	01-Mar-2023 09:37
Chloride	201,000		1000	2500	mg/L	5000	01-Mar-2023 09:42
Sulfate	3,060		50.0	125	mg/L	250	01-Mar-2023 09:37

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 7B-BS
 Collection Date: 16-Feb-2023 11:45

ANALYTICAL REPORT

WorkOrder:HS23020862
 Lab ID:HS23020862-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C							
				Method:SW8260			Analyst: AKP
Benzene	0.75	J	0.20	1.0	ug/L	1	28-Feb-2023 05:39
Ethylbenzene	2.3		0.30	1.0	ug/L	1	28-Feb-2023 05:39
m,p-Xylene	3.0		0.50	2.0	ug/L	1	28-Feb-2023 05:39
o-Xylene	2.0		0.30	1.0	ug/L	1	28-Feb-2023 05:39
Toluene	0.73	J	0.20	1.0	ug/L	1	28-Feb-2023 05:39
Xylenes, Total	5.0		0.30	1.0	ug/L	1	28-Feb-2023 05:39
Surr: 1,2-Dichloroethane-d4	109			70-126	%REC	1	28-Feb-2023 05:39
Surr: 4-Bromofluorobenzene	98.3			77-113	%REC	1	28-Feb-2023 05:39
Surr: Dibromofluoromethane	108			77-123	%REC	1	28-Feb-2023 05:39
Surr: Toluene-d8	102			82-127	%REC	1	28-Feb-2023 05:39
MASSACHUSETTS VPH, FEB 2018, REV 2.1							
				Method:MA VPH			Analyst: PJM
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	18-Feb-2023 06:09
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	18-Feb-2023 06:09
Aromatics >C8 - C10	0.0192		0.0100	0.0100	mg/L	1	18-Feb-2023 06:09
Surr: 2,5-Dibromotoluene (Aliphatic)	108			70-130	%REC	1	18-Feb-2023 06:09
Surr: 2,5-Dibromotoluene (Aromatic)	114			70-130	%REC	1	18-Feb-2023 06:09
MASSACHUSETTS EPH R2.1, DEC 2019							
				Method:MA EPH	Prep:SW3510 / 21-Feb-2023		Analyst: PPM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	25-Feb-2023 03:36
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	25-Feb-2023 03:36
Aliphatics >C16 - C35	0.239		0.00800	0.00800	mg/L	1	25-Feb-2023 03:36
Aromatics >C10 - C12	0.00551		0.00100	0.00100	mg/L	1	25-Feb-2023 03:36
Aromatics >C12 - C16	0.0225		0.00400	0.00400	mg/L	1	25-Feb-2023 03:36
Aromatics >C16 - C21	0.0188		0.00300	0.00300	mg/L	1	25-Feb-2023 03:36
Aromatics >C21 - C35	0.0790		0.00900	0.00900	mg/L	1	25-Feb-2023 03:36
Surr: 1-Chlorooctadecane	95.1			40-140	%REC	1	25-Feb-2023 03:36
Surr: 2-Bromonaphthalene	115			40-140	%REC	1	25-Feb-2023 03:36
Surr: 2-Fluorobiphenyl	50.7			40-140	%REC	1	25-Feb-2023 03:36
Surr: o-Terphenyl	108			40-140	%REC	1	25-Feb-2023 03:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Brine Well 7B-BS
 Collection Date: 16-Feb-2023 11:45

ANALYTICAL REPORT

WorkOrder:HS23020862
 Lab ID:HS23020862-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 28-Feb-2023 Analyst: JC
Arsenic	0.0202	J	0.0200	0.100	mg/L	50	01-Mar-2023 19:15
Barium	1.23		0.0950	0.200	mg/L	50	01-Mar-2023 19:15
Cadmium	U		0.0100	0.100	mg/L	50	01-Mar-2023 19:15
Calcium	141		1.70	25.0	mg/L	50	01-Mar-2023 19:15
Chromium	0.114	J	0.0200	0.200	mg/L	50	01-Mar-2023 19:15
Iron	3.34	J	0.600	10.0	mg/L	50	01-Mar-2023 19:15
Lead	U		0.0300	0.100	mg/L	50	01-Mar-2023 19:15
Magnesium	2.85	J	0.500	10.0	mg/L	50	01-Mar-2023 19:15
Manganese	0.509		0.0350	0.250	mg/L	50	01-Mar-2023 19:15
Potassium	1.78	J	0.900	10.0	mg/L	50	01-Mar-2023 19:15
Selenium	U		0.0550	0.100	mg/L	50	01-Mar-2023 19:15
Silver	U		0.0100	0.100	mg/L	50	01-Mar-2023 19:15
Sodium	26,400		14.0	200	mg/L	1000	01-Mar-2023 19:21
Strontium	0.678		0.0100	0.250	mg/L	50	01-Mar-2023 19:15
Zinc	1.97		0.100	0.200	mg/L	50	01-Mar-2023 19:15
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 27-Feb-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	27-Feb-2023 14:00
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	21-Feb-2023 17:30
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	97,400		5.00	10.0	mg/L	1	21-Feb-2023 01:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	128		5.00	5.00	mg/L	1	27-Feb-2023 13:03
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	27-Feb-2023 13:03
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	21-Feb-2023 15:15
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		1.50	5.00	mg/L	50	01-Mar-2023 09:48
Chloride	55,900		200	500	mg/L	1000	01-Mar-2023 09:54
Sulfate	243		10.0	25.0	mg/L	50	01-Mar-2023 09:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23020862**Batch ID:** 189930**Start Date:** 21 Feb 2023 13:47**End Date:** 21 Feb 2023 15:30**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020862-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 190172**Start Date:** 27 Feb 2023 08:00**End Date:** 27 Feb 2023 11:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020862-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23020862-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 190201**Start Date:** 28 Feb 2023 10:00**End Date:** 28 Feb 2023 14:00**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23020862-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23020862-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 189930 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019				Matrix: Water
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45		21 Feb 2023 13:47	25 Feb 2023 03:36	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45		21 Feb 2023 13:47	25 Feb 2023 03:36	1
Batch ID: 190172 (0)		Test Name : MERCURY BY SW7470A				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25		27 Feb 2023 08:00	27 Feb 2023 13:58	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45		27 Feb 2023 08:00	27 Feb 2023 14:00	1
Batch ID: 190201 (0)		Test Name : ICP-MS METALS BY SW6020A				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25		28 Feb 2023 10:00	01 Mar 2023 16:33	1000
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25		28 Feb 2023 10:00	01 Mar 2023 13:52	100
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45		28 Feb 2023 10:00	01 Mar 2023 19:21	1000
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45		28 Feb 2023 10:00	01 Mar 2023 19:15	50
Batch ID: R428336 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			18 Feb 2023 03:36	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			18 Feb 2023 06:09	1
Batch ID: R428350 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			18 Feb 2023 03:36	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			18 Feb 2023 06:09	1
Batch ID: R428482 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			21 Feb 2023 15:15	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			21 Feb 2023 15:15	1
Batch ID: R428539 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			21 Feb 2023 01:00	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			21 Feb 2023 01:00	1
Batch ID: R428926 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			28 Feb 2023 06:02	10
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			28 Feb 2023 05:39	1
Batch ID: R428963 (0)		Test Name : HYDROGEN SULFIDE BY E376.1				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			21 Feb 2023 17:30	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			21 Feb 2023 17:30	1
Batch ID: R429040 (0)		Test Name : ALKALINITY BY SM 2320B-2011				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			27 Feb 2023 13:03	1
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			27 Feb 2023 13:03	1
Batch ID: R429123 (0)		Test Name : ANIONS BY SW9056A				Matrix: Water
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			01 Mar 2023 09:42	5000
HS23020862-01	Brine Well 007-B (3,000')	16 Feb 2023 08:25			01 Mar 2023 09:37	250
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			01 Mar 2023 09:54	1000
HS23020862-02	Brine Well 7B-BS	16 Feb 2023 11:45			01 Mar 2023 09:48	50

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 189930 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK		Sample ID:	MLBK-189930	Units: mg/L		Analysis Date: 24-Feb-2023 20:13				
Client ID:		Run ID:	FID-7_428838	SeqNo:	7146371	PrepDate:	21-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12		U	0.00100							
Aliphatics >C12 - C16		U	0.00200							
Aliphatics >C16 - C35		U	0.00800							
Surr: 1-Chlorooctadecane		0.02489	0	0.04	0	62.2	40 - 140			

MLBK		Sample ID:	MLBK-189930	Units: mg/L		Analysis Date: 24-Feb-2023 20:13				
Client ID:		Run ID:	FID-8_428851	SeqNo:	7146615	PrepDate:	21-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		U	0.00100							
Aromatics >C12 - C16		U	0.00400							
Aromatics >C16 - C21		U	0.00300							
Aromatics >C21 - C35		U	0.00900							
Surr: 2-Bromonaphthalene		0.04025	0	0.04	0	101	40 - 140			
Surr: 2-Fluorobiphenyl		0.02693	0	0.04	0	67.3	40 - 140			
Surr: o-Terphenyl		0.03382	0	0.04	0	84.5	40 - 140			

LCS		Sample ID:	LCS-189930	Units: mg/L		Analysis Date: 24-Feb-2023 20:45				
Client ID:		Run ID:	FID-7_428838	SeqNo:	7146372	PrepDate:	21-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12		0.05097	0.00100	0.05	0	102	40 - 140			
Aliphatics >C12 - C16		0.111	0.00200	0.1	0	111	40 - 140			
Aliphatics >C16 - C35		0.4491	0.00800	0.4	0	112	40 - 140			
Surr: 1-Chlorooctadecane		0.03546	0	0.04	0	88.6	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 189930 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-189930		Units: mg/L		Analysis Date: 24-Feb-2023 20:45			
Client ID:		Run ID: FID-8_428851		SeqNo: 7146616		PrepDate: 21-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.0512	0.00100	0.05	0	102	40 - 140		
Aromatics >C12 - C16		0.21	0.00400	0.2	0	105	40 - 140		
Aromatics >C16 - C21		0.1653	0.00300	0.15	0	110	40 - 140		
Aromatics >C21 - C35		0.4595	0.00900	0.45	0	102	40 - 140		
Surr: 2-Bromonaphthalene		0.03461	0	0.04	0	86.5	40 - 140		
Surr: 2-Fluorobiphenyl		0.02008	0	0.04	0	50.2	40 - 140		
Surr: o-Terphenyl		0.03971	0	0.04	0	99.3	40 - 140		

MS	Sample ID:	HS23020555-04MS		Units: mg/L		Analysis Date: 24-Feb-2023 21:48			
Client ID:		Run ID: FID-7_428838		SeqNo: 7146374		PrepDate: 21-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.03943	0.00100	0.05	0	78.9	40 - 140		
Aliphatics >C12 - C16		0.07965	0.00200	0.1	0	79.7	40 - 140		
Aliphatics >C16 - C35		0.3205	0.00800	0.4	0	80.1	40 - 140		
Surr: 1-Chlorooctadecane		0.02406	0	0.04	0	60.2	40 - 140		

MS	Sample ID:	HS23020555-04MS		Units: mg/L		Analysis Date: 24-Feb-2023 21:48			
Client ID:		Run ID: FID-8_428851		SeqNo: 7146618		PrepDate: 21-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05534	0.00100	0.05	0	111	40 - 140		
Aromatics >C12 - C16		0.2249	0.00400	0.2	0	112	40 - 140		
Aromatics >C16 - C21		0.1702	0.00300	0.15	0	113	40 - 140		
Aromatics >C21 - C35		0.4319	0.00900	0.45	0	96.0	40 - 140		
Surr: 2-Bromonaphthalene		0.03475	0	0.04	0	86.9	40 - 140		
Surr: 2-Fluorobiphenyl		0.02414	0	0.04	0	60.3	40 - 140		
Surr: o-Terphenyl		0.03945	0	0.04	0	98.6	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 189930 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23020555-04MSD		Units: mg/L		Analysis Date: 24-Feb-2023 22:19			
Client ID:		Run ID: FID-7_428838		SeqNo: 7146375		PrepDate: 21-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.03782	0.00100	0.05	0	75.6	40 - 140	0.03943	4.19 50
Aliphatics >C12 - C16		0.07687	0.00200	0.1	0	76.9	40 - 140	0.07965	3.55 50
Aliphatics >C16 - C35		0.3617	0.00800	0.4	0	90.4	40 - 140	0.3205	12.1 50
Surr: 1-Chlorooctadecane		0.02587	0	0.04	0	64.7	40 - 140	0.02406	7.23 50

MSD	Sample ID:	HS23020555-04MSD		Units: mg/L		Analysis Date: 24-Feb-2023 22:19			
Client ID:		Run ID: FID-8_428851		SeqNo: 7146619		PrepDate: 21-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05737	0.00100	0.05	0	115	40 - 140	0.05534	3.6 50
Aromatics >C12 - C16		0.2338	0.00400	0.2	0	117	40 - 140	0.2249	3.9 50
Aromatics >C16 - C21		0.1735	0.00300	0.15	0	116	40 - 140	0.1702	1.93 50
Aromatics >C21 - C35		0.4312	0.00900	0.45	0	95.8	40 - 140	0.4319	0.153 50
Surr: 2-Bromonaphthalene		0.03575	0	0.04	0	89.4	40 - 140	0.03475	2.83 50
Surr: 2-Fluorobiphenyl		0.01879	0	0.04	0	47.0	40 - 140	0.02414	24.9 50
Surr: o-Terphenyl		0.04012	0	0.04	0	100	40 - 140	0.03945	1.71 50

The following samples were analyzed in this batch: HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428336 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1				
MLBK	Sample ID: MBLK-230217			Units: mg/L		Analysis Date: 17-Feb-2023 15:30		
Client ID:		Run ID: FID-14_428336		SeqNo: 7135091	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100						
Aliphatics >C8 - C10	U	0.0100						
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2731	0.0100	0.25	0	109	70 - 130		
LCS	Sample ID: LCS-230217			Units: mg/L		Analysis Date: 17-Feb-2023 14:52		
Client ID:		Run ID: FID-14_428336		SeqNo: 7135090	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02124	0.0100	0.025	0	84.9	70 - 130		
Aliphatics >C8 - C10	0.02062	0.0100	0.025	0	82.5	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2743	0.0100	0.25	0	110	70 - 130		
MS	Sample ID: HS23020555-04MS			Units: mg/L		Analysis Date: 17-Feb-2023 17:25		
Client ID:		Run ID: FID-14_428336		SeqNo: 7135094	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02348	0.0100	0.025	0	93.9	70 - 130		
Aliphatics >C8 - C10	0.02156	0.0100	0.025	0	86.2	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2748	0.0100	0.25	0	110	70 - 130		
MS	Sample ID: HS23020462-07MS			Units: mg/L		Analysis Date: 17-Feb-2023 19:20		
Client ID:		Run ID: FID-14_428336		SeqNo: 7135162	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.04418	0.0100	0.025	0.02365	82.1	70 - 130		
Aliphatics >C8 - C10	0.04355	0.0100	0.025	0.02066	91.6	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2778	0.0100	0.25	0	111	70 - 130		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428336 (0) **Instrument:** FID-14 **Method:** MASSACHUSETTS VPH, FEB 2018, REV 2.1

MSD	Sample ID:	HS23020555-04MSD		Units: mg/L		Analysis Date: 17-Feb-2023 18:03			
Client ID:		Run ID: FID-14_428336		SeqNo: 7135095	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8		0.02232	0.0100	0.025	0	89.3	70 - 130	0.02348	5.03 25
Aliphatics >C8 - C10		0.02116	0.0100	0.025	0	84.6	70 - 130	0.02156	1.87 25
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>		0.2774	0.0100	0.25	0	111	70 - 130	0.2748	0.949 25

MSD	Sample ID:	HS23020462-07MSD		Units: mg/L		Analysis Date: 17-Feb-2023 19:58			
Client ID:		Run ID: FID-14_428336		SeqNo: 7135098	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8		0.04461	0.0100	0.025	0.02365	83.9	70 - 130	0.04418	0.978 25
Aliphatics >C8 - C10		0.0391	0.0100	0.025	0.02066	73.8	70 - 130	0.04355	10.8 25
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>		0.2727	0.0100	0.25	0	109	70 - 130	0.2778	1.86 25

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428350 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK Sample ID: MBLK-230217		Units: mg/L		Analysis Date: 17-Feb-2023 15:30	
Client ID:		Run ID: FID-15_428350		SeqNo: 7135365	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD Limit Qual
Aromatics >C8 - C10	U	0.0100			
Surr: 2,5-Dibromotoluene (Aromatic)	0.2723	0.0100	0.25	0 109	70 - 130
LCS Sample ID: LCS-230217		Units: mg/L		Analysis Date: 17-Feb-2023 14:52	
Client ID:		Run ID: FID-15_428350		SeqNo: 7135364	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD Limit Qual
Aromatics >C8 - C10	0.08705	0.0100	0.1	0 87.1	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.274	0.0100	0.25	0 110	70 - 130
MS Sample ID: HS23020555-04MS		Units: mg/L		Analysis Date: 17-Feb-2023 17:25	
Client ID:		Run ID: FID-15_428350		SeqNo: 7135368	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD Limit Qual
Aromatics >C8 - C10	0.08842	0.0100	0.1	0 88.4	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2766	0.0100	0.25	0 111	70 - 130
MS Sample ID: HS23020462-07MS		Units: mg/L		Analysis Date: 17-Feb-2023 19:20	
Client ID:		Run ID: FID-15_428350		SeqNo: 7135414	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD Limit Qual
Aromatics >C8 - C10	0.16118	0.0100	0.1	0.08535 76.4	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2891	0.0100	0.25	0 116	70 - 130
MSD Sample ID: HS23020555-04MSD		Units: mg/L		Analysis Date: 17-Feb-2023 18:03	
Client ID:		Run ID: FID-15_428350		SeqNo: 7135369	PrepDate: DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD Limit Qual
Aromatics >C8 - C10	0.08664	0.0100	0.1	0 86.6	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2766	0.0100	0.25	0 111	70 - 130
				0.08842 2.04 25	
				0.2766 0 25	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428350 (0) **Instrument:** FID-15 **Method:** MASSACHUSETTS VPH, FEB 2018, REV 2.1

MSD	Sample ID:	HS23020462-07MSD		Units:	mg/L		Analysis Date: 17-Feb-2023 19:58			
Client ID:		Run ID: FID-15_428350		SeqNo:	7135372	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual	
Aromatics >C8 - C10	0.1569	0.0100	0.1	0.08535	71.5	70 - 130	0.1618	3.08	25	
Surr: 2,5-Dibromotoluene (Aromatic)	0.2891	0.0100	0.25	0	116	70 - 130	0.2891	0	25	

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190172 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MLBK	Sample ID:	MLBK-190172	Units:	mg/L	Analysis Date: 27-Feb-2023 13:50			
Client ID:		Run ID:	HG04_428880	SeqNo:	7147214	PrepDate:	27-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-190172	Units:	mg/L	Analysis Date: 27-Feb-2023 13:51			
Client ID:		Run ID:	HG04_428880	SeqNo:	7147215	PrepDate:	27-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00535 0.000200 0.005 0 107 80 - 120

MS	Sample ID:	HS23021142-01MS	Units:	mg/L	Analysis Date: 27-Feb-2023 15:25			
Client ID:		Run ID:	HG04_428880	SeqNo:	7147230	PrepDate:	27-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00421 0.000200 0.005 0.000051 83.2 75 - 125

MSD	Sample ID:	HS23021142-01MSD	Units:	mg/L	Analysis Date: 27-Feb-2023 15:28			
Client ID:		Run ID:	HG04_428880	SeqNo:	7147231	PrepDate:	27-Feb-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00413 0.000200 0.005 0.000051 81.6 75 - 125 0.00421 1.92 20

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-190201	Units:	mg/L	Analysis Date: 01-Mar-2023 12:20				
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7150709	PrepDate:	28-Feb-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	U	0.200							
Manganese	U	0.00500							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

LCS	Sample ID:	LCS-190201		Units:	mg/L		Analysis Date: 01-Mar-2023 12:22			
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7150710	PrepDate:	28-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.05097	0.00200	0.05	0	102	80 - 120			
Barium		0.04844	0.00400	0.05	0	96.9	80 - 120			
Cadmium		0.0494	0.00200	0.05	0	98.8	80 - 120			
Calcium		4.999	0.500	5	0	100.0	80 - 120			
Chromium		0.04827	0.00400	0.05	0	96.5	80 - 120			
Iron		4.934	0.200	5	0	98.7	80 - 120			
Lead		0.04886	0.00200	0.05	0	97.7	80 - 120			
Magnesium		5.162	0.200	5	0	103	80 - 120			
Manganese		0.04999	0.00500	0.05	0	100.0	80 - 120			
Potassium		5.029	0.200	5	0	101	80 - 120			
Selenium		0.05081	0.00200	0.05	0	102	80 - 120			
Silver		0.04869	0.00200	0.05	0	97.4	80 - 120			
Sodium		5.149	0.200	5	0	103	80 - 120			
Strontium		0.09837	0.00500	0.1	0	98.4	80 - 120			
Zinc		0.05204	0.00400	0.05	0	104	80 - 120			

MS	Sample ID:	HS23020800-02MS		Units:	mg/L		Analysis Date: 01-Mar-2023 12:39			
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7152601	PrepDate:	28-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.1623	0.00200	0.05	0.09655	132	80 - 120		S	
Lead		0.0537	0.00200	0.05	0.007524	92.4	80 - 120			

MS	Sample ID:	HS23020798-02MS		Units:	mg/L		Analysis Date: 01-Mar-2023 12:39			
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7152596	PrepDate:	28-Feb-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.1623	0.00200	0.05	0.09655	132	80 - 120		S	
Lead		0.0537	0.00200	0.05	0.007524	92.4	80 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23020797-02MS		Units: mg/L		Analysis Date: 01-Mar-2023 12:39			
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7150750		PrepDate: 28-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.1623	0.00200	0.05	0.09655	132	80 - 120		S
Barium		0.9338	0.00400	0.05	0.9661	-64.5	80 - 120		SO
Cadmium		0.05014	0.00200	0.05	0.000091	100	80 - 120		
Calcium		283.9	0.500	5	300.6	-333	80 - 120		SEO
Chromium		0.05094	0.00400	0.05	0.00001	102	80 - 120		
Iron		33.55	0.200	5	33.77	-4.33	80 - 120		SO
Lead		0.0537	0.00200	0.05	0.007524	92.4	80 - 120		
Magnesium		85.35	0.200	5	84.76	11.9	80 - 120		SO
Manganese		0.6811	0.00500	0.05	0.7378	-113	80 - 120		SO
Potassium		15.04	0.200	5	10.46	91.6	80 - 120		
Selenium		0.05255	0.00200	0.05	0.00076	104	80 - 120		
Silver		0.04814	0.00200	0.05	0.000017	96.3	80 - 120		
Sodium		66.45	0.200	5	63.37	61.7	80 - 120		SO
Strontium		2.027	0.00500	0.1	2.037	-10.7	80 - 120		SEO
Zinc		0.06003	0.00400	0.05	0.02315	73.8	80 - 120		S

MSD	Sample ID:	HS23020800-02MSD		Units: mg/L		Analysis Date: 01-Mar-2023 12:41			
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7152602		PrepDate: 28-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.162	0.00200	0.05	0.09655	131	80 - 120	0.1623	0.235 20 S
Lead		0.05406	0.00200	0.05	0.007524	93.1	80 - 120	0.0537	0.664 20

MSD	Sample ID:	HS23020798-02MSD		Units: mg/L		Analysis Date: 01-Mar-2023 12:41			
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7152597		PrepDate: 28-Feb-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.162	0.00200	0.05	0.09655	131	80 - 120	0.1623	0.235 20 S
Lead		0.05406	0.00200	0.05	0.007524	93.1	80 - 120	0.0537	0.664 20

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23020797-02MSD		Units: mg/L		Analysis Date: 01-Mar-2023 12:41					
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7150751		PrepDate: 28-Feb-2023		DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic		0.162	0.00200	0.05	0.09655	131	80 - 120	0.1623	0.235	20	S
Barium		0.9267	0.00400	0.05	0.9661	-78.8	80 - 120	0.9338	0.766	20	SO
Cadmium		0.04982	0.00200	0.05	0.000091	99.5	80 - 120	0.05014	0.64	20	
Calcium		286.4	0.500	5	300.6	-284	80 - 120	283.9	0.857	20	SEO
Chromium		0.05298	0.00400	0.05	0.00001	106	80 - 120	0.05094	3.95	20	
Iron		33.84	0.200	5	33.77	1.43	80 - 120	33.55	0.854	20	SO
Lead		0.05406	0.00200	0.05	0.007524	93.1	80 - 120	0.0537	0.664	20	
Magnesium		86.27	0.200	5	84.76	30.4	80 - 120	85.35	1.07	20	SO
Manganese		0.6848	0.00500	0.05	0.7378	-106	80 - 120	0.6811	0.548	20	SO
Potassium		15.13	0.200	5	10.46	93.4	80 - 120	15.04	0.579	20	
Selenium		0.05216	0.00200	0.05	0.00076	103	80 - 120	0.05255	0.743	20	
Silver		0.04803	0.00200	0.05	0.000017	96.0	80 - 120	0.04814	0.231	20	
Sodium		66.87	0.200	5	63.37	70.0	80 - 120	66.45	0.625	20	SO
Strontium		2.006	0.00500	0.1	2.037	-31.4	80 - 120	2.027	1.02	20	SEO
Zinc		0.05971	0.00400	0.05	0.02315	73.1	80 - 120	0.06003	0.531	20	S

PDS	Sample ID:	HS23020800-02PDS		Units: mg/L		Analysis Date: 01-Mar-2023 13:00					
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7152598		PrepDate: 28-Feb-2023		DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic		0.2156	0.00200	0.1	0.09655	119	75 - 125				
Lead		0.1072	0.00200	0.1	0.007524	99.6	75 - 125				

PDS	Sample ID:	HS23020798-02PDS		Units: mg/L		Analysis Date: 01-Mar-2023 13:00					
Client ID:		Run ID: ICPMS06_429033		SeqNo: 7152593		PrepDate: 28-Feb-2023		DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic		0.2156	0.00200	0.1	0.09655	119	75 - 125				
Lead		0.1072	0.00200	0.1	0.007524	99.6	75 - 125				

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID: HS23020797-02PDS		Units: mg/L		Analysis Date: 01-Mar-2023 13:00			
Client ID:	Run ID: ICPMS06_429033		SeqNo: 7150757		PrepDate: 28-Feb-2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.2156	0.00200	0.1	0.09655	119	75 - 125		
Barium	0.9789	0.00400	0.1	0.9661	12.8	75 - 125		SO
Cadmium	0.1029	0.00200	0.1	0	103	75 - 125		
Chromium	0.1045	0.00400	0.1	0	105	75 - 125		
Lead	0.1072	0.00200	0.1	0.007524	99.6	75 - 125		
Magnesium	89.17	0.200	10	84.76	44.2	75 - 125		SO
Manganese	0.7288	0.00500	0.1	0.7378	-8.98	75 - 125		SO
Potassium	20.05	0.200	10	10.46	95.9	75 - 125		
Selenium	0.1045	0.00200	0.1	0	105	75 - 125		
Silver	0.09813	0.00200	0.1	0	98.1	75 - 125		
Sodium	70.31	0.200	10	63.37	69.4	75 - 125		SO

PDS	Sample ID: HS23020797-02PDS		Units: mg/L		Analysis Date: 01-Mar-2023 16:27			
Client ID:	Run ID: ICPMS06_429033		SeqNo: 7151775		PrepDate: 28-Feb-2023		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Calcium	337.3	2.50	50	297.8	78.9	75 - 125		O
Iron	83.44	1.00	50	33.69	99.5	75 - 125		
Strontium	2.408	0.0250	0.5	1.917	98.3	75 - 125		
Zinc	0.542	0.0200	0.5	0.02522	103	75 - 125		

SD	Sample ID: HS23020800-02SD		Units: mg/L		Analysis Date: 01-Mar-2023 12:37			
Client ID:	Run ID: ICPMS06_429033		SeqNo: 7152600		PrepDate: 28-Feb-2023		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Arsenic	0.09524	0.0100					0.09655	1.36 10
Lead	0.007598	0.0100					0.007524	0 10 J

SD	Sample ID: HS23020798-02SD		Units: mg/L		Analysis Date: 01-Mar-2023 12:37			
Client ID:	Run ID: ICPMS06_429033		SeqNo: 7152595		PrepDate: 28-Feb-2023		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D Limit Qual
Arsenic	0.09524	0.0100					0.09655	1.36 10
Lead	0.007598	0.0100					0.007524	0 10 J

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: 190201 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID:	HS23020797-02SD		Units:	mg/L	Analysis Date: 01-Mar-2023 12:37			
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7150749	PrepDate:	28-Feb-2023	DF:	5
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D
Arsenic		0.09524	0.0100					0.09655	1.36 10
Barium		0.9188	0.0200					0.9661	4.9 10
Cadmium		U	0.0100					0.000091	0 10
Chromium		0.008482	0.0200					0.00001	0 10 J
Lead		0.007598	0.0100					0.007524	0 10 J
Magnesium		84.28	1.00					84.76	0.563 10
Manganese		0.695	0.0250					0.7378	5.8 10
Potassium		10.42	1.00					10.46	0.387 10
Selenium		U	0.0100					0.00076	0 10
Silver		U	0.0100					0.000017	0 10
Sodium		62.78	1.00					63.37	0.936 10

SD	Sample ID:	HS23020797-02SD		Units:	mg/L	Analysis Date: 01-Mar-2023 16:25			
Client ID:		Run ID:	ICPMS06_429033	SeqNo:	7151774	PrepDate:	28-Feb-2023	DF:	25
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D
Calcium		280.2	12.5					297.8	5.94 10
Iron		34	5.00					33.69	0.906 10
Strontium		1.954	0.125					1.917	1.97 10
Zinc		U	0.100					0.02522	0 10

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428926 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230224			Units: ug/L		Analysis Date: 27-Feb-2023 21:57			
Client ID:		Run ID: VOA11_428926		SeqNo: 7148217	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
Surr: 1,2-Dichloroethane-d4	52.8	1.0	50	0	106	70 - 123			
Surr: 4-Bromofluorobenzene	49.81	1.0	50	0	99.6	77 - 113			
Surr: Dibromofluoromethane	55.81	1.0	50	0	112	73 - 126			
Surr: Toluene-d8	49.46	1.0	50	0	98.9	81 - 120			
LCS	Sample ID: VLCSW-230224			Units: ug/L		Analysis Date: 27-Feb-2023 21:14			
Client ID:		Run ID: VOA11_428926		SeqNo: 7148216	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	18.3	1.0	20	0	91.5	74 - 120			
Ethylbenzene	18.41	1.0	20	0	92.0	77 - 117			
m,p-Xylene	35.92	2.0	40	0	89.8	77 - 122			
o-Xylene	18.87	1.0	20	0	94.3	75 - 119			
Toluene	18.15	1.0	20	0	90.7	77 - 118			
Xylenes, Total	54.79	1.0	60	0	91.3	75 - 122			
Surr: 1,2-Dichloroethane-d4	45.4	1.0	50	0	90.8	70 - 123			
Surr: 4-Bromofluorobenzene	49.3	1.0	50	0	98.6	77 - 113			
Surr: Dibromofluoromethane	48.8	1.0	50	0	97.6	73 - 126			
Surr: Toluene-d8	50.9	1.0	50	0	102	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428926 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MS	Sample ID: HS23020907-05MS	Units: ug/L		Analysis Date: 27-Feb-2023 23:20					
Client ID:	Run ID: VOA11_428926			SeqNo: 7148221	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.94	1.0	20	0	94.7	70 - 127			
Ethylbenzene	18.85	1.0	20	0	94.2	70 - 124			
m,p-Xylene	36.83	2.0	40	0	92.1	70 - 130			
o-Xylene	18.33	1.0	20	0	91.6	70 - 124			
Toluene	18.43	1.0	20	0	92.1	70 - 123			
Xylenes, Total	55.16	1.0	60	0	91.9	70 - 130			
Surr: 1,2-Dichloroethane-d4	45.19	1.0	50	0	90.4	70 - 126			
Surr: 4-Bromofluorobenzene	50.24	1.0	50	0	100	77 - 113			
Surr: Dibromofluoromethane	48.79	1.0	50	0	97.6	77 - 123			
Surr: Toluene-d8	50.1	1.0	50	0	100	82 - 127			
MSD	Sample ID: HS23020907-05MSD	Units: ug/L		Analysis Date: 27-Feb-2023 23:42					
Client ID:	Run ID: VOA11_428926			SeqNo: 7148222	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.97	1.0	20	0	89.9	70 - 127	18.94	5.26	20
Ethylbenzene	18.32	1.0	20	0	91.6	70 - 124	18.85	2.85	20
m,p-Xylene	36.16	2.0	40	0	90.4	70 - 130	36.83	1.85	20
o-Xylene	18.33	1.0	20	0	91.7	70 - 124	18.33	0.0389	20
Toluene	17.65	1.0	20	0	88.3	70 - 123	18.43	4.29	20
Xylenes, Total	54.49	1.0	60	0	90.8	70 - 130	55.16	1.22	20
Surr: 1,2-Dichloroethane-d4	45.63	1.0	50	0	91.3	70 - 126	45.19	0.96	20
Surr: 4-Bromofluorobenzene	49.11	1.0	50	0	98.2	77 - 113	50.24	2.29	20
Surr: Dibromofluoromethane	49.59	1.0	50	0	99.2	77 - 123	48.79	1.64	20
Surr: Toluene-d8	50.28	1.0	50	0	101	82 - 127	50.1	0.362	20

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428482 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R428482	Units:	mg/L	Analysis Date: 21-Feb-2023 15:15			
Client ID:		Run ID: WetChem_HS_428482 SeqNo: 7138450	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 1.00

LCS	Sample ID:	LCS-R428482	Units:	mg/L	Analysis Date: 21-Feb-2023 15:15			
Client ID:		Run ID: WetChem_HS_428482 SeqNo: 7138449	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.32 1.00 25 0 89.3 85 - 115

LCSD	Sample ID:	LCSD-R428482	Units:	mg/L	Analysis Date: 21-Feb-2023 15:15			
Client ID:		Run ID: WetChem_HS_428482 SeqNo: 7138448	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.52 1.00 25 0 90.1 85 - 115 22.32 0.892 20

MS	Sample ID:	HS23020862-02MS	Units:	mg/L	Analysis Date: 21-Feb-2023 15:15			
Client ID:	Brine Well 7B-BS	Run ID: WetChem_HS_428482 SeqNo: 7138451	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.32 1.00 25 -1.28 94.4 80 - 120

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R428539 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-02212023	Units:	mg/L	Analysis Date: 21-Feb-2023 01:00			
Client ID:		Run ID:	Balance1_428539	SeqNo: 7139945	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-022123	Units:	mg/L	Analysis Date: 21-Feb-2023 01:00			
Client ID:		Run ID:	Balance1_428539	SeqNo: 7139944	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1052 10.0 1000 0 105 85 - 115

DUP	Sample ID:	HS23020965-03DUP	Units:	mg/L	Analysis Date: 21-Feb-2023 01:00			
Client ID:		Run ID:	Balance1_428539	SeqNo: 7139943	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 892 10.0 892 0 20

DUP	Sample ID:	HS23020887-02DUP	Units:	mg/L	Analysis Date: 21-Feb-2023 01:00			
Client ID:		Run ID:	Balance1_428539	SeqNo: 7139931	PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 588 10.0 588 0 20

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R429040 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R429040		Units: mg/L		Analysis Date: 27-Feb-2023 13:03			
Client ID:		Run ID:	Skalar 03_429040	SeqNo:	7150646	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00						
Alkalinity, Carbonate (As CaCO3)		U	5.00						

LCS		Sample ID: LCS-R429040		Units: mg/L		Analysis Date: 27-Feb-2023 13:03			
Client ID:		Run ID:	Skalar 03_429040	SeqNo:	7150645	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		981.4	5.00	1000	0	98.1	85 - 115		

LCSD		Sample ID: LCSD-R429040		Units: mg/L		Analysis Date: 27-Feb-2023 13:03			
Client ID:		Run ID:	Skalar 03_429040	SeqNo:	7150644	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		912.8	5.00	1000	0	91.3	85 - 115	981.4	7.24 20

DUP		Sample ID: HS23020903-23DUP		Units: mg/L		Analysis Date: 27-Feb-2023 13:03			
Client ID:		Run ID:	Skalar 03_429040	SeqNo:	7150647	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00					0	0 20
Alkalinity, Carbonate (As CaCO3)		298.8	5.00					298.8	0 20

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

QC BATCH REPORT

Batch ID: R429123 (0) **Instrument:** ICS-Integriion **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 01-Mar-2023 06:54			
Client ID:		Run ID: ICS-Integriion_429123		SeqNo: 7152605		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	U	0.100							
Chloride	U	0.500							
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 01-Mar-2023 07:05			
Client ID:		Run ID: ICS-Integriion_429123		SeqNo: 7152606		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	4.106	0.100	4	0	103	80 - 120			
Chloride	19.64	0.500	20	0	98.2	80 - 120			
Sulfate	20.03	0.500	20	0	100	80 - 120			

MS		Sample ID: HS23021125-01MS		Units: mg/L		Analysis Date: 01-Mar-2023 07:17			
Client ID:		Run ID: ICS-Integriion_429123		SeqNo: 7152608		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.145	0.100	2	0	57.2	80 - 120			S
Chloride	16.27	0.500	10	6.077	102	80 - 120			
Sulfate	125.8	0.500	10	122.2	36.6	80 - 120			SEO

MSD		Sample ID: HS23021125-01MSD		Units: mg/L		Analysis Date: 01-Mar-2023 07:23			
Client ID:		Run ID: ICS-Integriion_429123		SeqNo: 7152609		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.118	0.100	2	0	55.9	80 - 120	1.145	2.4	20 S
Chloride	16.12	0.500	10	6.077	100	80 - 120	16.27	0.976	20
Sulfate	124.5	0.500	10	122.2	23.0	80 - 120	125.8	1.09	20 SEO

The following samples were analyzed in this batch: HS23020862-01 HS23020862-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23020862

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Unit Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23020862

Date/Time Received:

16-Feb-2023 17:05

Client Name: ERMSW-HOU

Received by:

Corey GranditsCompleted By: /S/ Corey Grandits

eSignature

17-Feb-2023 09:39

Reviewed by: /S/ Bernadette A. Fini

eSignature

17-Feb-2023 10:19

Date/Time

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes No Not Present

Custody seals intact on shipping container/cooler?

Yes No Not Present

Custody seals intact on sample bottles?

Yes No Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes No Not Present

Chain of custody present?

Yes No

1 Page(s)

Chain of custody signed when relinquished and received?

Yes No

COC IDs:284526

Samplers name present on COC?

Yes No

Chain of custody agrees with sample labels?

Yes No

Samples in proper container/bottle?

Yes No

Sample containers intact?

Yes No

Sufficient sample volume for indicated test?

Yes No

All samples received within holding time?

Yes No

Container/Temp Blank temperature in compliance?

Yes No

Temperature(s)/Thermometer(s):

3.3UC/2.8C | IR31

Cooler(s)/Kit(s):

49645

Date/Time sample(s) sent to storage:

2/17/23

Water - VOA vials have zero headspace?

Yes No No VOA vials submitted

Water - pH acceptable upon receipt?

Yes No N/A

pH adjusted?

Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH
+1 513 733 5336

Everett, WA
+1 425 356 2600

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page _____ of _____

Houston, TX
+1 281 530 5656

Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903

Salt Lake City, UT
+1 801 266 7700

South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

COC ID: 284526

ALS Project Manager: _____ ALS Work Order #: _____

Customer Information		Project Information			Parameter/Method Request for Analysis												
Purchase Order	0677304	Project Name	Sulphur Dome			A	8260_LL_W (Low Level VOC (8260) BTEX)										
Work Order		Project Number				B	MA EPH_W La (MA EPH)										
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.			C	MA VPH_LA_W (MA VPH)										
Send Report To	Scott Himes	Invoice Attn	Accounts Payable			D	9056_anions_W(Cl,SO4,Br)										
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four			E	ALK_W 2320B (carb, bicarb)										
			840 W. Sam Houston Pkwy., Suite 6			F	H2S_W (H2S)										
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024			G	HG_W (Mercury)										
Phone	(281) 600-1000	Phone	(281) 600-1000			H	ICP_TW(As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)										
Fax	(281) 600-1001	Fax	(281) 600-1001			I	SULFD_4500S F (Sulfide)										
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com			J	TDS_W 2540C (TDS)										
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Brine Well 007-B (3,000')	2/16/23	0825	W		10	X		X	X	X	X	X	X	X	V	
2	Brine Well 7B - RS	2/16/23	1145	W		12	X	X	X	X	X	X	X	X	X		
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign

Shipment Method

Required Turnaround Time: (Check Box)

STD 10 Wk Days

Other _____

5 Wk Days

2 Wk Days

24 hour

Results Due Date:

Relinquished by: *[Signature]*

Date: 2/16/23

Time: 1705

Received by: *[Signature]*

Notes: ERM Sulphur Dome

Relinquished by: *[Signature]*

Date: 2/16/23

Time: 1705

Received by (Laboratory): *[Signature]*

Cooler ID

Cooler Temp.

QC Package: (Check One Box Below)

Logged by (Laboratory):

Date: 2/16/23

Time: 1705

Checked by (Laboratory): *[Signature]*

44645

3.3°

1R31

Level II Std QC

Level III Std QC/Raw Data

Level IV SW843/CLP

Other

TRRP Check st

TRRP Level IV

- Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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10450 Stancliff Rd. Suite 210
Houston, TX 77099
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F: +1 281 530 5887

March 16, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23030146**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 7 sample(s) on Mar 02, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030146

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23030146-01	BS 19	Water		28-Feb-2023 10:00	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-02	BS17	Water		28-Feb-2023 11:00	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-03	BS 18	Water		28-Feb-2023 11:20	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-04	BS 12	Water		28-Feb-2023 12:00	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-05	BS 08	Water		28-Feb-2023 12:45	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-06	BS 07	Water		28-Feb-2023 13:10	02-Mar-2023 09:40	<input type="checkbox"/>
HS23030146-07	BS 06	Water		28-Feb-2023 13:25	02-Mar-2023 09:40	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030146

CASE NARRATIVE**GC Semivolatiles by Method MA EPH****Batch ID: 190529**

Sample ID: HS23030144-01MS

- MS and MSD are for an unrelated sample

Sample ID: HS23030265-01MSD

- MSD is for an unrelated sample

GC Volatiles by Method MA VPH**Batch ID: R429439,R429442**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R429353**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW7470A**Batch ID: 190919**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 190821**

Sample ID: HS23030210-09MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SM2320B**Batch ID: R429896**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056**Batch ID: R430050**

Sample ID: BS 07 (HS23030146-06MS)

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)
- The recovery of the Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) associated with this analyte was outside of the established control limits. However, the LCS was within control limits. The recovery of the MS/MSD may be due to sample matrix interference. (Bromide)

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030146

CASE NARRATIVE

WetChemistry by Method E376.1

Batch ID: R429617

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540C

Batch ID: R429364

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F

Batch ID: R429325

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.
-

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 19
 Collection Date: 28-Feb-2023 10:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 02:30
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 02:30
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 02:30
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 02:30
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 02:30
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 02:30
<i>Surr: 1,2-Dichloroethane-d4</i>	91.1			70-126	%REC	1	04-Mar-2023 02:30
<i>Surr: 4-Bromofluorobenzene</i>	90.7			77-113	%REC	1	04-Mar-2023 02:30
<i>Surr: Dibromofluoromethane</i>	95.5			77-123	%REC	1	04-Mar-2023 02:30
<i>Surr: Toluene-d8</i>	98.0			82-127	%REC	1	04-Mar-2023 02:30
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Mar-2023 21:33
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Mar-2023 21:33
Aromatics >C8 - C10	0.0105		0.0100	0.0100	mg/L	1	06-Mar-2023 21:33
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	115			70-130	%REC	1	06-Mar-2023 21:33
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	115			70-130	%REC	1	06-Mar-2023 21:33
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 15:52
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 15:52
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 15:52
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 15:52
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 15:52
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 15:52
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 15:52
<i>Surr: 1-Chlorooctadecane</i>	61.0			40-140	%REC	1	15-Mar-2023 15:52
<i>Surr: 2-Bromonaphthalene</i>	87.4			40-140	%REC	1	15-Mar-2023 15:52
<i>Surr: 2-Fluorobiphenyl</i>	73.2			40-140	%REC	1	15-Mar-2023 15:52
<i>Surr: o-Terphenyl</i>	75.4			40-140	%REC	1	15-Mar-2023 15:52

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 19
 Collection Date: 28-Feb-2023 10:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.00355		0.000400	0.00200	mg/L	1	15-Mar-2023 18:20
Barium	0.127		0.00190	0.00400	mg/L	1	15-Mar-2023 18:20
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:20
Calcium	62.0		0.0340	0.500	mg/L	1	15-Mar-2023 18:20
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:20
Iron	0.102	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:20
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:20
Magnesium	4.36		0.0100	0.200	mg/L	1	15-Mar-2023 18:20
Manganese	0.240		0.000700	0.00500	mg/L	1	15-Mar-2023 18:20
Potassium	0.962		0.0180	0.200	mg/L	1	15-Mar-2023 18:20
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:20
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:20
Sodium	71.2		0.0140	0.200	mg/L	1	15-Mar-2023 18:20
Strontium	0.338		0.000200	0.00500	mg/L	1	15-Mar-2023 18:20
Zinc	0.00535		0.00200	0.00400	mg/L	1	15-Mar-2023 18:20
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:04
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	408		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	240		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 07:24
Chloride	98.4		0.200	0.500	mg/L	1	14-Mar-2023 07:24
Sulfate	6.72		0.200	0.500	mg/L	1	14-Mar-2023 07:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS17
 Collection Date: 28-Feb-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 02:52
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 02:52
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 02:52
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 02:52
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 02:52
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 02:52
<i>Surr: 1,2-Dichloroethane-d4</i>	89.9			70-126	%REC	1	04-Mar-2023 02:52
<i>Surr: 4-Bromofluorobenzene</i>	92.8			77-113	%REC	1	04-Mar-2023 02:52
<i>Surr: Dibromofluoromethane</i>	93.7			77-123	%REC	1	04-Mar-2023 02:52
<i>Surr: Toluene-d8</i>	98.3			82-127	%REC	1	04-Mar-2023 02:52
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Mar-2023 22:11
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Mar-2023 22:11
Aromatics >C8 - C10	0.0101		0.0100	0.0100	mg/L	1	06-Mar-2023 22:11
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	112			70-130	%REC	1	06-Mar-2023 22:11
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	112			70-130	%REC	1	06-Mar-2023 22:11
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 16:24
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 16:24
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 16:24
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 16:24
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 16:24
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 16:24
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 16:24
<i>Surr: 1-Chlorooctadecane</i>	58.1			40-140	%REC	1	15-Mar-2023 16:24
<i>Surr: 2-Bromonaphthalene</i>	79.4			40-140	%REC	1	15-Mar-2023 16:24
<i>Surr: 2-Fluorobiphenyl</i>	54.1			40-140	%REC	1	15-Mar-2023 16:24
<i>Surr: o-Terphenyl</i>	64.3			40-140	%REC	1	15-Mar-2023 16:24

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS17
 Collection Date: 28-Feb-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 15-Mar-2023		Analyst: JC	
Arsenic	0.000797	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:48
Barium	0.118		0.00190	0.00400	mg/L	1	15-Mar-2023 18:48
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:48
Calcium	65.8		0.0340	0.500	mg/L	1	15-Mar-2023 18:48
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:48
Iron	0.0795	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:48
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:48
Magnesium	11.5		0.0100	0.200	mg/L	1	15-Mar-2023 18:48
Manganese	1.000		0.000700	0.00500	mg/L	1	15-Mar-2023 18:48
Potassium	2.36		0.0180	0.200	mg/L	1	15-Mar-2023 18:48
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:48
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:48
Sodium	137		0.0140	0.200	mg/L	1	15-Mar-2023 18:48
Strontium	0.435		0.000200	0.00500	mg/L	1	15-Mar-2023 18:48
Zinc	0.0119		0.00200	0.00400	mg/L	1	15-Mar-2023 18:48
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 16-Mar-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:09
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	732		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	144		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 07:36
Chloride	248		2.00	5.00	mg/L	10	14-Mar-2023 07:42
Sulfate	95.9		0.200	0.500	mg/L	1	14-Mar-2023 07:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 18
 Collection Date: 28-Feb-2023 11:20

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:13
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:13
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 03:13
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:13
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:13
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 03:13
<i>Surr: 1,2-Dichloroethane-d4</i>	90.5			70-126	%REC	1	04-Mar-2023 03:13
<i>Surr: 4-Bromofluorobenzene</i>	92.6			77-113	%REC	1	04-Mar-2023 03:13
<i>Surr: Dibromofluoromethane</i>	92.8			77-123	%REC	1	04-Mar-2023 03:13
<i>Surr: Toluene-d8</i>	97.1			82-127	%REC	1	04-Mar-2023 03:13
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Mar-2023 22:49
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Mar-2023 22:49
Aromatics >C8 - C10	0.0101		0.0100	0.0100	mg/L	1	06-Mar-2023 22:49
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	115			70-130	%REC	1	06-Mar-2023 22:49
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	115			70-130	%REC	1	06-Mar-2023 22:49
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 16:56
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 16:56
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 16:56
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 16:56
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 16:56
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 16:56
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 16:56
<i>Surr: 1-Chlorooctadecane</i>	60.6			40-140	%REC	1	15-Mar-2023 16:56
<i>Surr: 2-Bromonaphthalene</i>	76.5			40-140	%REC	1	15-Mar-2023 16:56
<i>Surr: 2-Fluorobiphenyl</i>	65.1			40-140	%REC	1	15-Mar-2023 16:56
<i>Surr: o-Terphenyl</i>	61.7			40-140	%REC	1	15-Mar-2023 16:56

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 18
 Collection Date: 28-Feb-2023 11:20

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.000916	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:50
Barium	0.125		0.00190	0.00400	mg/L	1	15-Mar-2023 18:50
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:50
Calcium	68.6		0.0340	0.500	mg/L	1	15-Mar-2023 18:50
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:50
Iron	0.0686	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:50
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:50
Magnesium	12.0		0.0100	0.200	mg/L	1	15-Mar-2023 18:50
Manganese	1.03		0.000700	0.00500	mg/L	1	15-Mar-2023 18:50
Potassium	2.42		0.0180	0.200	mg/L	1	15-Mar-2023 18:50
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:50
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:50
Sodium	143		0.0140	0.200	mg/L	1	15-Mar-2023 18:50
Strontium	0.452		0.000200	0.00500	mg/L	1	15-Mar-2023 18:50
Zinc	U		0.00200	0.00400	mg/L	1	15-Mar-2023 18:50
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:11
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	706		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	148		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 07:48
Chloride	248		2.00	5.00	mg/L	10	14-Mar-2023 07:53
Sulfate	95.9		0.200	0.500	mg/L	1	14-Mar-2023 07:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 12
 Collection Date: 28-Feb-2023 12:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:35
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:35
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 03:35
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:35
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:35
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 03:35
<i>Surr: 1,2-Dichloroethane-d4</i>	89.1			70-126	%REC	1	04-Mar-2023 03:35
<i>Surr: 4-Bromofluorobenzene</i>	91.3			77-113	%REC	1	04-Mar-2023 03:35
<i>Surr: Dibromofluoromethane</i>	94.7			77-123	%REC	1	04-Mar-2023 03:35
<i>Surr: Toluene-d8</i>	97.7			82-127	%REC	1	04-Mar-2023 03:35
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Mar-2023 23:27
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Mar-2023 23:27
Aromatics >C8 - C10	0.0102		0.0100	0.0100	mg/L	1	06-Mar-2023 23:27
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	113			70-130	%REC	1	06-Mar-2023 23:27
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	113			70-130	%REC	1	06-Mar-2023 23:27
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 17:28
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 17:28
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 17:28
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 17:28
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 17:28
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 17:28
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 17:28
<i>Surr: 1-Chlorooctadecane</i>	60.4			40-140	%REC	1	15-Mar-2023 17:28
<i>Surr: 2-Bromonaphthalene</i>	65.0			40-140	%REC	1	15-Mar-2023 17:28
<i>Surr: 2-Fluorobiphenyl</i>	55.6			40-140	%REC	1	15-Mar-2023 17:28
<i>Surr: o-Terphenyl</i>	56.5			40-140	%REC	1	15-Mar-2023 17:28

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 12
 Collection Date: 28-Feb-2023 12:00

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.000861	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:52
Barium	0.119		0.00190	0.00400	mg/L	1	15-Mar-2023 18:52
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:52
Calcium	66.9		0.0340	0.500	mg/L	1	15-Mar-2023 18:52
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:52
Iron	0.0570	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:52
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:52
Magnesium	11.9		0.0100	0.200	mg/L	1	15-Mar-2023 18:52
Manganese	0.885		0.000700	0.00500	mg/L	1	15-Mar-2023 18:52
Potassium	2.30		0.0180	0.200	mg/L	1	15-Mar-2023 18:52
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:52
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:52
Sodium	146		0.0140	0.200	mg/L	1	15-Mar-2023 18:52
Strontium	0.451		0.000200	0.00500	mg/L	1	15-Mar-2023 18:52
Zinc	0.0445		0.00200	0.00400	mg/L	1	15-Mar-2023 18:52
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:13
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	712		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	142		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 08:22
Chloride	257		2.00	5.00	mg/L	10	14-Mar-2023 08:28
Sulfate	96.5		0.200	0.500	mg/L	1	14-Mar-2023 08:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 08
 Collection Date: 28-Feb-2023 12:45

ANALYTICAL REPORT
 WorkOrder:HS23030146
 Lab ID:HS23030146-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:56
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:56
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 03:56
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 03:56
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 03:56
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 03:56
<i>Surr: 1,2-Dichloroethane-d4</i>	89.9			70-126	%REC	1	04-Mar-2023 03:56
<i>Surr: 4-Bromofluorobenzene</i>	91.1			77-113	%REC	1	04-Mar-2023 03:56
<i>Surr: Dibromofluoromethane</i>	91.2			77-123	%REC	1	04-Mar-2023 03:56
<i>Surr: Toluene-d8</i>	97.1			82-127	%REC	1	04-Mar-2023 03:56
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Mar-2023 00:05
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Mar-2023 00:05
Aromatics >C8 - C10	0.0101		0.0100	0.0100	mg/L	1	07-Mar-2023 00:05
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	118			70-130	%REC	1	07-Mar-2023 00:05
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	117			70-130	%REC	1	07-Mar-2023 00:05
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 17:59
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 17:59
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 17:59
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 17:59
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 17:59
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 17:59
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 17:59
<i>Surr: 1-Chlorooctadecane</i>	66.8			40-140	%REC	1	15-Mar-2023 17:59
<i>Surr: 2-Bromonaphthalene</i>	73.0			40-140	%REC	1	15-Mar-2023 17:59
<i>Surr: 2-Fluorobiphenyl</i>	45.5			40-140	%REC	1	15-Mar-2023 17:59
<i>Surr: o-Terphenyl</i>	66.5			40-140	%REC	1	15-Mar-2023 17:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 08
 Collection Date: 28-Feb-2023 12:45

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.000975	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:54
Barium	0.127		0.00190	0.00400	mg/L	1	15-Mar-2023 18:54
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:54
Calcium	68.1		0.0340	0.500	mg/L	1	15-Mar-2023 18:54
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:54
Iron	0.166	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:54
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:54
Magnesium	12.0		0.0100	0.200	mg/L	1	15-Mar-2023 18:54
Manganese	0.972		0.000700	0.00500	mg/L	1	15-Mar-2023 18:54
Potassium	2.39		0.0180	0.200	mg/L	1	15-Mar-2023 18:54
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:54
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:54
Sodium	144		0.0140	0.200	mg/L	1	15-Mar-2023 18:54
Strontium	0.457		0.000200	0.00500	mg/L	1	15-Mar-2023 18:54
Zinc	0.0658		0.00200	0.00400	mg/L	1	15-Mar-2023 18:54
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:14
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	748		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	144		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 08:34
Chloride	251		2.00	5.00	mg/L	10	14-Mar-2023 08:40
Sulfate	96.2		0.200	0.500	mg/L	1	14-Mar-2023 08:34

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 07
 Collection Date: 28-Feb-2023 13:10

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 04:17
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 04:17
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 04:17
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 04:17
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 04:17
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 04:17
<i>Surr: 1,2-Dichloroethane-d4</i>	90.6			70-126	%REC	1	04-Mar-2023 04:17
<i>Surr: 4-Bromofluorobenzene</i>	92.7			77-113	%REC	1	04-Mar-2023 04:17
<i>Surr: Dibromofluoromethane</i>	93.1			77-123	%REC	1	04-Mar-2023 04:17
<i>Surr: Toluene-d8</i>	98.6			82-127	%REC	1	04-Mar-2023 04:17
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Mar-2023 00:44
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Mar-2023 00:44
Aromatics >C8 - C10	0.0103		0.0100	0.0100	mg/L	1	07-Mar-2023 00:44
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	111			70-130	%REC	1	07-Mar-2023 00:44
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	111			70-130	%REC	1	07-Mar-2023 00:44
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 18:31
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 18:31
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 18:31
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 18:31
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 18:31
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 18:31
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 18:31
<i>Surr: 1-Chlorooctadecane</i>	56.6			40-140	%REC	1	15-Mar-2023 18:31
<i>Surr: 2-Bromonaphthalene</i>	84.5			40-140	%REC	1	15-Mar-2023 18:31
<i>Surr: 2-Fluorobiphenyl</i>	71.6			40-140	%REC	1	15-Mar-2023 18:31
<i>Surr: o-Terphenyl</i>	68.2			40-140	%REC	1	15-Mar-2023 18:31

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 07
 Collection Date: 28-Feb-2023 13:10

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.000886	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:56
Barium	0.119		0.00190	0.00400	mg/L	1	15-Mar-2023 18:56
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:56
Calcium	65.8		0.0340	0.500	mg/L	1	15-Mar-2023 18:56
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:56
Iron	0.0546	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:56
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:56
Magnesium	11.5		0.0100	0.200	mg/L	1	15-Mar-2023 18:56
Manganese	1.03		0.000700	0.00500	mg/L	1	15-Mar-2023 18:56
Potassium	2.36		0.0180	0.200	mg/L	1	15-Mar-2023 18:56
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:56
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:56
Sodium	140		0.0140	0.200	mg/L	1	15-Mar-2023 18:56
Strontium	0.426		0.000200	0.00500	mg/L	1	15-Mar-2023 18:56
Zinc	U		0.00200	0.00400	mg/L	1	15-Mar-2023 18:56
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:16
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	712		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	162		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 08:46
Chloride	253		2.00	5.00	mg/L	10	14-Mar-2023 09:03
Sulfate	95.1		0.200	0.500	mg/L	1	14-Mar-2023 08:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 06
 Collection Date: 28-Feb-2023 13:25

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	04-Mar-2023 04:39
Ethylbenzene	U		0.30	1.0	ug/L	1	04-Mar-2023 04:39
m,p-Xylene	U		0.50	2.0	ug/L	1	04-Mar-2023 04:39
o-Xylene	U		0.30	1.0	ug/L	1	04-Mar-2023 04:39
Toluene	U		0.20	1.0	ug/L	1	04-Mar-2023 04:39
Xylenes, Total	U		0.30	1.0	ug/L	1	04-Mar-2023 04:39
<i>Surr: 1,2-Dichloroethane-d4</i>	87.0			70-126	%REC	1	04-Mar-2023 04:39
<i>Surr: 4-Bromofluorobenzene</i>	92.1			77-113	%REC	1	04-Mar-2023 04:39
<i>Surr: Dibromofluoromethane</i>	92.9			77-123	%REC	1	04-Mar-2023 04:39
<i>Surr: Toluene-d8</i>	98.2			82-127	%REC	1	04-Mar-2023 04:39
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Mar-2023 01:22
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Mar-2023 01:22
Aromatics >C8 - C10	0.0102		0.0100	0.0100	mg/L	1	07-Mar-2023 01:22
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	120			70-130	%REC	1	07-Mar-2023 01:22
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	119			70-130	%REC	1	07-Mar-2023 01:22
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 20:06
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	15-Mar-2023 20:06
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	15-Mar-2023 20:06
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	15-Mar-2023 20:06
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	15-Mar-2023 20:06
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	15-Mar-2023 20:06
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	15-Mar-2023 20:06
<i>Surr: 1-Chlorooctadecane</i>	63.5			40-140	%REC	1	15-Mar-2023 20:06
<i>Surr: 2-Bromonaphthalene</i>	82.7			40-140	%REC	1	15-Mar-2023 20:06
<i>Surr: 2-Fluorobiphenyl</i>	57.8			40-140	%REC	1	15-Mar-2023 20:06
<i>Surr: o-Terphenyl</i>	72.0			40-140	%REC	1	15-Mar-2023 20:06

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: BS 06
 Collection Date: 28-Feb-2023 13:25

ANALYTICAL REPORT

WorkOrder:HS23030146
 Lab ID:HS23030146-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 15-Mar-2023 Analyst: JC
Arsenic	0.000784	J	0.000400	0.00200	mg/L	1	15-Mar-2023 18:58
Barium	0.116		0.00190	0.00400	mg/L	1	15-Mar-2023 18:58
Cadmium	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:58
Calcium	66.3		0.0340	0.500	mg/L	1	15-Mar-2023 18:58
Chromium	U		0.000400	0.00400	mg/L	1	15-Mar-2023 18:58
Iron	0.0485	J	0.0120	0.200	mg/L	1	15-Mar-2023 18:58
Lead	U		0.000600	0.00200	mg/L	1	15-Mar-2023 18:58
Magnesium	11.7		0.0100	0.200	mg/L	1	15-Mar-2023 18:58
Manganese	0.813		0.000700	0.00500	mg/L	1	15-Mar-2023 18:58
Potassium	2.31		0.0180	0.200	mg/L	1	15-Mar-2023 18:58
Selenium	U		0.00110	0.00200	mg/L	1	15-Mar-2023 18:58
Silver	U		0.000200	0.00200	mg/L	1	15-Mar-2023 18:58
Sodium	142		0.0140	0.200	mg/L	1	15-Mar-2023 18:58
Strontium	0.441		0.000200	0.00500	mg/L	1	15-Mar-2023 18:58
Zinc	U		0.00200	0.00400	mg/L	1	15-Mar-2023 18:58
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 16-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	16-Mar-2023 15:18
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	04-Mar-2023 08:53
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	710		5.00	10.0	mg/L	1	03-Mar-2023 02:00
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	148		5.00	5.00	mg/L	1	11-Mar-2023 13:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	11-Mar-2023 13:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.00	1.00	mg/L	1	04-Mar-2023 14:11
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Mar-2023 09:09
Chloride	253		2.00	5.00	mg/L	10	14-Mar-2023 09:15
Sulfate	96.8		0.200	0.500	mg/L	1	14-Mar-2023 09:09

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23030146**Batch ID:** 190529**Start Date:** 08 Mar 2023 11:47**End Date:** 08 Mar 2023 14:30**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030146-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030146-07	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 190821**Start Date:** 15 Mar 2023 08:30**End Date:** 15 Mar 2023 12:30**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030146-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-07		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 190919**Start Date:** 16 Mar 2023 09:00**End Date:** 16 Mar 2023 12:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030146-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030146-07		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 190529 (0)	Test Name : MASSACHUSETTS EPH R2.1, DEC 2019					Matrix: Water
HS23030146-01	BS 19	28 Feb 2023 10:00		08 Mar 2023 11:47	15 Mar 2023 15:52	1
HS23030146-01	BS 19	28 Feb 2023 10:00		08 Mar 2023 11:47	15 Mar 2023 15:52	1
HS23030146-02	BS17	28 Feb 2023 11:00		08 Mar 2023 11:47	15 Mar 2023 16:24	1
HS23030146-02	BS17	28 Feb 2023 11:00		08 Mar 2023 11:47	15 Mar 2023 16:24	1
HS23030146-03	BS 18	28 Feb 2023 11:20		08 Mar 2023 11:47	15 Mar 2023 16:56	1
HS23030146-03	BS 18	28 Feb 2023 11:20		08 Mar 2023 11:47	15 Mar 2023 16:56	1
HS23030146-04	BS 12	28 Feb 2023 12:00		08 Mar 2023 11:47	15 Mar 2023 17:28	1
HS23030146-04	BS 12	28 Feb 2023 12:00		08 Mar 2023 11:47	15 Mar 2023 17:28	1
HS23030146-05	BS 08	28 Feb 2023 12:45		08 Mar 2023 11:47	15 Mar 2023 17:59	1
HS23030146-05	BS 08	28 Feb 2023 12:45		08 Mar 2023 11:47	15 Mar 2023 17:59	1
HS23030146-06	BS 07	28 Feb 2023 13:10		08 Mar 2023 11:47	15 Mar 2023 18:31	1
HS23030146-06	BS 07	28 Feb 2023 13:10		08 Mar 2023 11:47	15 Mar 2023 18:31	1
HS23030146-07	BS 06	28 Feb 2023 13:25		08 Mar 2023 11:47	15 Mar 2023 20:06	1
HS23030146-07	BS 06	28 Feb 2023 13:25		08 Mar 2023 11:47	15 Mar 2023 20:06	1
Batch ID: 190821 (0)	Test Name : ICP-MS METALS BY SW6020A					Matrix: Water
HS23030146-01	BS 19	28 Feb 2023 10:00		15 Mar 2023 08:30	15 Mar 2023 18:20	1
HS23030146-02	BS17	28 Feb 2023 11:00		15 Mar 2023 08:30	15 Mar 2023 18:48	1
HS23030146-03	BS 18	28 Feb 2023 11:20		15 Mar 2023 08:30	15 Mar 2023 18:50	1
HS23030146-04	BS 12	28 Feb 2023 12:00		15 Mar 2023 08:30	15 Mar 2023 18:52	1
HS23030146-05	BS 08	28 Feb 2023 12:45		15 Mar 2023 08:30	15 Mar 2023 18:54	1
HS23030146-06	BS 07	28 Feb 2023 13:10		15 Mar 2023 08:30	15 Mar 2023 18:56	1
HS23030146-07	BS 06	28 Feb 2023 13:25		15 Mar 2023 08:30	15 Mar 2023 18:58	1
Batch ID: 190919 (0)	Test Name : MERCURY BY SW7470A					Matrix: Water
HS23030146-01	BS 19	28 Feb 2023 10:00		16 Mar 2023 09:00	16 Mar 2023 15:04	1
HS23030146-02	BS17	28 Feb 2023 11:00		16 Mar 2023 09:00	16 Mar 2023 15:09	1
HS23030146-03	BS 18	28 Feb 2023 11:20		16 Mar 2023 09:00	16 Mar 2023 15:11	1
HS23030146-04	BS 12	28 Feb 2023 12:00		16 Mar 2023 09:00	16 Mar 2023 15:13	1
HS23030146-05	BS 08	28 Feb 2023 12:45		16 Mar 2023 09:00	16 Mar 2023 15:14	1
HS23030146-06	BS 07	28 Feb 2023 13:10		16 Mar 2023 09:00	16 Mar 2023 15:16	1
HS23030146-07	BS 06	28 Feb 2023 13:25		16 Mar 2023 09:00	16 Mar 2023 15:18	1
Batch ID: R429325 (0)	Test Name : SULFIDE BY SM4500 S2-F-2011					Matrix: Water
HS23030146-01	BS 19	28 Feb 2023 10:00			04 Mar 2023 14:11	1
HS23030146-02	BS17	28 Feb 2023 11:00			04 Mar 2023 14:11	1
HS23030146-03	BS 18	28 Feb 2023 11:20			04 Mar 2023 14:11	1
HS23030146-04	BS 12	28 Feb 2023 12:00			04 Mar 2023 14:11	1
HS23030146-05	BS 08	28 Feb 2023 12:45			04 Mar 2023 14:11	1
HS23030146-06	BS 07	28 Feb 2023 13:10			04 Mar 2023 14:11	1
HS23030146-07	BS 06	28 Feb 2023 13:25			04 Mar 2023 14:11	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R429353 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C				
HS23030146-01	BS 19	28 Feb 2023 10:00			04 Mar 2023 02:30	1
HS23030146-02	BS17	28 Feb 2023 11:00			04 Mar 2023 02:52	1
HS23030146-03	BS 18	28 Feb 2023 11:20			04 Mar 2023 03:13	1
HS23030146-04	BS 12	28 Feb 2023 12:00			04 Mar 2023 03:35	1
HS23030146-05	BS 08	28 Feb 2023 12:45			04 Mar 2023 03:56	1
HS23030146-06	BS 07	28 Feb 2023 13:10			04 Mar 2023 04:17	1
HS23030146-07	BS 06	28 Feb 2023 13:25			04 Mar 2023 04:39	1
Batch ID: R429364 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				
HS23030146-01	BS 19	28 Feb 2023 10:00			03 Mar 2023 02:00	1
HS23030146-02	BS17	28 Feb 2023 11:00			03 Mar 2023 02:00	1
HS23030146-03	BS 18	28 Feb 2023 11:20			03 Mar 2023 02:00	1
HS23030146-04	BS 12	28 Feb 2023 12:00			03 Mar 2023 02:00	1
HS23030146-05	BS 08	28 Feb 2023 12:45			03 Mar 2023 02:00	1
HS23030146-06	BS 07	28 Feb 2023 13:10			03 Mar 2023 02:00	1
HS23030146-07	BS 06	28 Feb 2023 13:25			03 Mar 2023 02:00	1
Batch ID: R429439 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				
HS23030146-01	BS 19	28 Feb 2023 10:00			06 Mar 2023 21:33	1
HS23030146-02	BS17	28 Feb 2023 11:00			06 Mar 2023 22:11	1
HS23030146-03	BS 18	28 Feb 2023 11:20			06 Mar 2023 22:49	1
HS23030146-04	BS 12	28 Feb 2023 12:00			06 Mar 2023 23:27	1
HS23030146-05	BS 08	28 Feb 2023 12:45			07 Mar 2023 00:05	1
HS23030146-06	BS 07	28 Feb 2023 13:10			07 Mar 2023 00:44	1
HS23030146-07	BS 06	28 Feb 2023 13:25			07 Mar 2023 01:22	1
Batch ID: R429442 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				
HS23030146-01	BS 19	28 Feb 2023 10:00			06 Mar 2023 21:33	1
HS23030146-02	BS17	28 Feb 2023 11:00			06 Mar 2023 22:11	1
HS23030146-03	BS 18	28 Feb 2023 11:20			06 Mar 2023 22:49	1
HS23030146-04	BS 12	28 Feb 2023 12:00			06 Mar 2023 23:27	1
HS23030146-05	BS 08	28 Feb 2023 12:45			07 Mar 2023 00:05	1
HS23030146-06	BS 07	28 Feb 2023 13:10			07 Mar 2023 00:44	1
HS23030146-07	BS 06	28 Feb 2023 13:25			07 Mar 2023 01:22	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R429617 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS23030146-01	BS 19	28 Feb 2023 10:00			04 Mar 2023 08:53	1
HS23030146-02	BS17	28 Feb 2023 11:00			04 Mar 2023 08:53	1
HS23030146-03	BS 18	28 Feb 2023 11:20			04 Mar 2023 08:53	1
HS23030146-04	BS 12	28 Feb 2023 12:00			04 Mar 2023 08:53	1
HS23030146-05	BS 08	28 Feb 2023 12:45			04 Mar 2023 08:53	1
HS23030146-06	BS 07	28 Feb 2023 13:10			04 Mar 2023 08:53	1
HS23030146-07	BS 06	28 Feb 2023 13:25			04 Mar 2023 08:53	1
Batch ID: R429896 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS23030146-01	BS 19	28 Feb 2023 10:00			11 Mar 2023 13:37	1
HS23030146-02	BS17	28 Feb 2023 11:00			11 Mar 2023 13:37	1
HS23030146-03	BS 18	28 Feb 2023 11:20			11 Mar 2023 13:37	1
HS23030146-04	BS 12	28 Feb 2023 12:00			11 Mar 2023 13:37	1
HS23030146-05	BS 08	28 Feb 2023 12:45			11 Mar 2023 13:37	1
HS23030146-06	BS 07	28 Feb 2023 13:10			11 Mar 2023 13:37	1
HS23030146-07	BS 06	28 Feb 2023 13:25			11 Mar 2023 13:37	1
Batch ID: R430050 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS23030146-01	BS 19	28 Feb 2023 10:00			14 Mar 2023 07:24	1
HS23030146-02	BS17	28 Feb 2023 11:00			14 Mar 2023 07:42	10
HS23030146-02	BS17	28 Feb 2023 11:00			14 Mar 2023 07:36	1
HS23030146-03	BS 18	28 Feb 2023 11:20			14 Mar 2023 07:53	10
HS23030146-03	BS 18	28 Feb 2023 11:20			14 Mar 2023 07:48	1
HS23030146-04	BS 12	28 Feb 2023 12:00			14 Mar 2023 08:28	10
HS23030146-04	BS 12	28 Feb 2023 12:00			14 Mar 2023 08:22	1
HS23030146-05	BS 08	28 Feb 2023 12:45			14 Mar 2023 08:40	10
HS23030146-05	BS 08	28 Feb 2023 12:45			14 Mar 2023 08:34	1
HS23030146-06	BS 07	28 Feb 2023 13:10			14 Mar 2023 09:03	10
HS23030146-06	BS 07	28 Feb 2023 13:10			14 Mar 2023 08:46	1
HS23030146-07	BS 06	28 Feb 2023 13:25			14 Mar 2023 09:15	10
HS23030146-07	BS 06	28 Feb 2023 13:25			14 Mar 2023 09:09	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190529 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK	Sample ID:	MLBK-190529	Units:	mg/L	Analysis Date: 10-Mar-2023 11:47			
Client ID:	Run ID:	FID-7_429905	SeqNo:	7169435	PrepDate:	08-Mar-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	U	0.00100						
Aliphatics >C12 - C16	U	0.00200						
Aliphatics >C16 - C35	U	0.00800						
Surr: 1-Chlorooctadecane	0.04158	0	0.04	0	104	40 - 140		

MLBK	Sample ID:	MLBK-190529	Units:	mg/L	Analysis Date: 10-Mar-2023 13:44			
Client ID:	Run ID:	FID-8_429901	SeqNo:	7169343	PrepDate:	08-Mar-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12	U	0.00100						
Aromatics >C12 - C16	U	0.00400						
Aromatics >C16 - C21	U	0.00300						
Aromatics >C21 - C35	U	0.00900						
Surr: 2-Bromonaphthalene	0.03316	0	0.04	0	82.9	40 - 140		
Surr: 2-Fluorobiphenyl	0.02199	0	0.04	0	55.0	40 - 140		
Surr: o-Terphenyl	0.0338	0	0.04	0	84.5	40 - 140		

LCS	Sample ID:	LCS-190529	Units:	mg/L	Analysis Date: 10-Mar-2023 12:33			
Client ID:	Run ID:	FID-7_429905	SeqNo:	7169436	PrepDate:	08-Mar-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	0.04982	0.00100	0.05	0	99.6	40 - 140		
Aliphatics >C12 - C16	0.1023	0.00200	0.1	0	102	40 - 140		
Aliphatics >C16 - C35	0.5008	0.00800	0.4	0	125	40 - 140		
Surr: 1-Chlorooctadecane	0.03472	0	0.04	0	86.8	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190529 (0)		Instrument: FID-7		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS	Sample ID: LCS-190529			Units: mg/L		Analysis Date: 10-Mar-2023 14:15			
Client ID:		Run ID: FID-8_429901		SeqNo: 7169344		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12	0.06538	0.00100	0.05	0	131	40 - 140			
Aromatics >C12 - C16	0.262	0.00400	0.2	0	131	40 - 140			
Aromatics >C16 - C21	0.2015	0.00300	0.15	0	134	40 - 140			
Aromatics >C21 - C35	0.5356	0.00900	0.45	0	119	40 - 140			
Surr: 2-Bromonaphthalene	0.04055	0	0.04	0	101	40 - 140			
Surr: 2-Fluorobiphenyl	0.02624	0	0.04	0	65.6	40 - 140			
Surr: o-Terphenyl	0.04719	0	0.04	0	118	40 - 140			
MS	Sample ID: HS23030265-01MS			Units: mg/L		Analysis Date: 15-Mar-2023 21:09			
Client ID:		Run ID: FID-7_429905		SeqNo: 7176335		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	0.06667	0.00100	0.05	0.0158	102	40 - 140			
Aliphatics >C12 - C16	0.09965	0.00200	0.1	0	99.6	40 - 140			
Aliphatics >C16 - C35	0.3296	0.00800	0.4	0	82.4	40 - 140			
Surr: 1-Chlorooctadecane	0.02708	0	0.04	0	67.7	40 - 140			
MS	Sample ID: HS23030144-01MS			Units: mg/L		Analysis Date: 10-Mar-2023 13:44			
Client ID:		Run ID: FID-7_429905		SeqNo: 7169438		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	0.06231	0.00100	0.05	0	125	40 - 140			
Aliphatics >C12 - C16	0.1312	0.00200	0.1	0	131	40 - 140			
Aliphatics >C16 - C35	0.6238	0.00800	0.4	0	156	40 - 140			S
Surr: 1-Chlorooctadecane	0.04668	0	0.04	0	117	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190529 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MS	Sample ID:	HS23030265-01MS		Units: mg/L		Analysis Date: 15-Mar-2023 21:09			
Client ID:		Run ID: FID-8_429901		SeqNo: 7175834		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05236	0.00100	0.05	0.0301	44.5	40 - 140		
Aromatics >C12 - C16		0.1732	0.00400	0.2	0.03688	68.2	40 - 140		
Aromatics >C16 - C21		0.1464	0.00300	0.15	0	97.6	40 - 140		
Aromatics >C21 - C35		0.3183	0.00900	0.45	0	70.7	40 - 140		
Surr: 2-Bromonaphthalene		0.02748	0	0.04	0	68.7	40 - 140		
Surr: 2-Fluorobiphenyl		0.01665	0	0.04	0	41.6	40 - 140		
Surr: o-Terphenyl		0.02743	0	0.04	0	68.6	40 - 140		

MS	Sample ID:	HS23030144-01MS		Units: mg/L		Analysis Date: 10-Mar-2023 15:19			
Client ID:		Run ID: FID-8_429901		SeqNo: 7169346		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.06523	0.00100	0.05	0	130	40 - 140		
Aromatics >C12 - C16		0.2855	0.00400	0.2	0	143	40 - 140		S
Aromatics >C16 - C21		0.2345	0.00300	0.15	0	156	40 - 140		S
Aromatics >C21 - C35		0.6896	0.00900	0.45	0	153	40 - 140		S
Surr: 2-Bromonaphthalene		0.0447	0	0.04	0	112	40 - 140		
Surr: 2-Fluorobiphenyl		0.02301	0	0.04	0	57.5	40 - 140		
Surr: o-Terphenyl		0.05419	0	0.04	0	135	40 - 140		

MSD	Sample ID:	HS23030265-01MSD		Units: mg/L		Analysis Date: 15-Mar-2023 21:41			
Client ID:		Run ID: FID-7_429905		SeqNo: 7176336		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.04243	0.00100	0.05	0.0158	53.3	40 - 140	0.06667	44.4 50
Aliphatics >C12 - C16		0.06653	0.00200	0.1	0	66.5	40 - 140	0.09965	39.9 50
Aliphatics >C16 - C35		0.2993	0.00800	0.4	0	74.8	40 - 140	0.3296	9.65 50
Surr: 1-Chlorooctadecane		0.02203	0	0.04	0	55.1	40 - 140	0.02708	20.5 50

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190529 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23030144-01MSD		Units: mg/L		Analysis Date: 10-Mar-2023 14:15			
Client ID:		Run ID: FID-7_429905		SeqNo: 7169439		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05381	0.00100	0.05	0	108	40 - 140	0.06231	14.6 50
Aliphatics >C12 - C16		0.1135	0.00200	0.1	0	113	40 - 140	0.1312	14.5 50
Aliphatics >C16 - C35		0.546	0.00800	0.4	0	136	40 - 140	0.6238	13.3 50
Surr: 1-Chlorooctadecane		0.03934	0	0.04	0	98.4	40 - 140	0.04668	17.1 50

MSD	Sample ID:	HS23030265-01MSD		Units: mg/L		Analysis Date: 15-Mar-2023 21:41			
Client ID:		Run ID: FID-8_429901		SeqNo: 7175835		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.08146	0.00100	0.05	0.0301	103	40 - 140	0.05236	43.5 50
Aromatics >C12 - C16		0.2296	0.00400	0.2	0.03688	96.3	40 - 140	0.1732	28 50
Aromatics >C16 - C21		0.1679	0.00300	0.15	0	112	40 - 140	0.1464	13.7 50
Aromatics >C21 - C35		0.4564	0.00900	0.45	0	101	40 - 140	0.3183	35.7 50
Surr: 2-Bromonaphthalene		0.03623	0	0.04	0	90.6	40 - 140	0.02748	27.5 50
Surr: 2-Fluorobiphenyl		0.03047	0	0.04	0	76.2	40 - 140	0.01665	58.7 50
Surr: o-Terphenyl		0.03537	0	0.04	0	88.4	40 - 140	0.02743	25.3 50

MSD	Sample ID:	HS23030144-01MSD		Units: mg/L		Analysis Date: 10-Mar-2023 15:50			
Client ID:		Run ID: FID-8_429901		SeqNo: 7169393		PrepDate: 08-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.04974	0.00100	0.05	0	99.5	40 - 140	0.06523	26.9 50
Aromatics >C12 - C16		0.202	0.00400	0.2	0	101	40 - 140	0.2855	34.3 50
Aromatics >C16 - C21		0.15	0.00300	0.15	0	100	40 - 140	0.2345	43.9 50
Aromatics >C21 - C35		0.4249	0.00900	0.45	0	94.4	40 - 140	0.6896	47.5 50
Surr: 2-Bromonaphthalene		0.0319	0	0.04	0	79.7	40 - 140	0.0447	33.4 50
Surr: 2-Fluorobiphenyl		0.01858	0	0.04	0	46.4	40 - 140	0.02301	21.3 50
Surr: o-Terphenyl		0.03529	0	0.04	0	88.2	40 - 140	0.05419	42.3 50

The following samples were analyzed in this batch:	HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
	HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429439 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1			
MLBK	Sample ID: MBLK-230306			Units: mg/L		Analysis Date: 06-Mar-2023 14:32	
Client ID:		Run ID:	FID-14_429439	SeqNo: 7159395	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD
Aliphatics >C6 - C8	U	0.0100					RPD Limit Qual
Aliphatics >C8 - C10	U	0.0100					
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2716	0.0100	0.25	0	109	70 - 130	
LCS	Sample ID: LCS-230306			Units: mg/L		Analysis Date: 06-Mar-2023 12:38	
Client ID:		Run ID:	FID-14_429439	SeqNo: 7159393	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD
Aliphatics >C6 - C8	0.02641	0.0100	0.025	0	106	70 - 130	
Aliphatics >C8 - C10	0.02277	0.0100	0.025	0	91.1	70 - 130	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2737	0.0100	0.25	0	109	70 - 130	
LCSD	Sample ID: LCSD-230306			Units: mg/L		Analysis Date: 06-Mar-2023 13:16	
Client ID:		Run ID:	FID-14_429439	SeqNo: 7159394	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD
Aliphatics >C6 - C8	0.02635	0.0100	0.025	0	105	70 - 130	0.02641 0.216 25
Aliphatics >C8 - C10	0.02333	0.0100	0.025	0	93.3	70 - 130	0.02277 2.44 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2756	0.0100	0.25	0	110	70 - 130	0.2737 0.686 25
The following samples were analyzed in this batch:		HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04		
		HS23030146-05	HS23030146-06	HS23030146-07			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429442 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230306	Units: mg/L			Analysis Date: 06-Mar-2023 14:32
Client ID:		Run ID: FID-15_429442	SeqNo: 7159471	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.2714	0.0100	0.25	0 109	70 - 130
LCS	Sample ID: LCS-230306	Units: mg/L			Analysis Date: 06-Mar-2023 12:38
Client ID:		Run ID: FID-15_429442	SeqNo: 7159469	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.0806	0.0100	0.1	0 80.6	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2739	0.0100	0.25	0 110	70 - 130
LCSD	Sample ID: LCSD-230306	Units: mg/L			Analysis Date: 06-Mar-2023 13:16
Client ID:		Run ID: FID-15_429442	SeqNo: 7159470	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08193	0.0100	0.1	0 81.9	70 - 130 0.0806 1.64 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2759	0.0100	0.25	0 110	70 - 130 0.2739 0.719 25
The following samples were analyzed in this batch:		HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
		HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-190821	Units:	mg/L	Analysis Date: 15-Mar-2023 17:55			
Client ID:		Run ID:	ICPMS06_430095	SeqNo:	7174441	PrepDate:	15-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	U	0.00200						
Barium	U	0.00400						
Cadmium	U	0.00200						
Calcium	U	0.500						
Chromium	U	0.00400						
Iron	U	0.200						
Lead	U	0.00200						
Magnesium	U	0.200						
Manganese	U	0.00500						
Potassium	U	0.200						
Selenium	U	0.00200						
Silver	U	0.00200						
Sodium	0.07492	0.200						J
Strontium	U	0.00500						
Zinc	U	0.00400						

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0)		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A				
LCS	Sample ID: LCS-190821	Units: mg/L			Analysis Date: 15-Mar-2023 17:57			
Client ID:		Run ID: ICPMS06_430095		SeqNo: 7174442	PrepDate: 15-Mar-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.05255	0.00200	0.05	0	105	80 - 120		
Barium	0.05072	0.00400	0.05	0	101	80 - 120		
Cadmium	0.05128	0.00200	0.05	0	103	80 - 120		
Calcium	5.182	0.500	5	0	104	80 - 120		
Chromium	0.04922	0.00400	0.05	0	98.4	80 - 120		
Iron	5.2	0.200	5	0	104	80 - 120		
Lead	0.05064	0.00200	0.05	0	101	80 - 120		
Magnesium	5.281	0.200	5	0	106	80 - 120		
Manganese	0.05188	0.00500	0.05	0	104	80 - 120		
Potassium	5.178	0.200	5	0	104	80 - 120		
Selenium	0.05167	0.00200	0.05	0	103	80 - 120		
Silver	0.05293	0.00200	0.05	0	106	80 - 120		
Sodium	5.215	0.200	5	0	104	80 - 120		
Strontium	0.1009	0.00500	0.1	0	101	80 - 120		
Zinc	0.05288	0.00400	0.05	0	106	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23030210-09MS		Units:	mg/L	Analysis Date: 15-Mar-2023 18:03			
Client ID:		Run ID: ICPMS06_430095		SeqNo:	7174445	PrepDate:	15-Mar-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05	0.00200	0.05	0.000454	99.1	80 - 120		
Barium		0.1958	0.00400	0.05	0.1436	104	80 - 120		
Cadmium		0.04818	0.00200	0.05	0.000013	96.3	80 - 120		
Calcium		117.5	0.500	5	111.1	128	80 - 120		SO
Chromium		0.04559	0.00400	0.05	-0.000444	92.1	80 - 120		
Iron		4.788	0.200	5	0.07323	94.3	80 - 120		
Lead		0.04828	0.00200	0.05	0.000448	95.7	80 - 120		
Magnesium		19.37	0.200	5	14.47	98.0	80 - 120		
Manganese		0.1139	0.00500	0.05	0.06454	98.7	80 - 120		
Potassium		5.146	0.200	5	0.3694	95.5	80 - 120		
Selenium		0.04926	0.00200	0.05	-0.000239	99.0	80 - 120		
Silver		0.04789	0.00200	0.05	0.000012	95.8	80 - 120		
Sodium		65.4	0.200	5	59.64	115	80 - 120		O
Strontium		0.4201	0.00500	0.1	0.3168	103	80 - 120		
Zinc		0.06365	0.00400	0.05	0.01454	98.2	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23030210-09MSD		Units:	mg/L	Analysis Date: 15-Mar-2023 18:05			
Client ID:		Run ID: ICPMS06_430095		SeqNo:	7174446	PrepDate:	15-Mar-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.04979	0.00200	0.05	0.000454	98.7	80 - 120	0.05	0.433 20
Barium		0.1967	0.00400	0.05	0.1436	106	80 - 120	0.1958	0.497 20
Cadmium		0.0488	0.00200	0.05	0.000013	97.6	80 - 120	0.04818	1.28 20
Calcium		118.1	0.500	5	111.1	139	80 - 120	117.5	0.471 20 SO
Chromium		0.04563	0.00400	0.05	-0.000444	92.2	80 - 120	0.04559	0.0899 20
Iron		4.821	0.200	5	0.07323	95.0	80 - 120	4.788	0.687 20
Lead		0.04812	0.00200	0.05	0.000448	95.3	80 - 120	0.04828	0.338 20
Magnesium		19.45	0.200	5	14.47	99.6	80 - 120	19.37	0.406 20
Manganese		0.1138	0.00500	0.05	0.06454	98.5	80 - 120	0.1139	0.094 20
Potassium		5.086	0.200	5	0.3694	94.3	80 - 120	5.146	1.18 20
Selenium		0.05059	0.00200	0.05	-0.000239	102	80 - 120	0.04926	2.67 20
Silver		0.04822	0.00200	0.05	0.000012	96.4	80 - 120	0.04789	0.691 20
Sodium		65.59	0.200	5	59.64	119	80 - 120	65.4	0.288 20 O
Strontium		0.4286	0.00500	0.1	0.3168	112	80 - 120	0.4201	2 20
Zinc		0.06427	0.00400	0.05	0.01454	99.5	80 - 120	0.06365	0.969 20

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0)		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A					
PDS	Sample ID:	HS23030210-09PDS		Units: mg/L		Analysis Date: 15-Mar-2023 18:07			
Client ID:		Run ID: ICPMS06_430095		SeqNo: 7174447		PrepDate: 15-Mar-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual
Arsenic		0.09582	0.00200	0.1	0.000454	95.4	75 - 125		
Barium		0.237	0.00400	0.1	0.1436	93.4	75 - 125		
Cadmium		0.09214	0.00200	0.1	0.000013	92.1	75 - 125		
Calcium		119.4	0.500	10	111.1	82.9	75 - 125	O	
Chromium		0.0877	0.00400	0.1	-0.000444	88.1	75 - 125		
Iron		9.093	0.200	10	0.07323	90.2	75 - 125		
Lead		0.09278	0.00200	0.1	0.000448	92.3	75 - 125		
Magnesium		23.31	0.200	10	14.47	88.4	75 - 125		
Manganese		0.1553	0.00500	0.1	0.06454	90.8	75 - 125		
Potassium		9.247	0.200	10	0.3694	88.8	75 - 125		
Selenium		0.09412	0.00200	0.1	-0.000239	94.4	75 - 125		
Silver		0.09386	0.00200	0.1	0.000012	93.8	75 - 125		
Sodium		67.28	0.200	10	59.64	76.4	75 - 125	O	
Strontium		0.4237	0.00500	0.1	0.3168	107	75 - 125		
Zinc		0.1078	0.00400	0.1	0.01454	93.2	75 - 125		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190821 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID: HS23030210-09SD		Units: mg/L		Analysis Date: 15-Mar-2023 18:01				
Client ID:	Run ID: ICPMS06_430095		SeqNo: 7174444		PrepDate: 15-Mar-2023		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	U	0.0100					0.000454	0	10
Barium	0.1424	0.0200					0.1436	0.858	10
Cadmium	U	0.0100					0.000013	0	10
Calcium	112.4	2.50					111.1	1.14	10
Chromium	0.008987	0.0200					-0.000444	0	10
Iron	0.08059	1.00					0.07323	0	10
Lead	U	0.0100					0.000448	0	10
Magnesium	14.87	1.00					14.47	2.74	10
Manganese	0.06552	0.0250					0.06454	1.52	10
Potassium	0.3614	1.00					0.3694	0	10
Selenium	U	0.0100					-0.000239	0	10
Silver	U	0.0100					0.000012	0	10
Sodium	60.49	1.00					59.64	1.42	10
Strontium	0.3247	0.0250					0.3168	2.49	10
Zinc	0.01582	0.0200					0.01454	0	10

The following samples were analyzed in this batch: HS23030146-01 HS23030146-02 HS23030146-03 HS23030146-04
 HS23030146-05 HS23030146-06 HS23030146-07

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: 190919 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-190919	Units:	mg/L	Analysis Date: 16-Mar-2023 14:47			
Client ID:		Run ID:	HG04_430208	SeqNo:	7177467	PrepDate:	16-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-190919	Units:	mg/L	Analysis Date: 16-Mar-2023 14:49			
Client ID:		Run ID:	HG04_430208	SeqNo:	7177468	PrepDate:	16-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00473 0.000200 0.005 0 94.6 80 - 120

MS	Sample ID:	HS23030146-01MS	Units:	mg/L	Analysis Date: 16-Mar-2023 15:06			
Client ID:	BS 19	Run ID:	HG04_430208	SeqNo:	7177474	PrepDate:	16-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00521 0.000200 0.005 0.000009 104 75 - 125

MSD	Sample ID:	HS23030146-01MSD	Units:	mg/L	Analysis Date: 16-Mar-2023 15:08			
Client ID:	BS 19	Run ID:	HG04_430208	SeqNo:	7177475	PrepDate:	16-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00472 0.000200 0.005 0.000009 94.2 75 - 125 0.00521 9.87 20

The following samples were analyzed in this batch:	HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
	HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429353 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230302			Units: ug/L		Analysis Date: 03-Mar-2023 22:56			
Client ID:		Run ID: VOA7_429353		SeqNo: 7157320		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
<i>Surr: 1,2-Dichloroethane-d4</i>	45.17	1.0	50	0	90.3	70 - 123			
<i>Surr: 4-Bromofluorobenzene</i>	45.89	1.0	50	0	91.8	77 - 113			
<i>Surr: Dibromofluoromethane</i>	46.39	1.0	50	0	92.8	73 - 126			
<i>Surr: Toluene-d8</i>	49.52	1.0	50	0	99.0	81 - 120			
LCS	Sample ID: VLCSW-230302			Units: ug/L		Analysis Date: 03-Mar-2023 22:14			
Client ID:		Run ID: VOA7_429353		SeqNo: 7157319		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		18.02	1.0	20	0	90.1	74 - 120		
Ethylbenzene		19.04	1.0	20	0	95.2	77 - 117		
m,p-Xylene		37.15	2.0	40	0	92.9	77 - 122		
o-Xylene		18.21	1.0	20	0	91.1	75 - 119		
Toluene		17.89	1.0	20	0	89.4	77 - 118		
Xylenes, Total		55.36	1.0	60	0	92.3	75 - 122		
<i>Surr: 1,2-Dichloroethane-d4</i>	46.17	1.0	50	0	92.3	70 - 123			
<i>Surr: 4-Bromofluorobenzene</i>	48.68	1.0	50	0	97.4	77 - 113			
<i>Surr: Dibromofluoromethane</i>	47.31	1.0	50	0	94.6	73 - 126			
<i>Surr: Toluene-d8</i>	48.59	1.0	50	0	97.2	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429353 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MS	Sample ID: HS23030091-01MS			Units: ug/L		Analysis Date: 03-Mar-2023 23:39			
Client ID:		Run ID: VOA7_429353		SeqNo: 7157322		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	17.95	1.0	20	0	89.8	70 - 127			
Ethylbenzene	18.79	1.0	20	0	93.9	70 - 124			
m,p-Xylene	37.27	2.0	40	0	93.2	70 - 130			
o-Xylene	18.01	1.0	20	0	90.0	70 - 124			
Toluene	17.97	1.0	20	0	89.8	70 - 123			
Xylenes, Total	55.28	1.0	60	0	92.1	70 - 130			
Surr: 1,2-Dichloroethane-d4	47.64	1.0	50	0	95.3	70 - 126			
Surr: 4-Bromofluorobenzene	48.79	1.0	50	0	97.6	77 - 113			
Surr: Dibromofluoromethane	47.66	1.0	50	0	95.3	77 - 123			
Surr: Toluene-d8	48.57	1.0	50	0	97.1	82 - 127			
MSD	Sample ID: HS23030091-01MSD			Units: ug/L		Analysis Date: 04-Mar-2023 00:01			
Client ID:		Run ID: VOA7_429353		SeqNo: 7157323		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	17.49	1.0	20	0	87.4	70 - 127	17.95	2.61	20
Ethylbenzene	18.76	1.0	20	0	93.8	70 - 124	18.79	0.168	20
m,p-Xylene	36.93	2.0	40	0	92.3	70 - 130	37.27	0.925	20
o-Xylene	18.07	1.0	20	0	90.3	70 - 124	18.01	0.318	20
Toluene	17.68	1.0	20	0	88.4	70 - 123	17.97	1.63	20
Xylenes, Total	54.99	1.0	60	0	91.7	70 - 130	55.28	0.518	20
Surr: 1,2-Dichloroethane-d4	46.63	1.0	50	0	93.3	70 - 126	47.64	2.13	20
Surr: 4-Bromofluorobenzene	49.19	1.0	50	0	98.4	77 - 113	48.79	0.805	20
Surr: Dibromofluoromethane	46.74	1.0	50	0	93.5	77 - 123	47.66	1.94	20
Surr: Toluene-d8	49	1.0	50	0	98.0	82 - 127	48.57	0.88	20
The following samples were analyzed in this batch:		HS23030146-01		HS23030146-02		HS23030146-03		HS23030146-04	
		HS23030146-05		HS23030146-06		HS23030146-07			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429325 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R429325	Units:	mg/L	Analysis Date: 04-Mar-2023 14:11			
Client ID:		Run ID: WetChem_HS_429325 SeqNo: 7156783	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 1.00

LCS	Sample ID:	LCS-R429325	Units:	mg/L	Analysis Date: 04-Mar-2023 14:11			
Client ID:		Run ID: WetChem_HS_429325 SeqNo: 7156782	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 21.96 1.00 25 0 87.8 85 - 115

LCSD	Sample ID:	LCSD-R429325	Units:	mg/L	Analysis Date: 04-Mar-2023 14:11			
Client ID:		Run ID: WetChem_HS_429325 SeqNo: 7156781	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.16 1.00 25 0 88.6 85 - 115 21.96 0.907 20

MS	Sample ID:	HS23021315-01MS	Units:	mg/L	Analysis Date: 04-Mar-2023 14:11			
Client ID:		Run ID: WetChem_HS_429325 SeqNo: 7156785	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.16 1.00 25 -1.04 92.8 80 - 120

The following samples were analyzed in this batch:	HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
	HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429364 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011	
MBLK		Sample ID: WBLK-03032023			Units: mg/L Analysis Date: 03-Mar-2023 02:00
Client ID:		Run ID: Balance1_429364		SeqNo: 7157546	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0		
LCS		Sample ID: LCS-03032023			Units: mg/L Analysis Date: 03-Mar-2023 02:00
Client ID:		Run ID: Balance1_429364		SeqNo: 7157545	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1114	10.0	1000	0 111 85 - 115
DUP		Sample ID: HS23030148-01DUP			Units: mg/L Analysis Date: 03-Mar-2023 02:00
Client ID:		Run ID: Balance1_429364		SeqNo: 7157544	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0		-12 0 20
DUP		Sample ID: HS23030144-04DUP			Units: mg/L Analysis Date: 03-Mar-2023 02:00
Client ID:		Run ID: Balance1_429364		SeqNo: 7157535	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		846	10.0		846 0 20
The following samples were analyzed in this batch:					
		HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
		HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429617 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MLBK	Sample ID:	MLBK-R429617	Units:	mg/L	Analysis Date: 04-Mar-2023 08:53			
Client ID:		Run ID: WetChem_HS_429617 SeqNo: 7162985	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide U 1.00

LCS	Sample ID:	LCS-R429617	Units:	mg/L	Analysis Date: 04-Mar-2023 08:53			
Client ID:		Run ID: WetChem_HS_429617 SeqNo: 7162984	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.33 1.00 25 0 93.3 80 - 120

LCSD	Sample ID:	LCSD-R429617	Units:	mg/L	Analysis Date: 04-Mar-2023 08:53			
Client ID:		Run ID: WetChem_HS_429617 SeqNo: 7162983	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.54 1.00 25 0 94.2 80 - 120 23.33 0.907 20

The following samples were analyzed in this batch:	HS23030146-01	HS23030146-02	HS23030146-03	HS23030146-04
	HS23030146-05	HS23030146-06	HS23030146-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R429896 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK	Sample ID:	MLBK-R429896	Units: mg/L		Analysis Date: 11-Mar-2023 13:37			
Client ID:	Run ID:	Skalar 03_429896	SeqNo:	7169266	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	U	5.00						
Alkalinity, Carbonate (As CaCO3)	U	5.00						

LCS	Sample ID:	LCS-R429896	Units: mg/L		Analysis Date: 11-Mar-2023 13:37			
Client ID:	Run ID:	Skalar 03_429896	SeqNo:	7169265	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	976.8	5.00	1000	0	97.7	85 - 115		

LCSD	Sample ID:	LCSD-R429896	Units: mg/L		Analysis Date: 11-Mar-2023 13:37			
Client ID:	Run ID:	Skalar 03_429896	SeqNo:	7169264	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	966	5.00	1000	0	96.6	85 - 115	976.8	1.11 20

DUP	Sample ID:	HS23030016-05DUP	Units: mg/L		Analysis Date: 11-Mar-2023 13:37			
Client ID:	Run ID:	Skalar 03_429896	SeqNo:	7169267	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	502.9	5.00					495.1	1.56 20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0 20

The following samples were analyzed in this batch: HS23030146-01 HS23030146-02 HS23030146-03 HS23030146-04
 HS23030146-05 HS23030146-06 HS23030146-07

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

QC BATCH REPORT

Batch ID: R430050 (0) **Instrument:** ICS-Integriton **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 14-Mar-2023 07:01			
Client ID:		Run ID: ICS-Integriton_430050		SeqNo: 7172568		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		U		0.100					
Chloride		U		0.500					
Sulfate		U		0.500					

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 14-Mar-2023 07:07			
Client ID:		Run ID: ICS-Integriton_430050		SeqNo: 7172569		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		4.086	0.100	4	0	102	80 - 120		
Chloride		20.08	0.500	20	0	100	80 - 120		
Sulfate		20.45	0.500	20	0	102	80 - 120		

MS		Sample ID: HS23030146-06MS		Units: mg/L		Analysis Date: 14-Mar-2023 08:51			
Client ID: BS 07		Run ID: ICS-Integriton_430050		SeqNo: 7172585		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1.012	0.100	2	0	50.6	80 - 120		S
Chloride		243.3	0.500	10	246.5	-31.7	80 - 120		SEO
Sulfate		99.45	0.500	10	95.08	43.7	80 - 120		SO

MSD		Sample ID: HS23030146-06MSD		Units: mg/L		Analysis Date: 14-Mar-2023 08:57			
Client ID: BS 07		Run ID: ICS-Integriton_430050		SeqNo: 7172586		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1	0.100	2	0	50.0	80 - 120	1.012	1.16 20 S
Chloride		243.3	0.500	10	246.5	-31.6	80 - 120	243.3	0.0037 20 SEO
Sulfate		99.4	0.500	10	95.08	43.2	80 - 120	99.45	0.0498 20 SO

The following samples were analyzed in this batch: HS23030146-01 HS23030146-02 HS23030146-03 HS23030146-04
HS23030146-05 HS23030146-06 HS23030146-07

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030146

**QUALIFIERS,
ACRONYMS, UNITS**

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	22-041-0	27-Mar-2023
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23030146
Client Name: ERMSW-HOU

Date/Time Received: 02-Mar-2023 09:40
Received by: Corey Grandits

Completed By: <u>/S/ Corey Grandits</u>	02-Mar-2023 18:35	Reviewed by: <u>/S/ Nieka Carson</u>	03-Mar-2023 09:57
eSignature	Date/Time	eSignature	Date/Time

Matrices: W Carrier name: Client

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	1 Page(s)
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	COC IDs:292723
Samplers name present on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Temperature(s)/Thermometer(s): 3.7UC/3.2C , 2.8UC/2.3C |IR31

Cooler(s)/Kit(s): 46758 , 50256

Date/Time sample(s) sent to storage: 3/2/23

Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>

pH adjusted by:

Login Notes:

Client Contacted: _____ Date Contacted: _____ Person Contacted: _____

Contacted By: _____ Regarding: _____

Comments:

Corrective Action:

Cincinnati, OH
+1 513 733 5336Everett, WA
+1 425 356 2600Fort Collins, CO
+1 970 490 1511Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 292723

HS23030146

Environmental Resources Mgmt.
Sulphur Dome

I, WV

Customer Information		Project Information		ALS Project Manager:																	
Purchase Order	0677804	Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)																
Work Order		Project Number		B	MA_EPH_W_La (MA EPH)																
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA_VPH_LA_W (MA VPH)																
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056 anions W (Cl,SO4,Br)																
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	E	ALK_W 2320B (carb, bicarb)																
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	F	H2S_W (H2S)																
Phone	(281) 600-1000	Phone	(281) 600-1000	G	HG_W (Mercury)																
Fax	(281) 600-1001	Fax	(281) 600-1001	H	ICP_TW(As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)																
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAccountsPayable@erm.com	I	SULFD_4500S F (Sulfide)																
No.	Sample Description	Date	Time	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold					
1	BS 19	2/28/23	1000	W	12	X	X	X	X	X	X	X	X	X	X						
2	BS 17		1100			X	X	X	X	X	X	X	X	X	X						
3	BS 18		1120			X	X	X	X	X	X	X	X	X	X						
4	BS 12		1200			X	X	X	X	X	X	X	X	X	X						
5	BS 08		1245			X	X	X	X	X	X	X	X	X	X						
6	BS 07		1310			X	X	X	X	X	X	X	X	X	X						
7	BS 06		1325			X	X	X	X	X	X	X	X	X	X						
8																					
9																					
10																					
Sampler(s) Please Print & Sign Scott Himes						Shipment Method: Drop off						Required Turnaround Time: (Check Box) <input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour						Results Due Date:			
Relinquished by: Scott Himes						Received by: Date: 3/2/23 Time: 0940						Notes: ERM Sulphur Dome									
Relinquished by: Date: 3/2/23 Time: 0940						Received By (Laboratory): C02675 3-2-23 0940						Cooler ID: 96750		Cooler Temp: 3.7		QC Package: (Check One Box Below)					
Logged by (Laboratory): Date: 3/2/23 Time: 0940						Checked by (Laboratory): C02675 3-2-23 0940						50256		2.8		<input checked="" type="checkbox"/> Level II Std OC					
Reservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ SO ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035												11231				<input type="checkbox"/> TRRP Checklist <input type="checkbox"/> TRRP Level IV					
e: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental. 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the COC Form. 3. The Chain of Custody is a legal document. All information must be completed accurately.												Copyright 2014 -									



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Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

March 27, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23030690**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 2 sample(s) on Mar 11, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030690

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23030690-01	Cottages Water Well	Water		09-Mar-2023 12:35	11-Mar-2023 09:15	<input type="checkbox"/>
HS23030690-02	No. 20	Water		09-Mar-2023 13:40	11-Mar-2023 09:15	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030690

CASE NARRATIVE**Work Order Comments**

- Per client email on March 14, 2023 change sample ID Water Well to Cottages Water Well.

GC Semivolatiles by Method MA EPH**Batch ID: 190967**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Volatiles by Method MA VPH**Batch ID: R430273,R430280**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R430404**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW7470A**Batch ID: 191295**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 191261****Sample ID: HS23030775-01MS**

- MS and MSD are for an unrelated sample

Sample ID: HS23030775-01PDS

- PDS is for an unrelated sample

WetChemistry by Method SW9056**Batch ID: R430426**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM2320B**Batch ID: R430717**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method E376.1**Batch ID: R430244**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23030690

CASE NARRATIVE**WetChemistry by Method M2540C****Batch ID: R430197**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500 S2-F**Batch ID: R429943**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages Water Well
 Collection Date: 09-Mar-2023 12:35

ANALYTICAL REPORT

WorkOrder:HS23030690
 Lab ID:HS23030690-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C							
				Method:SW8260			Analyst: FT
Benzene	U		0.20	1.0	ug/L	1	18-Mar-2023 02:23
Ethylbenzene	U		0.30	1.0	ug/L	1	18-Mar-2023 02:23
m,p-Xylene	U		0.50	2.0	ug/L	1	18-Mar-2023 02:23
o-Xylene	U		0.30	1.0	ug/L	1	18-Mar-2023 02:23
Toluene	U		0.20	1.0	ug/L	1	18-Mar-2023 02:23
Xylenes, Total	U		0.30	1.0	ug/L	1	18-Mar-2023 02:23
<i>Surr: 1,2-Dichloroethane-d4</i>	103			70-126	%REC	1	18-Mar-2023 02:23
<i>Surr: 4-Bromofluorobenzene</i>	101			77-113	%REC	1	18-Mar-2023 02:23
<i>Surr: Dibromofluoromethane</i>	102			77-123	%REC	1	18-Mar-2023 02:23
<i>Surr: Toluene-d8</i>	99.2			82-127	%REC	1	18-Mar-2023 02:23
MASSACHUSETTS VPH, FEB 2018, REV 2.1							
				Method:MA VPH			Analyst: PJM
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	16-Mar-2023 23:51
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	16-Mar-2023 23:51
Aromatics >C8 - C10	0.0132		0.0100	0.0100	mg/L	1	16-Mar-2023 23:51
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	102			70-130	%REC	1	16-Mar-2023 23:51
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	111			70-130	%REC	1	16-Mar-2023 23:51
MASSACHUSETTS EPH R2.1, DEC 2019							
				Method:MA EPH		Prep:SW3510 / 17-Mar-2023	Analyst: PPM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	22-Mar-2023 16:54
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	22-Mar-2023 16:54
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	22-Mar-2023 16:54
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Mar-2023 05:30
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	23-Mar-2023 05:30
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	23-Mar-2023 05:30
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	23-Mar-2023 05:30
<i>Surr: 1-Chlorooctadecane</i>	91.3			40-140	%REC	1	22-Mar-2023 16:54
<i>Surr: 2-Bromonaphthalene</i>	81.9			40-140	%REC	1	23-Mar-2023 05:30
<i>Surr: 2-Fluorobiphenyl</i>	72.7			40-140	%REC	1	23-Mar-2023 05:30
<i>Surr: o-Terphenyl</i>	59.5			40-140	%REC	1	23-Mar-2023 05:30

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt. **ANALYTICAL REPORT**
 Project: Sulphur Dome WorkOrder:HS23030690
 Sample ID: Cottages Water Well Lab ID:HS23030690-01
 Collection Date: 09-Mar-2023 12:35 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 24-Mar-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	24-Mar-2023 17:56
Barium	0.187		0.00190	0.00400	mg/L	1	24-Mar-2023 17:56
Cadmium	U		0.000200	0.00200	mg/L	1	24-Mar-2023 17:56
Calcium	13.7		0.0340	0.500	mg/L	1	24-Mar-2023 17:56
Chromium	U		0.000400	0.00400	mg/L	1	24-Mar-2023 17:56
Iron	5.57		0.0120	0.200	mg/L	1	24-Mar-2023 17:56
Lead	U		0.000600	0.00200	mg/L	1	24-Mar-2023 17:56
Magnesium	3.69		0.0100	0.200	mg/L	1	24-Mar-2023 17:56
Manganese	0.193		0.000700	0.00500	mg/L	1	24-Mar-2023 17:56
Potassium	2.03		0.0180	0.200	mg/L	1	24-Mar-2023 17:56
Selenium	U		0.00110	0.00200	mg/L	1	24-Mar-2023 17:56
Silver	U		0.000200	0.00200	mg/L	1	24-Mar-2023 17:56
Sodium	57.7		0.0140	0.200	mg/L	1	24-Mar-2023 17:56
Strontium	0.160		0.000200	0.00500	mg/L	1	24-Mar-2023 17:56
Zinc	0.255		0.00200	0.00400	mg/L	1	24-Mar-2023 17:56
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 24-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	24-Mar-2023 13:30
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	14-Mar-2023 17:59
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	274		5.00	10.0	mg/L	1	15-Mar-2023 14:35
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	139		5.00	5.00	mg/L	1	22-Mar-2023 12:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	22-Mar-2023 12:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	14-Mar-2023 09:12
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.102		0.0300	0.100	mg/L	1	20-Mar-2023 11:42
Chloride	52.8		0.200	0.500	mg/L	1	20-Mar-2023 11:42
Sulfate	U		0.200	0.500	mg/L	1	20-Mar-2023 11:42

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: No. 20
 Collection Date: 09-Mar-2023 13:40

ANALYTICAL REPORT
 WorkOrder:HS23030690
 Lab ID:HS23030690-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C							
				Method:SW8260			Analyst: FT
Benzene	U		0.20	1.0	ug/L	1	18-Mar-2023 02:44
Ethylbenzene	U		0.30	1.0	ug/L	1	18-Mar-2023 02:44
m,p-Xylene	U		0.50	2.0	ug/L	1	18-Mar-2023 02:44
o-Xylene	U		0.30	1.0	ug/L	1	18-Mar-2023 02:44
Toluene	U		0.20	1.0	ug/L	1	18-Mar-2023 02:44
Xylenes, Total	U		0.30	1.0	ug/L	1	18-Mar-2023 02:44
<i>Surr: 1,2-Dichloroethane-d4</i>	100.0			70-126	%REC	1	18-Mar-2023 02:44
<i>Surr: 4-Bromofluorobenzene</i>	103			77-113	%REC	1	18-Mar-2023 02:44
<i>Surr: Dibromofluoromethane</i>	99.0			77-123	%REC	1	18-Mar-2023 02:44
<i>Surr: Toluene-d8</i>	98.7			82-127	%REC	1	18-Mar-2023 02:44
MASSACHUSETTS VPH, FEB 2018, REV 2.1							
				Method:MA VPH			Analyst: PJM
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	17-Mar-2023 00:29
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	17-Mar-2023 00:29
Aromatics >C8 - C10	0.0120		0.0100	0.0100	mg/L	1	17-Mar-2023 00:29
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	106			70-130	%REC	1	17-Mar-2023 00:29
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	114			70-130	%REC	1	17-Mar-2023 00:29
MASSACHUSETTS EPH R2.1, DEC 2019							
				Method:MA EPH	Prep:SW3510 / 17-Mar-2023		Analyst: PPM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	22-Mar-2023 17:26
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	22-Mar-2023 17:26
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	22-Mar-2023 17:26
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	23-Mar-2023 06:01
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	23-Mar-2023 06:01
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	23-Mar-2023 06:01
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	23-Mar-2023 06:01
<i>Surr: 1-Chlorooctadecane</i>	97.8			40-140	%REC	1	22-Mar-2023 17:26
<i>Surr: 2-Bromonaphthalene</i>	80.7			40-140	%REC	1	23-Mar-2023 06:01
<i>Surr: 2-Fluorobiphenyl</i>	51.7			40-140	%REC	1	23-Mar-2023 06:01
<i>Surr: o-Terphenyl</i>	68.2			40-140	%REC	1	23-Mar-2023 06:01

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: No. 20
 Collection Date: 09-Mar-2023 13:40

ANALYTICAL REPORT
 WorkOrder:HS23030690
 Lab ID:HS23030690-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 24-Mar-2023 Analyst: JC
Arsenic	0.00109	J	0.000400	0.00200	mg/L	1	24-Mar-2023 17:58
Barium	0.430		0.00190	0.00400	mg/L	1	24-Mar-2023 17:58
Cadmium	U		0.000200	0.00200	mg/L	1	24-Mar-2023 17:58
Calcium	8.98		0.0340	0.500	mg/L	1	24-Mar-2023 17:58
Chromium	U		0.000400	0.00400	mg/L	1	24-Mar-2023 17:58
Iron	0.148	J	0.0120	0.200	mg/L	1	24-Mar-2023 17:58
Lead	U		0.000600	0.00200	mg/L	1	24-Mar-2023 17:58
Magnesium	1.60		0.0100	0.200	mg/L	1	24-Mar-2023 17:58
Manganese	0.0163		0.000700	0.00500	mg/L	1	24-Mar-2023 17:58
Potassium	1.20		0.0180	0.200	mg/L	1	24-Mar-2023 17:58
Selenium	U		0.00110	0.00200	mg/L	1	24-Mar-2023 17:58
Silver	U		0.000200	0.00200	mg/L	1	24-Mar-2023 17:58
Sodium	27.5		0.0140	0.200	mg/L	1	24-Mar-2023 17:58
Strontium	0.134		0.000200	0.00500	mg/L	1	24-Mar-2023 17:58
Zinc	U		0.00200	0.00400	mg/L	1	24-Mar-2023 17:58
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 24-Mar-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	24-Mar-2023 13:32
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	14-Mar-2023 17:59
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	148		5.00	10.0	mg/L	1	15-Mar-2023 14:35
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	37.4		5.00	5.00	mg/L	1	22-Mar-2023 12:37
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	22-Mar-2023 12:37
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	14-Mar-2023 09:12
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	20-Mar-2023 11:48
Chloride	31.8		0.200	0.500	mg/L	1	20-Mar-2023 11:48
Sulfate	17.2		0.200	0.500	mg/L	1	20-Mar-2023 11:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23030690**Batch ID:** 190967 **Start Date:** 17 Mar 2023 12:30 **End Date:** 17 Mar 2023 16:00**Method:** MA EPH EXTRACTION-FRACTIONATION **Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030690-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23030690-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 191261 **Start Date:** 24 Mar 2023 08:30 **End Date:** 24 Mar 2023 12:30**Method:** WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030690-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030690-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 191295 **Start Date:** 24 Mar 2023 08:00 **End Date:** 24 Mar 2023 11:00**Method:** MERCURY PREP BY 7470A- WATER **Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23030690-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23030690-02		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 190967 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35		17 Mar 2023 13:40	23 Mar 2023 05:30	1
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35		17 Mar 2023 13:40	22 Mar 2023 16:54	1
HS23030690-02	No. 20	09 Mar 2023 13:40		17 Mar 2023 13:40	23 Mar 2023 06:01	1
HS23030690-02	No. 20	09 Mar 2023 13:40		17 Mar 2023 13:40	22 Mar 2023 17:26	1
Batch ID: 191261 (0)		Test Name : ICP-MS METALS BY SW6020A				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35		24 Mar 2023 08:30	24 Mar 2023 17:56	1
HS23030690-02	No. 20	09 Mar 2023 13:40		24 Mar 2023 08:30	24 Mar 2023 17:58	1
Batch ID: 191295 (0)		Test Name : MERCURY BY SW7470A				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35		24 Mar 2023 08:00	24 Mar 2023 13:30	1
HS23030690-02	No. 20	09 Mar 2023 13:40		24 Mar 2023 08:00	24 Mar 2023 13:32	1
Batch ID: R429943 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			14 Mar 2023 09:12	1
HS23030690-02	No. 20	09 Mar 2023 13:40			14 Mar 2023 09:12	1
Batch ID: R430197 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			15 Mar 2023 14:35	1
HS23030690-02	No. 20	09 Mar 2023 13:40			15 Mar 2023 14:35	1
Batch ID: R430244 (0)		Test Name : HYDROGEN SULFIDE BY E376.1				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			14 Mar 2023 17:59	1
HS23030690-02	No. 20	09 Mar 2023 13:40			14 Mar 2023 17:59	1
Batch ID: R430273 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			16 Mar 2023 23:51	1
HS23030690-02	No. 20	09 Mar 2023 13:40			17 Mar 2023 00:29	1
Batch ID: R430280 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			16 Mar 2023 23:51	1
HS23030690-02	No. 20	09 Mar 2023 13:40			17 Mar 2023 00:29	1
Batch ID: R430404 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			18 Mar 2023 02:23	1
HS23030690-02	No. 20	09 Mar 2023 13:40			18 Mar 2023 02:44	1
Batch ID: R430426 (0)		Test Name : ANIONS BY SW9056A				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			20 Mar 2023 11:42	1
HS23030690-02	No. 20	09 Mar 2023 13:40			20 Mar 2023 11:48	1
Batch ID: R430717 (0)		Test Name : ALKALINITY BY SM 2320B-2011				Matrix: Water
HS23030690-01	Cottages Water Well	09 Mar 2023 12:35			22 Mar 2023 12:37	1
HS23030690-02	No. 20	09 Mar 2023 13:40			22 Mar 2023 12:37	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 190967 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK		Sample ID: MBLK-190967		Units: mg/L		Analysis Date: 22-Mar-2023 15:20			
Client ID:		Run ID: FID-7_430764		SeqNo: 7190154		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		U	0.00100						
Aliphatics >C12 - C16		U	0.00200						
Aliphatics >C16 - C35		U	0.00800						
Surr: 1-Chlorooctadecane		0.0381	0	0.04	0	95.3	40 - 140		

MLBK		Sample ID: MBLK-190967		Units: mg/L		Analysis Date: 23-Mar-2023 03:55			
Client ID:		Run ID: FID-8_430767		SeqNo: 7190201		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		U	0.00100						
Aromatics >C12 - C16		U	0.00400						
Aromatics >C16 - C21		U	0.00300						
Aromatics >C21 - C35		U	0.00900						
Surr: 2-Bromonaphthalene		0.03841	0	0.04	0	96.0	40 - 140		
Surr: 2-Fluorobiphenyl		0.03167	0	0.04	0	79.2	40 - 140		
Surr: o-Terphenyl		0.03034	0	0.04	0	75.8	40 - 140		

LCS		Sample ID: LCS-190967		Units: mg/L		Analysis Date: 22-Mar-2023 15:51			
Client ID:		Run ID: FID-7_430764		SeqNo: 7190155		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05137	0.00100	0.05	0	103	40 - 140		
Aliphatics >C12 - C16		0.1078	0.00200	0.1	0	108	40 - 140		
Aliphatics >C16 - C35		0.4503	0.00800	0.4	0	113	40 - 140		
Surr: 1-Chlorooctadecane		0.03454	0	0.04	0	86.3	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 190967 (0) **Instrument:** FID-7 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-190967		Units: mg/L		Analysis Date: 23-Mar-2023 04:27			
Client ID:		Run ID: FID-8_430767		SeqNo: 7190202		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.03756	0.00100	0.05	0	75.1	40 - 140		
Aromatics >C12 - C16		0.1338	0.00400	0.2	0	66.9	40 - 140		
Aromatics >C16 - C21		0.1091	0.00300	0.15	0	72.7	40 - 140		
Aromatics >C21 - C35		0.2534	0.00900	0.45	0	56.3	40 - 140		
Surr: 2-Bromonaphthalene		0.02944	0	0.04	0	73.6	40 - 140		
Surr: 2-Fluorobiphenyl		0.02796	0	0.04	0	69.9	40 - 140		
Surr: o-Terphenyl		0.02264	0	0.04	0	56.6	40 - 140		

LCSD	Sample ID:	LCSD-190967		Units: mg/L		Analysis Date: 22-Mar-2023 16:23			
Client ID:		Run ID: FID-7_430764		SeqNo: 7190156		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.0497	0.00100	0.05	0	99.4	40 - 140	0.05137	3.3 50
Aliphatics >C12 - C16		0.112	0.00200	0.1	0	112	40 - 140	0.1078	3.87 50
Aliphatics >C16 - C35		0.4693	0.00800	0.4	0	117	40 - 140	0.4503	4.14 50
Surr: 1-Chlorooctadecane		0.03569	0	0.04	0	89.2	40 - 140	0.03454	3.29 50

LCSD	Sample ID:	LCSD-190967		Units: mg/L		Analysis Date: 23-Mar-2023 04:58			
Client ID:		Run ID: FID-8_430767		SeqNo: 7190203		PrepDate: 17-Mar-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.04011	0.00100	0.05	0	80.2	40 - 140	0.03756	6.55 50
Aromatics >C12 - C16		0.1476	0.00400	0.2	0	73.8	40 - 140	0.1338	9.75 50
Aromatics >C16 - C21		0.1218	0.00300	0.15	0	81.2	40 - 140	0.1091	11.1 50
Aromatics >C21 - C35		0.2883	0.00900	0.45	0	64.1	40 - 140	0.2534	12.9 50
Surr: 2-Bromonaphthalene		0.0311	0	0.04	0	77.8	40 - 140	0.02944	5.51 50
Surr: 2-Fluorobiphenyl		0.02643	0	0.04	0	66.1	40 - 140	0.02796	5.63 50
Surr: o-Terphenyl		0.02602	0	0.04	0	65.0	40 - 140	0.02264	13.9 50

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430273 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MLBK	Sample ID: MBLK-230316	Units: mg/L			Analysis Date: 16-Mar-2023 13:05				
Client ID:	Run ID: FID-14_430273	SeqNo: 7178815		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100							
Aliphatics >C8 - C10	U	0.0100							
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2089	0.0100	0.25	0	83.6	70 - 130			
LCS	Sample ID: LCS-230316	Units: mg/L			Analysis Date: 16-Mar-2023 11:10				
Client ID:	Run ID: FID-14_430273	SeqNo: 7178813		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02182	0.0100	0.025	0	87.3	70 - 130			
Aliphatics >C8 - C10	0.02026	0.0100	0.025	0	81.1	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2037	0.0100	0.25	0	81.5	70 - 130			
LCSD	Sample ID: LCSD-230316	Units: mg/L			Analysis Date: 16-Mar-2023 11:49				
Client ID:	Run ID: FID-14_430273	SeqNo: 7178814		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02145	0.0100	0.025	0	85.8	70 - 130	0.02182	1.67	25
Aliphatics >C8 - C10	0.0207	0.0100	0.025	0	82.8	70 - 130	0.02026	2.14	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.21	0.0100	0.25	0	84.0	70 - 130	0.2037	3.04	25

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430280 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230316	Units: mg/L		Analysis Date: 16-Mar-2023 13:05	
Client ID:		Run ID: FID-15_430280	SeqNo: 7178959	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.2047	0.0100	0.25	0 81.9	70 - 130
LCS	Sample ID: LCS-230316	Units: mg/L		Analysis Date: 16-Mar-2023 11:10	
Client ID:		Run ID: FID-15_430280	SeqNo: 7178957	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08223	0.0100	0.1	0 82.2	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2154	0.0100	0.25	0 86.1	70 - 130
LCSD	Sample ID: LCSD-230316	Units: mg/L		Analysis Date: 16-Mar-2023 11:49	
Client ID:		Run ID: FID-15_430280	SeqNo: 7178958	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08461	0.0100	0.1	0 84.6	70 - 130 0.08223 2.85 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2275	0.0100	0.25	0 91.0	70 - 130 0.2154 5.48 25
The following samples were analyzed in this batch:		HS23030690-01	HS23030690-02		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191261 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-191261	Units:	mg/L	Analysis Date: 24-Mar-2023 16:17				
Client ID:		Run ID:	ICPMS06_430872	SeqNo:	7194564	PrepDate:	24-Mar-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	0.000985	0.00400							J
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	U	0.200							
Manganese	U	0.00500							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191261 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

LCS	Sample ID:	LCS-191261		Units:	mg/L		Analysis Date: 24-Mar-2023 16:19			
Client ID:				Run ID:	ICPMS06_430872		SeqNo: 7194565	PrepDate: 24-Mar-2023	DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic		0.05118	0.00200	0.05	0	102	80 - 120			
Barium		0.04899	0.00400	0.05	0	98.0	80 - 120			
Cadmium		0.05016	0.00200	0.05	0	100	80 - 120			
Calcium		5.009	0.500	5	0	100	80 - 120			
Chromium		0.04816	0.00400	0.05	0	96.3	80 - 120			
Iron		5.006	0.200	5	0	100	80 - 120			
Lead		0.0498	0.00200	0.05	0	99.6	80 - 120			
Magnesium		4.861	0.200	5	0	97.2	80 - 120			
Manganese		0.04933	0.00500	0.05	0	98.7	80 - 120			
Potassium		4.788	0.200	5	0	95.8	80 - 120			
Selenium		0.05159	0.00200	0.05	0	103	80 - 120			
Silver		0.05185	0.00200	0.05	0	104	80 - 120			
Sodium		4.566	0.200	5	0	91.3	80 - 120			
Strontium		0.09948	0.00500	0.1	0	99.5	80 - 120			
Zinc		0.05228	0.00400	0.05	0	105	80 - 120			

MS	Sample ID:	HS23030775-01MS		Units:	mg/L		Analysis Date: 24-Mar-2023 17:02			
Client ID:				Run ID:	ICPMS06_430872		SeqNo: 7194573	PrepDate: 24-Mar-2023	DF: 10	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic		0.04799	0.0200	0.05	0	96.0	80 - 120			
Cadmium		0.04128	0.0200	0.05	0	82.6	80 - 120			
Calcium		291.8	5.00	5	318.9	-542	80 - 120			SO
Chromium		0.06011	0.0400	0.05	0.01572	88.8	80 - 120			
Iron		4.41	2.00	5	0	88.2	80 - 120			
Lead		0.04404	0.0200	0.05	0	88.1	80 - 120			
Magnesium		843.3	2.00	5	945.1	-2040	80 - 120			SO
Manganese		0.0452	0.0500	0.05	0	90.4	80 - 120			J
Potassium		266.5	2.00	5	287.6	-422	80 - 120			SO
Selenium		0.04327	0.0200	0.05	0	86.5	80 - 120			
Silver		0.04176	0.0200	0.05	0	83.5	80 - 120			
Sodium		6889	2.00	50	7811	-1840	80 - 120			SEO
Strontium		5.068	0.0500	0.1	5.534	-466	80 - 120			SO
Zinc		0.04264	0.0400	0.05	0	85.3	80 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191261 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23030775-01MS	Units:	mg/L	Analysis Date: 25-Mar-2023 11:50			
Client ID:		Run ID: ICPMS06_430971	SeqNo:	7195386	PrepDate:	24-Mar-2023	DF:	10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Barium	0.06677	0.0400	0.05	0.02435	84.8	80 - 120		
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MSD	Sample ID:	HS23030775-01MSD	Units:	mg/L	Analysis Date: 24-Mar-2023 17:04			
Client ID:		Run ID: ICPMS06_430872	SeqNo:	7194574	PrepDate:	24-Mar-2023	DF:	10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Arsenic	0.05171	0.0200	0.05	0	103	80 - 120	0.04799	7.46 20
Barium	0.06505	0.0400	0.05	0.02435	81.4	80 - 120	0.06395	1.7 20
Cadmium	0.04273	0.0200	0.05	0	85.5	80 - 120	0.04128	3.46 20
Calcium	305.7	5.00	5	318.9	-264	80 - 120	291.8	4.65 20 SO
Chromium	0.06073	0.0400	0.05	0.01572	90.0	80 - 120	0.06011	1.02 20
Iron	4.638	2.00	5	0	92.8	80 - 120	4.41	5.03 20
Lead	0.04534	0.0200	0.05	0	90.7	80 - 120	0.04404	2.92 20
Magnesium	882.2	2.00	5	945.1	-1260	80 - 120	843.3	4.52 20 SO
Manganese	0.0458	0.0500	0.05	0	91.6	80 - 120	0.0452	0 20 J
Potassium	278.7	2.00	5	287.6	-176	80 - 120	266.5	4.5 20 SO
Selenium	0.04749	0.0200	0.05	0	95.0	80 - 120	0.04327	9.31 20
Silver	0.04262	0.0200	0.05	0	85.2	80 - 120	0.04176	2.04 20
Sodium	7312	2.00	5	7811	-9980	80 - 120	6889	5.95 20 SEO
Strontium	5.215	0.0500	0.1	5.534	-319	80 - 120	5.068	2.86 20 SO
Zinc	0.04376	0.0400	0.05	0	87.5	80 - 120	0.04264	2.6 20

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191261 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID: HS23030775-01PDS		Units: mg/L		Analysis Date: 24-Mar-2023 17:06			
Client ID:	Run ID: ICPMS06_430872		SeqNo: 7194575		PrepDate: 24-Mar-2023		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	1.063	0.0200	1	0.002727	106	75 - 125		
Barium	1.057	0.0400	1	0.02435	103	75 - 125		
Cadmium	0.9937	0.0200	1	-0.000152	99.4	75 - 125		
Calcium	416.1	5.00	100	318.9	97.2	75 - 125		
Chromium	1.024	0.0400	1	0.01572	101	75 - 125		
Iron	101	2.00	100	0.03524	101	75 - 125		
Lead	1.014	0.0200	1	-0.000139	101	75 - 125		
Magnesium	1016	2.00	100	945.1	71.0	75 - 125		SO
Manganese	1.004	0.0500	1	0.001257	100	75 - 125		
Potassium	384.2	2.00	100	287.6	96.6	75 - 125		
Selenium	1.033	0.0200	1	-0.000298	103	75 - 125		
Silver	0.854	0.0200	1	0.000125	85.4	75 - 125		
Strontium	6.767	0.0500	1	5.534	123	75 - 125		O
Zinc	0.9766	0.0400	1	0.004311	97.2	75 - 125		

PDS	Sample ID: HS23030775-01PDS		Units: mg/L		Analysis Date: 25-Mar-2023 11:58			
Client ID:	Run ID: ICPMS06_430971		SeqNo: 7195434		PrepDate: 24-Mar-2023		DF: 1000	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Sodium	18130	200	10000	8029	101	75 - 125		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191261 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID: HS23030775-01SD		Units: mg/L		Analysis Date: 24-Mar-2023 17:00				
Client ID:			Run ID: ICPMS06_430872	SeqNo: 7194572	PrepDate: 24-Mar-2023	DF: 50			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	U	0.100					0.002727	0	10
Barium	U	0.200					0.02435	0	10
Cadmium	U	0.100					-0.000152	0	10
Calcium	309.5	25.0					318.9	2.95	10
Chromium	0.05979	0.200					0.01572	0	10
Iron	U	10.0					0.03524	0	10
Lead	U	0.100					-0.000139	0	10
Magnesium	945.2	10.0					945.1	0.0113	10
Manganese	U	0.250					0.001257	0	10
Potassium	277.7	10.0					287.6	3.43	10
Selenium	U	0.100					-0.000298	0	10
Silver	U	0.100					0.000125	0	10
Strontium	5.476	0.250					5.534	1.05	10
Zinc	U	0.200					0.004311	0	10

SD	Sample ID: HS23030775-01SD		Units: mg/L		Analysis Date: 25-Mar-2023 11:56				
Client ID:			Run ID: ICPMS06_430971	SeqNo: 7195433	PrepDate: 24-Mar-2023	DF: 5000			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Sodium	8059	1000					8029	0.372	10

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: 191295 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-191295	Units:	mg/L	Analysis Date: 24-Mar-2023 13:27			
Client ID:		Run ID:	HG04_430924	SeqNo:	7194088	PrepDate:	24-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-191295	Units:	mg/L	Analysis Date: 24-Mar-2023 13:28			
Client ID:		Run ID:	HG04_430924	SeqNo:	7194089	PrepDate:	24-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00522 0.000200 0.005 0 104 80 - 120

MS	Sample ID:	HS23030775-01MS	Units:	mg/L	Analysis Date: 24-Mar-2023 13:35			
Client ID:		Run ID:	HG04_430924	SeqNo:	7194093	PrepDate:	24-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00436 0.000200 0.005 0.000008 87.0 75 - 125

MSD	Sample ID:	HS23030775-01MSD	Units:	mg/L	Analysis Date: 24-Mar-2023 13:37			
Client ID:		Run ID:	HG04_430924	SeqNo:	7194094	PrepDate:	24-Mar-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00439 0.000200 0.005 0.000008 87.6 75 - 125 0.00436 0.686 20

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430404 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C				
MLBK	Sample ID: VBLKW-230317			Units: ug/L		Analysis Date: 17-Mar-2023 21:50		
Client ID:		Run ID: VOA11_430404		SeqNo: 7181738	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	U	1.0						
Ethylbenzene	U	1.0						
m,p-Xylene	U	2.0						
o-Xylene	U	1.0						
Toluene	U	1.0						
Xylenes, Total	U	1.0						
Surr: 1,2-Dichloroethane-d4	51.36	1.0	50	0	103	70 - 123		
Surr: 4-Bromofluorobenzene	51	1.0	50	0	102	77 - 113		
Surr: Dibromofluoromethane	50.15	1.0	50	0	100	73 - 126		
Surr: Toluene-d8	49.76	1.0	50	0	99.5	81 - 120		
LCS	Sample ID: VLCSW-230317			Units: ug/L		Analysis Date: 17-Mar-2023 21:08		
Client ID:		Run ID: VOA11_430404		SeqNo: 7181737	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	17.61	1.0	20	0	88.1	74 - 120		
Ethylbenzene	17.55	1.0	20	0	87.8	77 - 117		
m,p-Xylene	36.24	2.0	40	0	90.6	77 - 122		
o-Xylene	18.36	1.0	20	0	91.8	75 - 119		
Toluene	17.26	1.0	20	0	86.3	77 - 118		
Xylenes, Total	54.59	1.0	60	0	91.0	75 - 122		
Surr: 1,2-Dichloroethane-d4	47.81	1.0	50	0	95.6	70 - 123		
Surr: 4-Bromofluorobenzene	50.32	1.0	50	0	101	77 - 113		
Surr: Dibromofluoromethane	48.14	1.0	50	0	96.3	73 - 126		
Surr: Toluene-d8	50.26	1.0	50	0	101	81 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430404 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MS	Sample ID: HS23030828-02MS	Units: ug/L		Analysis Date: 17-Mar-2023 23:56					
Client ID:	Run ID: VOA11_430404			SeqNo: 7181744	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.12	1.0	20	0.3785	83.7	70 - 127			
Ethylbenzene	17.11	1.0	20	0.4698	83.2	70 - 124			
m,p-Xylene	34.29	2.0	40	0	85.7	70 - 130			
o-Xylene	17.32	1.0	20	0	86.6	70 - 124			
Toluene	16.43	1.0	20	0	82.2	70 - 123			
Xylenes, Total	51.62	1.0	60	0	86.0	70 - 130			
Surr: 1,2-Dichloroethane-d4	47.81	1.0	50	0	95.6	70 - 126			
Surr: 4-Bromofluorobenzene	48.69	1.0	50	0	97.4	77 - 113			
Surr: Dibromofluoromethane	47.76	1.0	50	0	95.5	77 - 123			
Surr: Toluene-d8	51.17	1.0	50	0	102	82 - 127			
MSD	Sample ID: HS23030828-02MSD	Units: ug/L		Analysis Date: 18-Mar-2023 00:17					
Client ID:	Run ID: VOA11_430404			SeqNo: 7181745	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	16.17	1.0	20	0.3785	78.9	70 - 127	17.12	5.72	20
Ethylbenzene	16.73	1.0	20	0.4698	81.3	70 - 124	17.11	2.2	20
m,p-Xylene	33.36	2.0	40	0	83.4	70 - 130	34.29	2.76	20
o-Xylene	16.9	1.0	20	0	84.5	70 - 124	17.32	2.48	20
Toluene	16	1.0	20	0	80.0	70 - 123	16.43	2.69	20
Xylenes, Total	50.26	1.0	60	0	83.8	70 - 130	51.62	2.66	20
Surr: 1,2-Dichloroethane-d4	46.77	1.0	50	0	93.5	70 - 126	47.81	2.2	20
Surr: 4-Bromofluorobenzene	49.24	1.0	50	0	98.5	77 - 113	48.69	1.13	20
Surr: Dibromofluoromethane	46.6	1.0	50	0	93.2	77 - 123	47.76	2.46	20
Surr: Toluene-d8	51.34	1.0	50	0	103	82 - 127	51.17	0.329	20

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R429943 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MLBK	Sample ID:	MLBK-R429943	Units:	mg/L	Analysis Date: 14-Mar-2023 09:12			
Client ID:	Run ID:	WetChem_HS_429943	SeqNo:	7170391	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Sulfide	U	2.00						

LCS	Sample ID:	LCS-R429943	Units:	mg/L	Analysis Date: 14-Mar-2023 09:12			
Client ID:	Run ID:	WetChem_HS_429943	SeqNo:	7170390	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Sulfide	22.2	2.00	25	0	88.8	85 - 115		

LCSD	Sample ID:	LCSD-R429943	Units:	mg/L	Analysis Date: 14-Mar-2023 09:12			
Client ID:	Run ID:	WetChem_HS_429943	SeqNo:	7170389	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Sulfide	22	2.00	25	0	88.0	85 - 115	22.2	0.905 20

MS	Sample ID:	HS23030690-02MS	Units:	mg/L	Analysis Date: 14-Mar-2023 09:12			
Client ID:	No. 20	Run ID:	WetChem_HS_429943	SeqNo:	7170392	PrepDate:	DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Sulfide	22.2	2.00	25	-1.2	93.6	80 - 120		

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430197 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-03152023	Units:	mg/L	Analysis Date: 15-Mar-2023 14:35		
Client ID:		Run ID:	Balance1_430197	SeqNo: 7176868	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-03152023	Units:	mg/L	Analysis Date: 15-Mar-2023 14:35		
Client ID:		Run ID:	Balance1_430197	SeqNo: 7176867	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1048 10.0 1000 0 105 85 - 115

DUP	Sample ID:	HS23030775-14DUP	Units:	mg/L	Analysis Date: 15-Mar-2023 14:35		
Client ID:		Run ID:	Balance1_430197	SeqNo: 7176863	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 27580 10.0 27600 0.0725 20

DUP	Sample ID:	HS23030775-01DUP	Units:	mg/L	Analysis Date: 15-Mar-2023 14:35		
Client ID:		Run ID:	Balance1_430197	SeqNo: 7176854	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 37620 10.0 37600 0.0532 20

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430244 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MLBK		Sample ID: MBLK-R430244		Units: mg/L		Analysis Date: 14-Mar-2023 17:59			
Client ID:		Run ID: WetChem_HS_430244 SeqNo: 7177963		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	U	1.00							

LCS		Sample ID: LCS-R430244		Units: mg/L		Analysis Date: 14-Mar-2023 17:59			
Client ID:		Run ID: WetChem_HS_430244 SeqNo: 7177962		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	23.59	1.00	25	0	94.4	80 - 120			

LCSD		Sample ID: LCSD-R430244		Units: mg/L		Analysis Date: 14-Mar-2023 17:59			
Client ID:		Run ID: WetChem_HS_430244 SeqNo: 7177961		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	23.38	1.00	25	0	93.5	80 - 120	23.59	0.905 20	

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430426 (0) **Instrument:** ICS-Integriton **Method:** ANIONS BY SW9056A

MBLK	Sample ID:	MBLK	Units:	mg/L	Analysis Date: 20-Mar-2023 09:34			
Client ID:		Run ID:	ICS-Integriton_430426	SeqNo: 7182168	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Bromide	U	0.100
Chloride	U	0.500
Sulfate	U	0.500

LCS	Sample ID:	LCS	Units:	mg/L	Analysis Date: 20-Mar-2023 09:40			
Client ID:		Run ID:	ICS-Integriton_430426	SeqNo: 7182169	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Bromide	4.02	0.100	4	0	101	80 - 120
Chloride	20.21	0.500	20	0	101	80 - 120
Sulfate	20.54	0.500	20	0	103	80 - 120

MS	Sample ID:	HS23030537-01MS	Units:	mg/L	Analysis Date: 20-Mar-2023 09:52			
Client ID:		Run ID:	ICS-Integriton_430426	SeqNo: 7182171	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Bromide	1.871	0.100	2	0	93.6	80 - 120
Chloride	35.82	0.500	10	26.04	97.7	80 - 120
Sulfate	24.58	0.500	10	14.74	98.4	80 - 120

MSD	Sample ID:	HS23030537-01MSD	Units:	mg/L	Analysis Date: 20-Mar-2023 09:58			
Client ID:		Run ID:	ICS-Integriton_430426	SeqNo: 7182172	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Bromide	1.882	0.100	2	0	94.1	80 - 120	1.871	0.591	20
Chloride	35.83	0.500	10	26.04	97.9	80 - 120	35.82	0.0391	20
Sulfate	24.6	0.500	10	14.74	98.7	80 - 120	24.58	0.0923	20

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

QC BATCH REPORT

Batch ID: R430717 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R430717		Units: mg/L		Analysis Date: 22-Mar-2023 12:37			
Client ID:		Run ID: Skalar 03_430717		SeqNo: 7188860		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00						
Alkalinity, Carbonate (As CaCO3)		U	5.00						
LCS		Sample ID: LCS-R430717		Units: mg/L		Analysis Date: 22-Mar-2023 12:37			
Client ID:		Run ID: Skalar 03_430717		SeqNo: 7188859		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		950.4	5.00	1000	0	95.0	85 - 115		
LCSD		Sample ID: LCSD-R430717		Units: mg/L		Analysis Date: 22-Mar-2023 12:37			
Client ID:		Run ID: Skalar 03_430717		SeqNo: 7188858		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		929.2	5.00	1000	0	92.9	85 - 115	950.4	2.26 20
DUP		Sample ID: HS23030690-01DUP		Units: mg/L		Analysis Date: 22-Mar-2023 12:37			
Client ID: Cottages Water Well		Run ID: Skalar 03_430717		SeqNo: 7188898		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		137	5.00					138.8	1.31 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23030690-01 HS23030690-02

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23030690

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Unit Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23030690

Date/Time Received:

11-Mar-2023 09:15

Client Name: ERMSW-HOU

Received by:

Corey GranditsCompleted By: /S/ Nilesh D. Ranchod

13-Mar-2023 13:44

Reviewed by:

eSignature

Date/Time

eSignature

Date/Time

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes No Not Present

Custody seals intact on shipping container/cooler?

Yes No Not Present

Custody seals intact on sample bottles?

Yes No Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes No Not Present

Chain of custody present?

Yes No 1 Page(s)

Chain of custody signed when relinquished and received?

Yes No COC IDs:292724

Samplers name present on COC?

Yes No

Chain of custody agrees with sample labels?

Yes No

Samples in proper container/bottle?

Yes No

Sample containers intact?

Yes No

Sufficient sample volume for indicated test?

Yes No

All samples received within holding time?

Yes No

Container/Temp Blank temperature in compliance?

Yes No

Temperature(s)/Thermometer(s):

4.0UC/3.5 UC/C | IR31

Cooler(s)/Kit(s):

Large Red

Date/Time sample(s) sent to storage:

3/11/23 18:00

Water - VOA vials have zero headspace?

Yes No No VOA vials submitted

Water - pH acceptable upon receipt?

Yes No N/A

pH adjusted?

Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH

+1 513 733 5336

Everett, WA

+1 425 356 2600

Fort Collins, CO

+1 970 490 1511

Holland, MI

+1 616 399 6070

Chain of Custody Form

HS23030690

WV

Environmental Resources Mgmt.
Sulphur DomePage 1 of 1

COC ID: 292724

ALS Project Manager:



Customer Information		Project Information											
Purchase Order	0677804	Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)								
Work Order		Project Number	<u>0677804</u>	B	MA EPH_W La (MA EPH)								
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA VPH_LA_W (MA VPH)								
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056 anions W (Cl,SO4,Br)								
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four	E	ALK_W 2320B (carb, bicarb)								
			840 W. Sam Houston Pkwy., Suite 6	F	H2S_W (H2S)								
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G	HG_W (Mercury)								
Phone	(281) 600-1000	Phone	(281) 600-1000	H	ICP_TW(As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)								
Fax	(281) 600-1001	Fax	(281) 600-1001	I	SULFD_4500S F (Sulfide)								
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	J	TDS_W 2540C (TDS)								

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Water Well	3/9/23	1235	GW	Y	12	X	X	X	X	X	X	X	X	X	X	
2	No. 20	3/9/23	1340	SW	Y	12	X	X	X	X	X	X	X	X	X	X	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: <i>Guy Guinot 1G-2G5</i>	Shipment Method	Required Turnaround Time: (Check Box)	<input checked="" type="checkbox"/> STD 10 Wk Days	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days	<input type="checkbox"/> 24 Hour	Results Due Date:
---	-----------------	---------------------------------------	--	------------------------------------	------------------------------------	----------------------------------	-------------------

Relinquished by: <i>G-2G5</i>	Date: <i>3/10/23</i>	Time: <i>1045</i>	Received by: <i>John K</i>	Notes: ERM Sulphur Dome		
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>102679 3-11-23 0419</i>	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): <i>LM DREN 4.0</i>	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Checklist
				<input type="checkbox"/> Level IV SVW46/CLP	<input type="checkbox"/> Level IV	<input type="checkbox"/> Other

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

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LG Red MAR 11 2023

Must Deliver Next Business Day
Time and Temperature Sensitive!



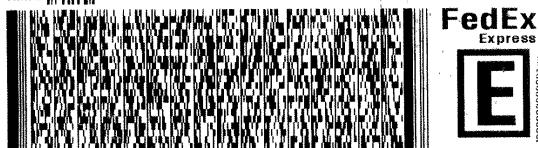
ORIGIN ID:SGRA (281) 900-0255
ANNA KINCKEN/ALEX BROUARD
ALS BATON ROUGE
11811 INDUSTRIAL BLVD SUITE 3
BATON ROUGE, LA 70809
UNITED STATES US

SHIP DATE: 16NOV22
ACTWTG: 1.00 LB MAN
CAD: 0221242/CAFE3616
DIMS: 19x16x13 IN

To SAMPLE RECEIVING
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099

(281) 530-5656
REF: RETURN COOLERS - BO 89206 -

RMA:



FedEx
TRK# 5789 2001 0329
0221

XO SGRA



#4215431 03/10 581J7/9982/FE2D



right solutions.
right partner.

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

April 18, 2023

Scott Himes
Environmental Resources Mgmt.
CityCentre Four
840 W. Sam Houston Pkwy., Suite 600
Houston, TX 77024

Work Order: **HS23040092**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 8 sample(s) on Apr 03, 2023 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Bernadette Fini".

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23040092

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23040092-01	NO.21	Water		30-Mar-2023 10:45	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-02	NO.22	Water		30-Mar-2023 11:00	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-03	NO.23	Water		30-Mar-2023 11:15	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-04	19-580	Water		30-Mar-2023 13:45	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-05	19-582	Water		30-Mar-2023 14:00	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-06	19-1603	Water		30-Mar-2023 15:00	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-07	19-1055	Water		30-Mar-2023 15:15	03-Apr-2023 14:00	<input type="checkbox"/>
HS23040092-08	19-995	Water		30-Mar-2023 13:10	03-Apr-2023 14:00	<input type="checkbox"/>

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23040092

CASE NARRATIVE**Work Order Comments**

- Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.
- The temperature at the time of pH is reported. Please note that all pH results are already normalized to a temperature of 25 °C.

GC Semivolatiles by Method MA EPH**Batch ID: 192098**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GC Volatiles by Method MA VPH**Batch ID: R432179,R432213**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

GCMS Volatiles by Method SW8260**Batch ID: R431879**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW7470A**Batch ID: 192435**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Metals by Method SW6020A**Batch ID: 192397**

Sample ID: HS23040438-04MSD

- MSD is for an unrelated sample

WetChemistry by Method E376.1**Batch ID: R432572**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM2320B**Batch ID: R432694**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056**Batch ID: R432735**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM4500H+ B**Batch ID: R432063,R432168**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23040092

CASE NARRATIVE

WetChemistry by Method SM4500H+ B

WetChemistry by Method SM4500 S2-F

Batch ID: R431936

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method M2540C

Batch ID: R431919,R431922

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.21
 Collection Date: 30-Mar-2023 10:45

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 03:35
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 03:35
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 03:35
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 03:35
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 03:35
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 03:35
<i>Surr: 1,2-Dichloroethane-d4</i>	103			70-126	%REC	1	06-Apr-2023 03:35
<i>Surr: 4-Bromofluorobenzene</i>	100			77-113	%REC	1	06-Apr-2023 03:35
<i>Surr: Dibromofluoromethane</i>	93.2			77-123	%REC	1	06-Apr-2023 03:35
<i>Surr: Toluene-d8</i>	105			82-127	%REC	1	06-Apr-2023 03:35
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Apr-2023 22:44
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Apr-2023 22:44
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Apr-2023 22:44
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	87.7			70-130	%REC	1	07-Apr-2023 22:44
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	95.4			70-130	%REC	1	07-Apr-2023 22:44
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 03:08
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 03:08
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 03:08
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 03:08
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 03:08
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 03:08
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 03:08
<i>Surr: 1-Chlorooctadecane</i>	80.0			40-140	%REC	1	12-Apr-2023 03:08
<i>Surr: 2-Bromonaphthalene</i>	104			40-140	%REC	1	12-Apr-2023 03:08
<i>Surr: 2-Fluorobiphenyl</i>	75.7			40-140	%REC	1	12-Apr-2023 03:08
<i>Surr: o-Terphenyl</i>	87.5			40-140	%REC	1	12-Apr-2023 03:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.21
 Collection Date: 30-Mar-2023 10:45

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 14-Apr-2023			Analyst: JC
Arsenic	0.000855	J	0.000400	0.00200	mg/L	1	17-Apr-2023 18:23
Barium	0.116		0.00190	0.00400	mg/L	1	17-Apr-2023 18:23
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:23
Calcium	78.4		0.0340	0.500	mg/L	1	17-Apr-2023 18:23
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:23
Iron	0.0273	J	0.0120	0.200	mg/L	1	17-Apr-2023 18:23
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:23
Magnesium	13.9		0.0100	0.200	mg/L	1	17-Apr-2023 18:23
Manganese	0.445		0.000700	0.00500	mg/L	1	17-Apr-2023 18:23
Potassium	2.15		0.0180	0.200	mg/L	1	17-Apr-2023 18:23
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:23
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:23
Sodium	186		0.140	2.00	mg/L	10	17-Apr-2023 17:43
Strontium	0.495		0.000200	0.00500	mg/L	1	17-Apr-2023 18:23
Zinc	U		0.00200	0.00400	mg/L	1	17-Apr-2023 18:23
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 15-Apr-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:01
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	872		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	162		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011 Method:SM4500H+ B				Analyst: CD			
pH	7.74	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.9	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 15:36
Chloride	342		2.00	5.00	mg/L	10	14-Apr-2023 15:42
Sulfate	93.9		0.200	0.500	mg/L	1	14-Apr-2023 15:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.22
 Collection Date: 30-Mar-2023 11:00

ANALYTICAL REPORT
 WorkOrder:HS23040092
 Lab ID:HS23040092-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 03:57
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 03:57
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 03:57
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 03:57
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 03:57
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 03:57
<i>Surr: 1,2-Dichloroethane-d4</i>	109			70-126	%REC	1	06-Apr-2023 03:57
<i>Surr: 4-Bromofluorobenzene</i>	102			77-113	%REC	1	06-Apr-2023 03:57
<i>Surr: Dibromofluoromethane</i>	94.3			77-123	%REC	1	06-Apr-2023 03:57
<i>Surr: Toluene-d8</i>	105			82-127	%REC	1	06-Apr-2023 03:57
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Apr-2023 23:22
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Apr-2023 23:22
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Apr-2023 23:22
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	85.8			70-130	%REC	1	07-Apr-2023 23:22
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	93.3			70-130	%REC	1	07-Apr-2023 23:22
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 03:39
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 03:39
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 03:39
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 03:39
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 03:39
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 03:39
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 03:39
<i>Surr: 1-Chlorooctadecane</i>	70.8			40-140	%REC	1	12-Apr-2023 03:39
<i>Surr: 2-Bromonaphthalene</i>	81.2			40-140	%REC	1	12-Apr-2023 03:39
<i>Surr: 2-Fluorobiphenyl</i>	71.1			40-140	%REC	1	12-Apr-2023 03:39
<i>Surr: o-Terphenyl</i>	64.0			40-140	%REC	1	12-Apr-2023 03:39

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.22
 Collection Date: 30-Mar-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 14-Apr-2023			Analyst: JC
Arsenic	0.000998	J	0.000400	0.00200	mg/L	1	17-Apr-2023 18:25
Barium	0.135		0.00190	0.00400	mg/L	1	17-Apr-2023 18:25
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:25
Calcium	89.2		0.0340	0.500	mg/L	1	17-Apr-2023 18:25
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:25
Iron	0.0375	J	0.0120	0.200	mg/L	1	17-Apr-2023 18:25
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:25
Magnesium	15.9		0.0100	0.200	mg/L	1	17-Apr-2023 18:25
Manganese	0.430		0.000700	0.00500	mg/L	1	17-Apr-2023 18:25
Potassium	2.45		0.0180	0.200	mg/L	1	17-Apr-2023 18:25
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:25
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:25
Sodium	211		0.140	2.00	mg/L	10	17-Apr-2023 17:45
Strontium	0.559		0.000200	0.00500	mg/L	1	17-Apr-2023 18:25
Zinc	0.00431		0.00200	0.00400	mg/L	1	17-Apr-2023 18:25
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 15-Apr-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:03
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	812		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	162		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011 Method:SM4500H+ B				Analyst: CD			
pH	7.70	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.8	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 15:48
Chloride	343		2.00	5.00	mg/L	10	14-Apr-2023 15:54
Sulfate	94.1		0.200	0.500	mg/L	1	14-Apr-2023 15:48

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.23
 Collection Date: 30-Mar-2023 11:15

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 04:18
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 04:18
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 04:18
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 04:18
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 04:18
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 04:18
<i>Surr: 1,2-Dichloroethane-d4</i>	108			70-126	%REC	1	06-Apr-2023 04:18
<i>Surr: 4-Bromofluorobenzene</i>	101			77-113	%REC	1	06-Apr-2023 04:18
<i>Surr: Dibromofluoromethane</i>	98.1			77-123	%REC	1	06-Apr-2023 04:18
<i>Surr: Toluene-d8</i>	105			82-127	%REC	1	06-Apr-2023 04:18
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:01
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:01
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:01
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	93.0			70-130	%REC	1	08-Apr-2023 00:01
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	99.4			70-130	%REC	1	08-Apr-2023 00:01
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
				Prep:SW3510 / 10-Apr-2023			Analyst: PPM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 04:11
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 04:11
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 04:11
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 04:11
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 04:11
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 04:11
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 04:11
<i>Surr: 1-Chlorooctadecane</i>	95.4			40-140	%REC	1	12-Apr-2023 04:11
<i>Surr: 2-Bromonaphthalene</i>	96.8			40-140	%REC	1	12-Apr-2023 04:11
<i>Surr: 2-Fluorobiphenyl</i>	60.8			40-140	%REC	1	12-Apr-2023 04:11
<i>Surr: o-Terphenyl</i>	93.7			40-140	%REC	1	12-Apr-2023 04:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: NO.23
 Collection Date: 30-Mar-2023 11:15

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 14-Apr-2023			Analyst: JC
Arsenic	0.000930	J	0.000400	0.00200	mg/L	1	17-Apr-2023 18:33
Barium	0.132		0.00190	0.00400	mg/L	1	17-Apr-2023 18:33
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:33
Calcium	84.1		0.0340	0.500	mg/L	1	17-Apr-2023 18:33
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:33
Iron	0.0270	J	0.0120	0.200	mg/L	1	17-Apr-2023 18:33
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:33
Magnesium	14.8		0.0100	0.200	mg/L	1	17-Apr-2023 18:33
Manganese	0.379		0.000700	0.00500	mg/L	1	17-Apr-2023 18:33
Potassium	2.33		0.0180	0.200	mg/L	1	17-Apr-2023 18:33
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:33
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:33
Sodium	205		0.140	2.00	mg/L	10	17-Apr-2023 17:47
Strontium	0.542		0.000200	0.00500	mg/L	1	17-Apr-2023 18:33
Zinc	0.00291	J	0.00200	0.00400	mg/L	1	17-Apr-2023 18:33
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 15-Apr-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:05
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	844		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	162		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011 Method:SM4500H+ B				Analyst: CD			
pH	7.58	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.8	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 15:59
Chloride	346		2.00	5.00	mg/L	10	14-Apr-2023 16:05
Sulfate	94.0		0.200	0.500	mg/L	1	14-Apr-2023 15:59

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-580
 Collection Date: 30-Mar-2023 13:45

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 04:40
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 04:40
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 04:40
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 04:40
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 04:40
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 04:40
<i>Surr: 1,2-Dichloroethane-d4</i>	98.9			70-126	%REC	1	06-Apr-2023 04:40
<i>Surr: 4-Bromofluorobenzene</i>	99.2			77-113	%REC	1	06-Apr-2023 04:40
<i>Surr: Dibromofluoromethane</i>	98.6			77-123	%REC	1	06-Apr-2023 04:40
<i>Surr: Toluene-d8</i>	104			82-127	%REC	1	06-Apr-2023 04:40
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:39
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:39
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 00:39
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	92.2			70-130	%REC	1	08-Apr-2023 00:39
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	98.6			70-130	%REC	1	08-Apr-2023 00:39
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 04:43
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 04:43
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 04:43
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 04:43
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 04:43
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 04:43
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 04:43
<i>Surr: 1-Chlorooctadecane</i>	82.5			40-140	%REC	1	12-Apr-2023 04:43
<i>Surr: 2-Bromonaphthalene</i>	89.0			40-140	%REC	1	12-Apr-2023 04:43
<i>Surr: 2-Fluorobiphenyl</i>	50.3			40-140	%REC	1	12-Apr-2023 04:43
<i>Surr: o-Terphenyl</i>	75.3			40-140	%REC	1	12-Apr-2023 04:43

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-580
 Collection Date: 30-Mar-2023 13:45

ANALYTICAL REPORT
 WorkOrder:HS23040092
 Lab ID:HS23040092-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 14-Apr-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	17-Apr-2023 18:35
Barium	0.235		0.00190	0.00400	mg/L	1	17-Apr-2023 18:35
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:35
Calcium	25.4		0.0340	0.500	mg/L	1	17-Apr-2023 18:35
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:35
Iron	4.25		0.0120	0.200	mg/L	1	17-Apr-2023 18:35
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:35
Magnesium	8.10		0.0100	0.200	mg/L	1	17-Apr-2023 18:35
Manganese	0.413		0.000700	0.00500	mg/L	1	17-Apr-2023 18:35
Potassium	2.68		0.0180	0.200	mg/L	1	17-Apr-2023 18:35
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:35
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:35
Sodium	27.7		0.0140	0.200	mg/L	1	17-Apr-2023 18:35
Strontium	0.228		0.000200	0.00500	mg/L	1	17-Apr-2023 18:35
Zinc	0.0495		0.00200	0.00400	mg/L	1	17-Apr-2023 18:35
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 15-Apr-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:07
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	186		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	115		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011		Method:SM4500H+ B					Analyst: CD
pH	7.04	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.8	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 16:11
Chloride	26.4		0.200	0.500	mg/L	1	14-Apr-2023 16:11
Sulfate	3.67		0.200	0.500	mg/L	1	14-Apr-2023 16:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-582
 Collection Date: 30-Mar-2023 14:00

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:01
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:01
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 05:01
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:01
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:01
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 05:01
<i>Surr: 1,2-Dichloroethane-d4</i>	107			70-126	%REC	1	06-Apr-2023 05:01
<i>Surr: 4-Bromofluorobenzene</i>	100			77-113	%REC	1	06-Apr-2023 05:01
<i>Surr: Dibromofluoromethane</i>	97.5			77-123	%REC	1	06-Apr-2023 05:01
<i>Surr: Toluene-d8</i>	105			82-127	%REC	1	06-Apr-2023 05:01
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 01:17
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 01:17
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 01:17
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	90.2			70-130	%REC	1	08-Apr-2023 01:17
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	98.1			70-130	%REC	1	08-Apr-2023 01:17
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 05:15
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 05:15
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 05:15
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 05:15
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 05:15
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 05:15
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 05:15
<i>Surr: 1-Chlorooctadecane</i>	96.9			40-140	%REC	1	12-Apr-2023 05:15
<i>Surr: 2-Bromonaphthalene</i>	103			40-140	%REC	1	12-Apr-2023 05:15
<i>Surr: 2-Fluorobiphenyl</i>	62.7			40-140	%REC	1	12-Apr-2023 05:15
<i>Surr: o-Terphenyl</i>	113			40-140	%REC	1	12-Apr-2023 05:15

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-582
 Collection Date: 30-Mar-2023 14:00

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 14-Apr-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	17-Apr-2023 18:37
Barium	0.221		0.00190	0.00400	mg/L	1	17-Apr-2023 18:37
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:37
Calcium	23.9		0.0340	0.500	mg/L	1	17-Apr-2023 18:37
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:37
Iron	4.02		0.0120	0.200	mg/L	1	17-Apr-2023 18:37
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:37
Magnesium	7.66		0.0100	0.200	mg/L	1	17-Apr-2023 18:37
Manganese	0.388		0.000700	0.00500	mg/L	1	17-Apr-2023 18:37
Potassium	2.50		0.0180	0.200	mg/L	1	17-Apr-2023 18:37
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:37
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:37
Sodium	26.4		0.0140	0.200	mg/L	1	17-Apr-2023 18:37
Strontium	0.208		0.000200	0.00500	mg/L	1	17-Apr-2023 18:37
Zinc	0.0166		0.00200	0.00400	mg/L	1	17-Apr-2023 18:37
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 15-Apr-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:08
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	200		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	115		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011		Method:SM4500H+ B					Analyst: CD
pH	7.01	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.8	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 16:17
Chloride	26.3		0.200	0.500	mg/L	1	14-Apr-2023 16:17
Sulfate	3.68		0.200	0.500	mg/L	1	14-Apr-2023 16:17

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-1603
 Collection Date: 30-Mar-2023 15:00

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:22
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:22
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 05:22
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:22
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:22
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 05:22
<i>Surr: 1,2-Dichloroethane-d4</i>	113			70-126	%REC	1	06-Apr-2023 05:22
<i>Surr: 4-Bromofluorobenzene</i>	104			77-113	%REC	1	06-Apr-2023 05:22
<i>Surr: Dibromofluoromethane</i>	104			77-123	%REC	1	06-Apr-2023 05:22
<i>Surr: Toluene-d8</i>	105			82-127	%REC	1	06-Apr-2023 05:22
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:12
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:12
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:12
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	111			70-130	%REC	1	08-Apr-2023 03:12
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	119			70-130	%REC	1	08-Apr-2023 03:12
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 05:46
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 05:46
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 05:46
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 05:46
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 05:46
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 05:46
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 05:46
<i>Surr: 1-Chlorooctadecane</i>	97.1			40-140	%REC	1	12-Apr-2023 05:46
<i>Surr: 2-Bromonaphthalene</i>	95.4			40-140	%REC	1	12-Apr-2023 05:46
<i>Surr: 2-Fluorobiphenyl</i>	56.3			40-140	%REC	1	12-Apr-2023 05:46
<i>Surr: o-Terphenyl</i>	94.4			40-140	%REC	1	12-Apr-2023 05:46

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-1603
 Collection Date: 30-Mar-2023 15:00

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A Method:SW6020A				Prep:SW3010A / 14-Apr-2023			Analyst: JC
Arsenic	0.000974	J	0.000400	0.00200	mg/L	1	17-Apr-2023 18:39
Barium	0.258		0.00190	0.00400	mg/L	1	17-Apr-2023 18:39
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:39
Calcium	26.9		0.0340	0.500	mg/L	1	17-Apr-2023 18:39
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:39
Iron	12.4		0.0120	0.200	mg/L	1	17-Apr-2023 18:39
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:39
Magnesium	8.33		0.0100	0.200	mg/L	1	17-Apr-2023 18:39
Manganese	0.506		0.000700	0.00500	mg/L	1	17-Apr-2023 18:39
Potassium	2.81		0.0180	0.200	mg/L	1	17-Apr-2023 18:39
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:39
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:39
Sodium	32.1		0.0140	0.200	mg/L	1	17-Apr-2023 18:39
Strontium	0.235		0.000200	0.00500	mg/L	1	17-Apr-2023 18:39
Zinc	0.0845		0.00200	0.00400	mg/L	1	17-Apr-2023 18:39
MERCURY BY SW7470A Method:SW7470A				Prep:SW7470A / 15-Apr-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	15-Apr-2023 13:10
HYDROGEN SULFIDE BY E376.1 Method:E376.1				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011 Method:M2540C				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	206		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011 Method:SM2320B				Analyst: JAC			
Alkalinity, Bicarbonate (As CaCO ₃)	125		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011 Method:SM4500 S2-F				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011 Method:SM4500H+ B				Analyst: CD			
pH	7.23	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.5	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A Method:SW9056				Analyst: TH			
Bromide	0.101		0.0300	0.100	mg/L	1	14-Apr-2023 16:51
Chloride	36.6		0.200	0.500	mg/L	1	14-Apr-2023 16:51
Sulfate	0.426	J	0.200	0.500	mg/L	1	14-Apr-2023 16:51

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-1055
 Collection Date: 30-Mar-2023 15:15

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:44
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:44
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 05:44
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 05:44
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 05:44
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 05:44
<i>Surr: 1,2-Dichloroethane-d4</i>	97.2			70-126	%REC	1	06-Apr-2023 05:44
<i>Surr: 4-Bromofluorobenzene</i>	98.5			77-113	%REC	1	06-Apr-2023 05:44
<i>Surr: Dibromofluoromethane</i>	99.0			77-123	%REC	1	06-Apr-2023 05:44
<i>Surr: Toluene-d8</i>	104			82-127	%REC	1	06-Apr-2023 05:44
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:50
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:50
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 03:50
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	112			70-130	%REC	1	08-Apr-2023 03:50
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	117			70-130	%REC	1	08-Apr-2023 03:50
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 06:18
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 06:18
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 06:18
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 06:18
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 06:18
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 06:18
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 06:18
<i>Surr: 1-Chlorooctadecane</i>	97.4			40-140	%REC	1	12-Apr-2023 06:18
<i>Surr: 2-Bromonaphthalene</i>	92.5			40-140	%REC	1	12-Apr-2023 06:18
<i>Surr: 2-Fluorobiphenyl</i>	65.3			40-140	%REC	1	12-Apr-2023 06:18
<i>Surr: o-Terphenyl</i>	79.1			40-140	%REC	1	12-Apr-2023 06:18

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-1055
 Collection Date: 30-Mar-2023 15:15

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 14-Apr-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	17-Apr-2023 18:41
Barium	0.263		0.00190	0.00400	mg/L	1	17-Apr-2023 18:41
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:41
Calcium	27.5		0.0340	0.500	mg/L	1	17-Apr-2023 18:41
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:41
Iron	3.96		0.0120	0.200	mg/L	1	17-Apr-2023 18:41
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:41
Magnesium	8.42		0.0100	0.200	mg/L	1	17-Apr-2023 18:41
Manganese	0.400		0.000700	0.00500	mg/L	1	17-Apr-2023 18:41
Potassium	2.69		0.0180	0.200	mg/L	1	17-Apr-2023 18:41
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:41
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:41
Sodium	32.0		0.0140	0.200	mg/L	1	17-Apr-2023 18:41
Strontium	0.238		0.000200	0.00500	mg/L	1	17-Apr-2023 18:41
Zinc	0.0107		0.00200	0.00400	mg/L	1	17-Apr-2023 18:41
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 15-Apr-2023 Analyst: JS
Mercury	0.0000300	J	0.0000300	0.000200	mg/L	1	15-Apr-2023 13:12
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	230		5.00	10.0	mg/L	1	05-Apr-2023 02:30
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	123		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011		Method:SM4500H+ B					Analyst: CD
pH	7.16	H	0.100	0.100	pH Units	1	07-Apr-2023 13:01
Temp Deg C @pH	20.7	H	0	0	°C	1	07-Apr-2023 13:01
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	14-Apr-2023 16:57
Chloride	36.8		0.200	0.500	mg/L	1	14-Apr-2023 16:57
Sulfate	3.39		0.200	0.500	mg/L	1	14-Apr-2023 16:57

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-995
 Collection Date: 30-Mar-2023 13:10

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260					
Benzene	U		0.20	1.0	ug/L	1	06-Apr-2023 06:05
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Apr-2023 06:05
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Apr-2023 06:05
o-Xylene	U		0.30	1.0	ug/L	1	06-Apr-2023 06:05
Toluene	U		0.20	1.0	ug/L	1	06-Apr-2023 06:05
Xylenes, Total	U		0.30	1.0	ug/L	1	06-Apr-2023 06:05
<i>Surr: 1,2-Dichloroethane-d4</i>	111			70-126	%REC	1	06-Apr-2023 06:05
<i>Surr: 4-Bromofluorobenzene</i>	101			77-113	%REC	1	06-Apr-2023 06:05
<i>Surr: Dibromofluoromethane</i>	97.7			77-123	%REC	1	06-Apr-2023 06:05
<i>Surr: Toluene-d8</i>	104			82-127	%REC	1	06-Apr-2023 06:05
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	08-Apr-2023 04:29
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 04:29
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	08-Apr-2023 04:29
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	115			70-130	%REC	1	08-Apr-2023 04:29
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	117			70-130	%REC	1	08-Apr-2023 04:29
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 06:50
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	12-Apr-2023 06:50
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	12-Apr-2023 06:50
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	12-Apr-2023 06:50
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	12-Apr-2023 06:50
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	12-Apr-2023 06:50
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	12-Apr-2023 06:50
<i>Surr: 1-Chlorooctadecane</i>	90.9			40-140	%REC	1	12-Apr-2023 06:50
<i>Surr: 2-Bromonaphthalene</i>	86.4			40-140	%REC	1	12-Apr-2023 06:50
<i>Surr: 2-Fluorobiphenyl</i>	47.5			40-140	%REC	1	12-Apr-2023 06:50
<i>Surr: o-Terphenyl</i>	89.2			40-140	%REC	1	12-Apr-2023 06:50

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 19-995
 Collection Date: 30-Mar-2023 13:10

ANALYTICAL REPORT

WorkOrder:HS23040092
 Lab ID:HS23040092-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A					Prep:SW3010A / 14-Apr-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	17-Apr-2023 18:43
Barium	0.234		0.00190	0.00400	mg/L	1	17-Apr-2023 18:43
Cadmium	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:43
Calcium	25.3		0.0340	0.500	mg/L	1	17-Apr-2023 18:43
Chromium	U		0.000400	0.00400	mg/L	1	17-Apr-2023 18:43
Iron	4.76		0.0120	0.200	mg/L	1	17-Apr-2023 18:43
Lead	U		0.000600	0.00200	mg/L	1	17-Apr-2023 18:43
Magnesium	7.87		0.0100	0.200	mg/L	1	17-Apr-2023 18:43
Manganese	0.403		0.000700	0.00500	mg/L	1	17-Apr-2023 18:43
Potassium	2.60		0.0180	0.200	mg/L	1	17-Apr-2023 18:43
Selenium	U		0.00110	0.00200	mg/L	1	17-Apr-2023 18:43
Silver	U		0.000200	0.00200	mg/L	1	17-Apr-2023 18:43
Sodium	30.3		0.0140	0.200	mg/L	1	17-Apr-2023 18:43
Strontium	0.221		0.000200	0.00500	mg/L	1	17-Apr-2023 18:43
Zinc	U		0.00200	0.00400	mg/L	1	17-Apr-2023 18:43
MERCURY BY SW7470A		Method:SW7470A					Prep:SW7470A / 15-Apr-2023 Analyst: JS
Mercury	0.0000310	J	0.0000300	0.000200	mg/L	1	15-Apr-2023 13:19
HYDROGEN SULFIDE BY E376.1		Method:E376.1					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Apr-2023 13:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	240		5.00	10.0	mg/L	1	05-Apr-2023 12:32
ALKALINITY BY SM 2320B-2011		Method:SM2320B					Analyst: JAC
Alkalinity, Bicarbonate (As CaCO ₃)	122		5.00	5.00	mg/L	1	13-Apr-2023 18:38
Alkalinity, Carbonate (As CaCO ₃)	U		5.00	5.00	mg/L	1	13-Apr-2023 18:38
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	06-Apr-2023 13:25
PH BY SM4500H+ B-2011		Method:SM4500H+ B					Analyst: CD
pH	6.94	H	0.100	0.100	pH Units	1	07-Apr-2023 09:35
Temp Deg C @pH	20.9	H	0	0	°C	1	07-Apr-2023 09:35
ANIONS BY SW9056A		Method:SW9056					Analyst: TH
Bromide	0.0782	J	0.0300	0.100	mg/L	1	14-Apr-2023 17:14
Chloride	36.3		0.200	0.500	mg/L	1	14-Apr-2023 17:14
Sulfate	2.80		0.200	0.500	mg/L	1	14-Apr-2023 17:14

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Weight / Prep Log**Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23040092**Batch ID:** 192098**Start Date:** 10 Apr 2023 09:00**End Date:** 10 Apr 2023 15:00**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23040092-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-07	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23040092-08	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 192397**Start Date:** 14 Apr 2023 13:00**End Date:** 14 Apr 2023 17:00**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23040092-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-08		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 192435**Start Date:** 15 Apr 2023 07:00**End Date:** 15 Apr 2023 10:00**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23040092-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23040092-08		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 192098 (1)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45		10 Apr 2023 12:52	12 Apr 2023 03:08	1
HS23040092-01	NO.21	30 Mar 2023 10:45		10 Apr 2023 12:52	12 Apr 2023 03:08	1
HS23040092-02	NO.22	30 Mar 2023 11:00		10 Apr 2023 12:52	12 Apr 2023 03:39	1
HS23040092-02	NO.22	30 Mar 2023 11:00		10 Apr 2023 12:52	12 Apr 2023 03:39	1
HS23040092-03	NO.23	30 Mar 2023 11:15		10 Apr 2023 12:52	12 Apr 2023 04:11	1
HS23040092-03	NO.23	30 Mar 2023 11:15		10 Apr 2023 12:52	12 Apr 2023 04:11	1
HS23040092-04	19-580	30 Mar 2023 13:45		10 Apr 2023 12:52	12 Apr 2023 04:43	1
HS23040092-04	19-580	30 Mar 2023 13:45		10 Apr 2023 12:52	12 Apr 2023 04:43	1
HS23040092-05	19-582	30 Mar 2023 14:00		10 Apr 2023 12:52	12 Apr 2023 05:15	1
HS23040092-05	19-582	30 Mar 2023 14:00		10 Apr 2023 12:52	12 Apr 2023 05:15	1
HS23040092-06	19-1603	30 Mar 2023 15:00		10 Apr 2023 12:52	12 Apr 2023 05:46	1
HS23040092-06	19-1603	30 Mar 2023 15:00		10 Apr 2023 12:52	12 Apr 2023 05:46	1
HS23040092-07	19-1055	30 Mar 2023 15:15		10 Apr 2023 12:52	12 Apr 2023 06:18	1
HS23040092-07	19-1055	30 Mar 2023 15:15		10 Apr 2023 12:52	12 Apr 2023 06:18	1
HS23040092-08	19-995	30 Mar 2023 13:10		10 Apr 2023 12:52	12 Apr 2023 06:50	1
HS23040092-08	19-995	30 Mar 2023 13:10		10 Apr 2023 12:52	12 Apr 2023 06:50	1
Batch ID: 192397 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45		14 Apr 2023 01:00	17 Apr 2023 18:23	1
HS23040092-01	NO.21	30 Mar 2023 10:45		14 Apr 2023 01:00	17 Apr 2023 17:43	10
HS23040092-02	NO.22	30 Mar 2023 11:00		14 Apr 2023 01:00	17 Apr 2023 18:25	1
HS23040092-02	NO.22	30 Mar 2023 11:00		14 Apr 2023 01:00	17 Apr 2023 17:45	10
HS23040092-03	NO.23	30 Mar 2023 11:15		14 Apr 2023 01:00	17 Apr 2023 18:33	1
HS23040092-03	NO.23	30 Mar 2023 11:15		14 Apr 2023 01:00	17 Apr 2023 17:47	10
HS23040092-04	19-580	30 Mar 2023 13:45		14 Apr 2023 01:00	17 Apr 2023 18:35	1
HS23040092-05	19-582	30 Mar 2023 14:00		14 Apr 2023 01:00	17 Apr 2023 18:37	1
HS23040092-06	19-1603	30 Mar 2023 15:00		14 Apr 2023 01:00	17 Apr 2023 18:39	1
HS23040092-07	19-1055	30 Mar 2023 15:15		14 Apr 2023 01:00	17 Apr 2023 18:41	1
HS23040092-08	19-995	30 Mar 2023 13:10		14 Apr 2023 01:00	17 Apr 2023 18:43	1
Batch ID: 192435 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45		15 Apr 2023 07:00	15 Apr 2023 13:01	1
HS23040092-02	NO.22	30 Mar 2023 11:00		15 Apr 2023 07:00	15 Apr 2023 13:03	1
HS23040092-03	NO.23	30 Mar 2023 11:15		15 Apr 2023 07:00	15 Apr 2023 13:05	1
HS23040092-04	19-580	30 Mar 2023 13:45		15 Apr 2023 07:00	15 Apr 2023 13:07	1
HS23040092-05	19-582	30 Mar 2023 14:00		15 Apr 2023 07:00	15 Apr 2023 13:08	1
HS23040092-06	19-1603	30 Mar 2023 15:00		15 Apr 2023 07:00	15 Apr 2023 13:10	1
HS23040092-07	19-1055	30 Mar 2023 15:15		15 Apr 2023 07:00	15 Apr 2023 13:12	1
HS23040092-08	19-995	30 Mar 2023 13:10		15 Apr 2023 07:00	15 Apr 2023 13:19	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R431879 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C				
HS23040092-01	NO.21	30 Mar 2023 10:45			06 Apr 2023 03:35	1
HS23040092-02	NO.22	30 Mar 2023 11:00			06 Apr 2023 03:57	1
HS23040092-03	NO.23	30 Mar 2023 11:15			06 Apr 2023 04:18	1
HS23040092-04	19-580	30 Mar 2023 13:45			06 Apr 2023 04:40	1
HS23040092-05	19-582	30 Mar 2023 14:00			06 Apr 2023 05:01	1
HS23040092-06	19-1603	30 Mar 2023 15:00			06 Apr 2023 05:22	1
HS23040092-07	19-1055	30 Mar 2023 15:15			06 Apr 2023 05:44	1
HS23040092-08	19-995	30 Mar 2023 13:10			06 Apr 2023 06:05	1
Batch ID: R431919 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				
HS23040092-08	19-995	30 Mar 2023 13:10			05 Apr 2023 12:32	1
Batch ID: R431922 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011				
HS23040092-01	NO.21	30 Mar 2023 10:45			05 Apr 2023 02:30	1
HS23040092-02	NO.22	30 Mar 2023 11:00			05 Apr 2023 02:30	1
HS23040092-03	NO.23	30 Mar 2023 11:15			05 Apr 2023 02:30	1
HS23040092-04	19-580	30 Mar 2023 13:45			05 Apr 2023 02:30	1
HS23040092-05	19-582	30 Mar 2023 14:00			05 Apr 2023 02:30	1
HS23040092-06	19-1603	30 Mar 2023 15:00			05 Apr 2023 02:30	1
HS23040092-07	19-1055	30 Mar 2023 15:15			05 Apr 2023 02:30	1
Batch ID: R431936 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011				
HS23040092-01	NO.21	30 Mar 2023 10:45			06 Apr 2023 13:25	1
HS23040092-02	NO.22	30 Mar 2023 11:00			06 Apr 2023 13:25	1
HS23040092-03	NO.23	30 Mar 2023 11:15			06 Apr 2023 13:25	1
HS23040092-04	19-580	30 Mar 2023 13:45			06 Apr 2023 13:25	1
HS23040092-05	19-582	30 Mar 2023 14:00			06 Apr 2023 13:25	1
HS23040092-06	19-1603	30 Mar 2023 15:00			06 Apr 2023 13:25	1
HS23040092-07	19-1055	30 Mar 2023 15:15			06 Apr 2023 13:25	1
HS23040092-08	19-995	30 Mar 2023 13:10			06 Apr 2023 13:25	1
Batch ID: R432063 (0)		Test Name : PH BY SM4500H+ B-2011				
HS23040092-01	NO.21	30 Mar 2023 10:45			07 Apr 2023 13:01	1
HS23040092-02	NO.22	30 Mar 2023 11:00			07 Apr 2023 13:01	1
HS23040092-03	NO.23	30 Mar 2023 11:15			07 Apr 2023 13:01	1
HS23040092-04	19-580	30 Mar 2023 13:45			07 Apr 2023 13:01	1
HS23040092-05	19-582	30 Mar 2023 14:00			07 Apr 2023 13:01	1
HS23040092-06	19-1603	30 Mar 2023 15:00			07 Apr 2023 13:01	1
HS23040092-07	19-1055	30 Mar 2023 15:15			07 Apr 2023 13:01	1
Batch ID: R432168 (0)		Test Name : PH BY SM4500H+ B-2011				
HS23040092-08	19-995	30 Mar 2023 13:10			07 Apr 2023 09:35	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R432179 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45			07 Apr 2023 22:44	1
HS23040092-02	NO.22	30 Mar 2023 11:00			07 Apr 2023 23:22	1
HS23040092-03	NO.23	30 Mar 2023 11:15			08 Apr 2023 00:01	1
HS23040092-04	19-580	30 Mar 2023 13:45			08 Apr 2023 00:39	1
HS23040092-05	19-582	30 Mar 2023 14:00			08 Apr 2023 01:17	1
HS23040092-06	19-1603	30 Mar 2023 15:00			08 Apr 2023 03:12	1
HS23040092-07	19-1055	30 Mar 2023 15:15			08 Apr 2023 03:50	1
HS23040092-08	19-995	30 Mar 2023 13:10			08 Apr 2023 04:29	1
Batch ID: R432213 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45			07 Apr 2023 22:44	1
HS23040092-02	NO.22	30 Mar 2023 11:00			07 Apr 2023 23:22	1
HS23040092-03	NO.23	30 Mar 2023 11:15			08 Apr 2023 00:01	1
HS23040092-04	19-580	30 Mar 2023 13:45			08 Apr 2023 00:39	1
HS23040092-05	19-582	30 Mar 2023 14:00			08 Apr 2023 01:17	1
HS23040092-06	19-1603	30 Mar 2023 15:00			08 Apr 2023 03:12	1
HS23040092-07	19-1055	30 Mar 2023 15:15			08 Apr 2023 03:50	1
HS23040092-08	19-995	30 Mar 2023 13:10			08 Apr 2023 04:29	1
Batch ID: R432572 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45			06 Apr 2023 13:33	1
HS23040092-02	NO.22	30 Mar 2023 11:00			06 Apr 2023 13:33	1
HS23040092-03	NO.23	30 Mar 2023 11:15			06 Apr 2023 13:33	1
HS23040092-04	19-580	30 Mar 2023 13:45			06 Apr 2023 13:33	1
HS23040092-05	19-582	30 Mar 2023 14:00			06 Apr 2023 13:33	1
HS23040092-06	19-1603	30 Mar 2023 15:00			06 Apr 2023 13:33	1
HS23040092-07	19-1055	30 Mar 2023 15:15			06 Apr 2023 13:33	1
HS23040092-08	19-995	30 Mar 2023 13:10			06 Apr 2023 13:33	1
Batch ID: R432694 (0)		Test Name : ALKALINITY BY SM 2320B-2011			Matrix: Water	
HS23040092-01	NO.21	30 Mar 2023 10:45			13 Apr 2023 18:38	1
HS23040092-02	NO.22	30 Mar 2023 11:00			13 Apr 2023 18:38	1
HS23040092-03	NO.23	30 Mar 2023 11:15			13 Apr 2023 18:38	1
HS23040092-04	19-580	30 Mar 2023 13:45			13 Apr 2023 18:38	1
HS23040092-05	19-582	30 Mar 2023 14:00			13 Apr 2023 18:38	1
HS23040092-06	19-1603	30 Mar 2023 15:00			13 Apr 2023 18:38	1
HS23040092-07	19-1055	30 Mar 2023 15:15			13 Apr 2023 18:38	1
HS23040092-08	19-995	30 Mar 2023 13:10			13 Apr 2023 18:38	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R432735 (0)		Test Name : ANIONS BY SW9056A				
HS23040092-01	NO.21	30 Mar 2023 10:45			14 Apr 2023 15:42	10
HS23040092-01	NO.21	30 Mar 2023 10:45			14 Apr 2023 15:36	1
HS23040092-02	NO.22	30 Mar 2023 11:00			14 Apr 2023 15:54	10
HS23040092-02	NO.22	30 Mar 2023 11:00			14 Apr 2023 15:48	1
HS23040092-03	NO.23	30 Mar 2023 11:15			14 Apr 2023 16:05	10
HS23040092-03	NO.23	30 Mar 2023 11:15			14 Apr 2023 15:59	1
HS23040092-04	19-580	30 Mar 2023 13:45			14 Apr 2023 16:11	1
HS23040092-05	19-582	30 Mar 2023 14:00			14 Apr 2023 16:17	1
HS23040092-06	19-1603	30 Mar 2023 15:00			14 Apr 2023 16:51	1
HS23040092-07	19-1055	30 Mar 2023 15:15			14 Apr 2023 16:57	1
HS23040092-08	19-995	30 Mar 2023 13:10			14 Apr 2023 17:14	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192098 (1) **Instrument:** FID-8 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK		Sample ID:	MLBK-192098	Units: mg/L		Analysis Date: 11-Apr-2023 20:14			
Client ID:			Run ID:	FID-8_432411	SeqNo:	7230914	PrepDate:	10-Apr-2023	DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		U	0.00100						
Aliphatics >C12 - C16		U	0.00200						
Aliphatics >C16 - C35		U	0.00800						
Surr: 1-Chlorooctadecane		0.03836	0	0.04	0	95.9	40 - 140		

MLBK		Sample ID:	MLBK-192098	Units: mg/L		Analysis Date: 11-Apr-2023 20:14			
Client ID:			Run ID:	FID-7_432415	SeqNo:	7231024	PrepDate:	10-Apr-2023	DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		U	0.00100						
Aromatics >C12 - C16		U	0.00400						
Aromatics >C16 - C21		U	0.00300						
Aromatics >C21 - C35		U	0.00900						
Surr: 2-Bromonaphthalene		0.03878	0	0.04	0	96.9	40 - 140		
Surr: 2-Fluorobiphenyl		0.02215	0	0.04	0	55.4	40 - 140		
Surr: o-Terphenyl		0.04129	0	0.04	0	103	40 - 140		

LCS		Sample ID:	LCS-192098	Units: mg/L		Analysis Date: 11-Apr-2023 20:46			
Client ID:			Run ID:	FID-8_432411	SeqNo:	7230915	PrepDate:	10-Apr-2023	DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05928	0.00100	0.05	0	119	40 - 140		
Aliphatics >C12 - C16		0.121	0.00200	0.1	0	121	40 - 140		
Aliphatics >C16 - C35		0.5338	0.00800	0.4	0	133	40 - 140		
Surr: 1-Chlorooctadecane		0.04759	0	0.04	0	119	40 - 140		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192098 (1) **Instrument:** FID-8 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-192098		Units:	mg/L		Analysis Date: 11-Apr-2023 20:46			
Client ID:		Run ID: FID-7_432415		SeqNo:	7231067	PrepDate:	10-Apr-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		0.06175	0.00100	0.05	0	123	40 - 140			
Aromatics >C12 - C16		0.2073	0.00400	0.2	0	104	40 - 140			
Aromatics >C16 - C21		0.1968	0.00300	0.15	0	131	40 - 140			
Aromatics >C21 - C35		0.6043	0.00900	0.45	0	134	40 - 140			
Surr: 2-Bromonaphthalene		0.0398	0	0.04	0	99.5	40 - 140			
Surr: 2-Fluorobiphenyl		0.03101	0	0.04	0	77.5	40 - 140			
Surr: o-Terphenyl		0.04244	0	0.04	0	106	40 - 140			

MS	Sample ID:	HS23031821-04MS		Units:	mg/L		Analysis Date: 11-Apr-2023 23:56			
Client ID:		Run ID: FID-8_432411		SeqNo:	7230920	PrepDate:	10-Apr-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12		0.06451	0.00100	0.05	0	129	40 - 140			
Aliphatics >C12 - C16		0.1211	0.00200	0.1	0	121	40 - 140			
Aliphatics >C16 - C35		0.5202	0.00800	0.4	0	130	40 - 140			
Surr: 1-Chlorooctadecane		0.03997	0	0.04	0	99.9	40 - 140			

MS	Sample ID:	HS23031821-04MS		Units:	mg/L		Analysis Date: 11-Apr-2023 23:56			
Client ID:		Run ID: FID-7_432415		SeqNo:	7231068	PrepDate:	10-Apr-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		0.06902	0.00100	0.05	0	138	40 - 140			
Aromatics >C12 - C16		0.2309	0.00400	0.2	0	115	40 - 140			
Aromatics >C16 - C21		0.1936	0.00300	0.15	0	129	40 - 140			
Aromatics >C21 - C35		0.5962	0.00900	0.45	0	132	40 - 140			
Surr: 2-Bromonaphthalene		0.04112	0	0.04	0	103	40 - 140			
Surr: 2-Fluorobiphenyl		0.03137	0	0.04	0	78.4	40 - 140			
Surr: o-Terphenyl		0.03987	0	0.04	0	99.7	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192098 (1) **Instrument:** FID-8 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23031821-04MSD		Units: mg/L		Analysis Date: 12-Apr-2023 00:29			
Client ID:		Run ID: FID-8_432411		SeqNo: 7230921		PrepDate: 10-Apr-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.06842	0.00100	0.05	0	137	40 - 140	0.06451	5.89 50
Aliphatics >C12 - C16		0.1383	0.00200	0.1	0	138	40 - 140	0.1211	13.2 50
Aliphatics >C16 - C35		0.4719	0.00800	0.4	0	118	40 - 140	0.5202	9.73 50
Surr: 1-Chlorooctadecane		0.03837	0	0.04	0	95.9	40 - 140	0.03997	4.08 50

MSD	Sample ID:	HS23031821-04MSD		Units: mg/L		Analysis Date: 12-Apr-2023 00:29			
Client ID:		Run ID: FID-7_432415		SeqNo: 7231031		PrepDate: 10-Apr-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05281	0.00100	0.05	0	106	40 - 140	0.06902	26.6 50
Aromatics >C12 - C16		0.1906	0.00400	0.2	0	95.3	40 - 140	0.2309	19.1 50
Aromatics >C16 - C21		0.2	0.00300	0.15	0	133	40 - 140	0.1936	3.26 50
Aromatics >C21 - C35		0.5574	0.00900	0.45	0	124	40 - 140	0.5962	6.73 50
Surr: 2-Bromonaphthalene		0.03509	0	0.04	0	87.7	40 - 140	0.04112	15.8 50
Surr: 2-Fluorobiphenyl		0.02013	0	0.04	0	50.3	40 - 140	0.03137	43.6 50
Surr: o-Terphenyl		0.03568	0	0.04	0	89.2	40 - 140	0.03987	11.1 50

The following samples were analyzed in this batch:	HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
	HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432179 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1				
MLBK	Sample ID: MBLK-230407			Units: mg/L		Analysis Date: 07-Apr-2023 13:11		
Client ID:		Run ID: FID-14_432179		SeqNo: 7225049	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	U	0.0100						
Aliphatics >C8 - C10	U	0.0100						
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2091	0.0100	0.25	0	83.6	70 - 130		
LCS	Sample ID: LCS-230407			Units: mg/L		Analysis Date: 07-Apr-2023 11:10		
Client ID:		Run ID: FID-14_432179		SeqNo: 7225046	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.0212	0.0100	0.025	0	84.8	70 - 130		
Aliphatics >C8 - C10	0.02032	0.0100	0.025	0	81.3	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2528	0.0100	0.25	0	101	70 - 130		
LCSD	Sample ID: LCSD-230407			Units: mg/L		Analysis Date: 07-Apr-2023 11:48		
Client ID:		Run ID: FID-14_432179		SeqNo: 7225047	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02122	0.0100	0.025	0	84.9	70 - 130	0.0212	0.0566 25
Aliphatics >C8 - C10	0.02036	0.0100	0.025	0	81.4	70 - 130	0.02032	0.177 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2508	0.0100	0.25	0	100	70 - 130	0.2528	0.803 25
The following samples were analyzed in this batch:		HS23040092-01	HS23040092-02	HS23040092-03		HS23040092-04		
		HS23040092-05	HS23040092-06	HS23040092-07		HS23040092-08		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432213 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230407	Units: mg/L			Analysis Date: 07-Apr-2023 13:11
Client ID:		Run ID: FID-15_432213	SeqNo: 7225731	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.2231	0.0100	0.25	0 89.2	70 - 130
LCS	Sample ID: LCS-230407	Units: mg/L			Analysis Date: 07-Apr-2023 11:10
Client ID:		Run ID: FID-15_432213	SeqNo: 7225729	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08113	0.0100	0.1	0 81.1	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2746	0.0100	0.25	0 110	70 - 130
LCSD	Sample ID: LCSD-230407	Units: mg/L			Analysis Date: 07-Apr-2023 11:48
Client ID:		Run ID: FID-15_432213	SeqNo: 7225730	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08286	0.0100	0.1	0 82.9	70 - 130 0.08113 2.11 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2724	0.0100	0.25	0 109	70 - 130 0.2746 0.808 25
The following samples were analyzed in this batch:		HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
		HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192397 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-192397	Units:	mg/L	Analysis Date: 17-Apr-2023 17:18			
Client ID:		Run ID:	ICPMS06_432795	SeqNo:	7242691	PrepDate:	14-Apr-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	U	0.00200						
Barium	U	0.00400						
Cadmium	U	0.00200						
Calcium	U	0.500						
Chromium	U	0.00400						
Iron	U	0.200						
Lead	U	0.00200						
Magnesium	0.0146	0.200						J
Manganese	U	0.00500						
Potassium	U	0.200						
Selenium	U	0.00200						
Silver	U	0.00200						
Sodium	0.0619	0.200						J
Strontium	U	0.00500						
Zinc	0.003035	0.00400						J

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192397 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

LCS	Sample ID:	Units: mg/L		Analysis Date: 17-Apr-2023 17:20				
Client ID:		Run ID:	ICPMS06_432795	SeqNo: 7242692	PrepDate: 14-Apr-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.04768	0.00200	0.05	0	95.4	80 - 120		
Barium	0.04989	0.00400	0.05	0	99.8	80 - 120		
Cadmium	0.04919	0.00200	0.05	0	98.4	80 - 120		
Calcium	5.299	0.500	5	0	106	80 - 120		
Chromium	0.0512	0.00400	0.05	0	102	80 - 120		
Iron	5.298	0.200	5	0	106	80 - 120		
Lead	0.05116	0.00200	0.05	0	102	80 - 120		
Magnesium	5.293	0.200	5	0	106	80 - 120		
Manganese	0.05264	0.00500	0.05	0	105	80 - 120		
Potassium	5.205	0.200	5	0	104	80 - 120		
Selenium	0.04706	0.00200	0.05	0	94.1	80 - 120		
Silver	0.0503	0.00200	0.05	0	101	80 - 120		
Sodium	5.255	0.200	5	0	105	80 - 120		
Strontium	0.0999	0.00500	0.1	0	99.9	80 - 120		
Zinc	0.05351	0.00400	0.05	0	107	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192397 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23040438-04MS		Units:	mg/L	Analysis Date: 17-Apr-2023 17:26			
Client ID:		Run ID: ICPMS06_432795		SeqNo:	7242695	PrepDate:	14-Apr-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.0463	0.00200	0.05	0.000986	90.6	80 - 120		
Barium		0.377	0.00400	0.05	0.3236	107	80 - 120		O
Cadmium		0.04861	0.00200	0.05	0.000124	97.0	80 - 120		
Calcium		70.63	0.500	5	66.23	87.9	80 - 120		O
Chromium		0.04956	0.00400	0.05	0.000243	98.6	80 - 120		
Iron		5.723	0.200	5	0.7241	100.0	80 - 120		
Lead		0.04887	0.00200	0.05	0.000614	96.5	80 - 120		
Magnesium		28.97	0.200	5	23.76	104	80 - 120		O
Manganese		0.527	0.00500	0.05	0.4753	104	80 - 120		O
Potassium		7.842	0.200	5	3.05	95.8	80 - 120		
Selenium		0.06591	0.00200	0.05	0.02224	87.3	80 - 120		
Silver		0.04869	0.00200	0.05	0.000038	97.3	80 - 120		
Sodium		24.16	0.200	5	19.15	100	80 - 120		
Strontium		0.4203	0.00500	0.1	0.3128	108	80 - 120		
Zinc		0.05449	0.00400	0.05	0.006482	96.0	80 - 120		

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192397 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23040438-04MSD		Units:	mg/L	Analysis Date: 17-Apr-2023 17:28				
Client ID:		Run ID: ICPMS06_432795		SeqNo:	7242696	PrepDate:	14-Apr-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic		0.0472	0.00200	0.05	0.000986	92.4	80 - 120	0.0463	1.92	20
Barium		0.394	0.00400	0.05	0.3236	141	80 - 120	0.377	4.39	20
Cadmium		0.04828	0.00200	0.05	0.000124	96.3	80 - 120	0.04861	0.681	20
Calcium		71.77	0.500	5	66.23	111	80 - 120	70.63	1.6	20
Chromium		0.0506	0.00400	0.05	0.000243	101	80 - 120	0.04956	2.07	20
Iron		5.859	0.200	5	0.7241	103	80 - 120	5.723	2.35	20
Lead		0.05118	0.00200	0.05	0.000614	101	80 - 120	0.04887	4.63	20
Magnesium		28.9	0.200	5	23.76	103	80 - 120	28.97	0.241	20
Manganese		0.5252	0.00500	0.05	0.4753	99.8	80 - 120	0.527	0.353	20
Potassium		7.845	0.200	5	3.05	95.9	80 - 120	7.842	0.0349	20
Selenium		0.06737	0.00200	0.05	0.02224	90.3	80 - 120	0.06591	2.19	20
Silver		0.04915	0.00200	0.05	0.000038	98.2	80 - 120	0.04869	0.946	20
Sodium		24.48	0.200	5	19.15	107	80 - 120	24.16	1.35	20
Strontium		0.4192	0.00500	0.1	0.3128	106	80 - 120	0.4203	0.26	20
Zinc		0.05486	0.00400	0.05	0.006482	96.8	80 - 120	0.05449	0.668	20

PDS	Sample ID:	HS23040438-04PDS		Units:	mg/L	Analysis Date: 17-Apr-2023 17:30				
Client ID:		Run ID: ICPMS06_432795		SeqNo:	7242697	PrepDate:	14-Apr-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic		0.09378	0.00200	0.1	0.000986	92.8	75 - 125			
Barium		0.428	0.00400	0.1	0.3236	104	75 - 125			
Cadmium		0.09629	0.00200	0.1	0.000124	96.2	75 - 125			
Calcium		77.2	0.500	10	66.23	110	75 - 125			O
Chromium		0.09902	0.00400	0.1	0.000243	98.8	75 - 125			
Iron		11.02	0.200	10	0.7241	103	75 - 125			
Lead		0.09821	0.00200	0.1	0.000614	97.6	75 - 125			
Magnesium		33.82	0.200	10	23.76	101	75 - 125			
Manganese		0.5825	0.00500	0.1	0.4753	107	75 - 125			O
Potassium		12.48	0.200	10	3.05	94.3	75 - 125			
Selenium		0.114	0.00200	0.1	0.02224	91.8	75 - 125			
Silver		0.09943	0.00200	0.1	0.000038	99.4	75 - 125			
Sodium		29.27	0.200	10	19.15	101	75 - 125			
Zinc		0.105	0.00400	0.1	0.006482	98.5	75 - 125			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192397 (0) **Instrument:** ICPMS06 **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID: HS23040438-04SD		Units: mg/L		Analysis Date: 17-Apr-2023 17:24				
Client ID:	Run ID: ICPMS06_432795		SeqNo: 7242694		PrepDate: 14-Apr-2023		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	U	0.0100					0.000986	0	10
Barium	0.3206	0.0200					0.3236	0.927	10
Cadmium	U	0.0100					0.000124	0	10
Calcium	65.8	2.50					66.23	0.651	10
Chromium	U	0.0200					0.000243	0	10
Iron	0.7404	1.00					0.7241	0	10
Lead	U	0.0100					0.000614	0	10
Magnesium	25.16	1.00					23.76	5.87	10
Manganese	0.4741	0.0250					0.4753	0.241	10
Potassium	3.064	1.00					3.05	0.45	10
Selenium	0.02347	0.0100					0.02224	5.5	10
Silver	U	0.0100					0.000038	0	10
Sodium	20.32	1.00					19.15	6.15	10
Strontium	0.3237	0.0250					0.3128	3.5	10
Zinc	U	0.0200					0.006482	0	10

The following samples were analyzed in this batch: HS23040092-01 HS23040092-02 HS23040092-03 HS23040092-04
 HS23040092-05 HS23040092-06 HS23040092-07 HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: 192435 (0) **Instrument:** HG04 **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-192435	Units:	mg/L	Analysis Date: 15-Apr-2023 12:58			
Client ID:		Run ID:	HG04_432745	SeqNo:	7240038	PrepDate:	15-Apr-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury U 0.000200

LCS	Sample ID:	LCS-192435	Units:	mg/L	Analysis Date: 15-Apr-2023 13:00			
Client ID:		Run ID:	HG04_432745	SeqNo:	7239985	PrepDate:	15-Apr-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.0049 0.000200 0.005 0 98.0 80 - 120

MS	Sample ID:	HS23040438-04MS	Units:	mg/L	Analysis Date: 15-Apr-2023 13:41			
Client ID:		Run ID:	HG04_432745	SeqNo:	7240007	PrepDate:	15-Apr-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00396 0.000200 0.005 0.00002 78.8 75 - 125

MSD	Sample ID:	HS23040438-04MSD	Units:	mg/L	Analysis Date: 15-Apr-2023 13:42			
Client ID:		Run ID:	HG04_432745	SeqNo:	7240008	PrepDate:	15-Apr-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury 0.00395 0.000200 0.005 0.00002 78.6 75 - 125 0.00396 0.253 20

The following samples were analyzed in this batch:	HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
	HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R431879 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230405			Units: ug/L		Analysis Date: 06-Apr-2023 01:27			
Client ID:		Run ID: VOA7_431879		SeqNo: 7218213	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	1.0							
Ethylbenzene	U	1.0							
m,p-Xylene	U	2.0							
o-Xylene	U	1.0							
Toluene	U	1.0							
Xylenes, Total	U	1.0							
Surr: 1,2-Dichloroethane-d4	52.97	1.0	50	0	106	70 - 123			
Surr: 4-Bromofluorobenzene	50.11	1.0	50	0	100	77 - 113			
Surr: Dibromofluoromethane	47.94	1.0	50	0	95.9	73 - 126			
Surr: Toluene-d8	52.06	1.0	50	0	104	81 - 120			
LCS	Sample ID: VLCSW-230405			Units: ug/L		Analysis Date: 06-Apr-2023 00:44			
Client ID:		Run ID: VOA7_431879		SeqNo: 7218212	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	19.23	1.0	20	0	96.2	74 - 120			
Ethylbenzene	17.48	1.0	20	0	87.4	77 - 117			
m,p-Xylene	36.36	2.0	40	0	90.9	77 - 122			
o-Xylene	18.59	1.0	20	0	92.9	75 - 119			
Toluene	18.98	1.0	20	0	94.9	77 - 118			
Xylenes, Total	54.94	1.0	60	0	91.6	75 - 122			
Surr: 1,2-Dichloroethane-d4	55.21	1.0	50	0	110	70 - 123			
Surr: 4-Bromofluorobenzene	51.84	1.0	50	0	104	77 - 113			
Surr: Dibromofluoromethane	49.5	1.0	50	0	99.0	73 - 126			
Surr: Toluene-d8	50.56	1.0	50	0	101	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R431879 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MS	Sample ID: HS23040173-01MS	Units: ug/L		Analysis Date: 06-Apr-2023 02:31					
Client ID:	Run ID: VOA7_431879			SeqNo: 7218216	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	16.68	1.0	20	0	83.4	70 - 127			
Ethylbenzene	15.6	1.0	20	0	78.0	70 - 124			
m,p-Xylene	33.22	2.0	40	0	83.1	70 - 130			
o-Xylene	16.29	1.0	20	0	81.4	70 - 124			
Toluene	16.6	1.0	20	0	83.0	70 - 123			
Xylenes, Total	49.51	1.0	60	0	82.5	70 - 130			
Surr: 1,2-Dichloroethane-d4	53.67	1.0	50	0	107	70 - 126			
Surr: 4-Bromofluorobenzene	51.21	1.0	50	0	102	77 - 113			
Surr: Dibromofluoromethane	49.82	1.0	50	0	99.6	77 - 123			
Surr: Toluene-d8	51.61	1.0	50	0	103	82 - 127			
MSD	Sample ID: HS23040173-01MSD	Units: ug/L		Analysis Date: 06-Apr-2023 02:53					
Client ID:	Run ID: VOA7_431879			SeqNo: 7218217	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	16.03	1.0	20	0	80.2	70 - 127	16.68	3.96	20
Ethylbenzene	15.77	1.0	20	0	78.8	70 - 124	15.6	1.04	20
m,p-Xylene	30.81	2.0	40	0	77.0	70 - 130	33.22	7.52	20
o-Xylene	16.37	1.0	20	0	81.8	70 - 124	16.29	0.5	20
Toluene	15.93	1.0	20	0	79.6	70 - 123	16.6	4.16	20
Xylenes, Total	47.18	1.0	60	0	78.6	70 - 130	49.51	4.81	20
Surr: 1,2-Dichloroethane-d4	52.3	1.0	50	0	105	70 - 126	53.67	2.59	20
Surr: 4-Bromofluorobenzene	52.01	1.0	50	0	104	77 - 113	51.21	1.55	20
Surr: Dibromofluoromethane	50.98	1.0	50	0	102	77 - 123	49.82	2.29	20
Surr: Toluene-d8	50.9	1.0	50	0	102	82 - 127	51.61	1.4	20

The following samples were analyzed in this batch:

HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R431919 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-04052023	Units:	mg/L	Analysis Date: 05-Apr-2023 12:32		
Client ID:		Run ID:	Balance1_431919	SeqNo: 7219194	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-04052023	Units:	mg/L	Analysis Date: 05-Apr-2023 12:32		
Client ID:		Run ID:	Balance1_431919	SeqNo: 7219193	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1104 10.0 1000 0 110 85 - 115

DUP	Sample ID:	HS23040090-07DUP	Units:	mg/L	Analysis Date: 05-Apr-2023 12:32		
Client ID:		Run ID:	Balance1_431919	SeqNo: 7219186	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 888 10.0 884 0.451 20

DUP	Sample ID:	HS23040090-02DUP	Units:	mg/L	Analysis Date: 05-Apr-2023 12:32		
Client ID:		Run ID:	Balance1_431919	SeqNo: 7219180	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 8100 10.0 8120 0.247 20

The following samples were analyzed in this batch: HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R431922 (0) **Instrument:** Balance1 **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-04052023	Units:	mg/L	Analysis Date: 05-Apr-2023 02:30		
Client ID:		Run ID:	Balance1_431922	SeqNo:	7219219	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

LCS	Sample ID:	LCS-04052023	Units:	mg/L	Analysis Date: 05-Apr-2023 02:30		
Client ID:		Run ID:	Balance1_431922	SeqNo:	7219218	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1088 10.0 1000 0 109 85 - 115

DUP	Sample ID:	HS23040179-04DUP	Units:	mg/L	Analysis Date: 05-Apr-2023 02:30		
Client ID:		Run ID:	Balance1_431922	SeqNo:	7219216	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 740 10.0 742 0.27 20

DUP	Sample ID:	HS23040092-04DUP	Units:	mg/L	Analysis Date: 05-Apr-2023 02:30		
Client ID:	19-580	Run ID:	Balance1_431922	SeqNo:	7219208	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 184 10.0 186 1.08 20

The following samples were analyzed in this batch: HS23040092-01 HS23040092-02 HS23040092-03 HS23040092-04
 HS23040092-05 HS23040092-06 HS23040092-07

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R431936 (0) **Instrument:** WetChem_HS **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R431936	Units:	mg/L	Analysis Date: 06-Apr-2023 13:25			
Client ID:		Run ID: WetChem_HS_431936 SeqNo: 7219413	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide U 2.00

LCS	Sample ID:	LCS-R431936	Units:	mg/L	Analysis Date: 06-Apr-2023 13:25			
Client ID:		Run ID: WetChem_HS_431936 SeqNo: 7219412	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 21.84 2.00 25 0 87.4 85 - 115

LCSD	Sample ID:	LCSD-R431936	Units:	mg/L	Analysis Date: 06-Apr-2023 13:25			
Client ID:		Run ID: WetChem_HS_431936 SeqNo: 7219411	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.04 2.00 25 0 88.2 85 - 115 21.84 0.912 20

MS	Sample ID:	HS23040092-01MS	Units:	mg/L	Analysis Date: 06-Apr-2023 13:25			
Client ID:	NO.21	Run ID: WetChem_HS_431936 SeqNo: 7219409	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide 22.04 2.00 25 -1.36 93.6 80 - 120

The following samples were analyzed in this batch:	HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
	HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432063 (0) **Instrument:** WetChem_HS **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23040084-01DUP	Units:	pH Units	Analysis Date: 07-Apr-2023 13:01			
Client ID:	Run ID:	WetChem_HS_432063	SeqNo:	7222277	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
pH	7.41	0.100				7.41	0	10
Temp Deg C @pH	20.6	0				20.6	0	10

The following samples were analyzed in this batch:

HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
HS23040092-05	HS23040092-06	HS23040092-07	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432168 (0) **Instrument:** WetChem_HS **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23031564-04DUP	Units:	pH Units	Analysis Date: 07-Apr-2023 09:35			
Client ID:	Run ID:	WetChem_HS_432168	SeqNo:	7224796	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
pH	7.42	0.100				7.37	0.676	10
Temp Deg C @pH	20.6	0				20.6	0	10

The following samples were analyzed in this batch: HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432572 (0) **Instrument:** WetChem_HS **Method:** HYDROGEN SULFIDE BY E376.1

MBLK	Sample ID:	MBLK-R432572	Units:	mg/L	Analysis Date: 06-Apr-2023 13:33			
Client ID:		Run ID: WetChem_HS_432572 SeqNo: 7238724	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide U 1.00

LCS	Sample ID:	LCS-R432572	Units:	mg/L	Analysis Date: 06-Apr-2023 13:33			
Client ID:		Run ID: WetChem_HS_432572 SeqNo: 7238723	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.2 1.00 25 0 92.8 80 - 120

LCSD	Sample ID:	LCSD-R432572	Units:	mg/L	Analysis Date: 06-Apr-2023 13:33			
Client ID:		Run ID: WetChem_HS_432572 SeqNo: 7238722	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide 23.42 1.00 25 0 93.7 80 - 120 23.2 0.912 20

The following samples were analyzed in this batch:	HS23040092-01	HS23040092-02	HS23040092-03	HS23040092-04
	HS23040092-05	HS23040092-06	HS23040092-07	HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432694 (0) **Instrument:** ManTech01 **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-R432694		Units: mg/L		Analysis Date: 13-Apr-2023 18:38			
Client ID:		Run ID:	ManTech01_432694	SeqNo:	7237944	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		U	5.00						
Alkalinity, Carbonate (As CaCO3)		U	5.00						

LCS		Sample ID: LCS-R432694		Units: mg/L		Analysis Date: 13-Apr-2023 18:38			
Client ID:		Run ID:	ManTech01_432694	SeqNo:	7237943	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		976.2	5.00	1000	0	97.6	85 - 115		

LCSD		Sample ID: LCSD-R432694		Units: mg/L		Analysis Date: 13-Apr-2023 18:38			
Client ID:		Run ID:	ManTech01_432694	SeqNo:	7237942	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)		980.9	5.00	1000	0	98.1	85 - 115	976.2	0.479 20

DUP		Sample ID: HS23031878-01DUP		Units: mg/L		Analysis Date: 13-Apr-2023 18:38			
Client ID:		Run ID:	ManTech01_432694	SeqNo:	7237945	PrepDate:	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)		926.9	5.00					956.2	3.12 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23040092-01 HS23040092-02 HS23040092-03 HS23040092-04
HS23040092-05 HS23040092-06 HS23040092-07 HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

QC BATCH REPORT

Batch ID: R432735 (0) **Instrument:** ICS-Integriion **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 14-Apr-2023 15:19			
Client ID:		Run ID: ICS-Integriion_432735		SeqNo: 7239404		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	U	0.100							
Chloride	U	0.500							
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 14-Apr-2023 15:31			
Client ID:		Run ID: ICS-Integriion_432735		SeqNo: 7239405		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	3.765	0.100	4	0	94.1	80 - 120			
Chloride	19.69	0.500	20	0	98.4	80 - 120			
Sulfate	19.55	0.500	20	0	97.7	80 - 120			

MS		Sample ID: HS23040092-07MS		Units: mg/L		Analysis Date: 14-Apr-2023 17:03			
Client ID: 19-1055		Run ID: ICS-Integriion_432735		SeqNo: 7239418		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.772	0.100	2	0	88.6	80 - 120			
Chloride	45.72	0.500	10	36.79	89.3	80 - 120			
Sulfate	13.38	0.500	10	3.389	100.0	80 - 120			

MSD		Sample ID: HS23040092-07MSD		Units: mg/L		Analysis Date: 14-Apr-2023 17:08			
Client ID: 19-1055		Run ID: ICS-Integriion_432735		SeqNo: 7239419		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.772	0.100	2	0	88.6	80 - 120	1.772	0.0226	20
Chloride	45.68	0.500	10	36.79	88.9	80 - 120	45.72	0.0853	20
Sulfate	13.37	0.500	10	3.389	99.8	80 - 120	13.38	0.121	20

The following samples were analyzed in this batch: HS23040092-01 HS23040092-02 HS23040092-03 HS23040092-04
HS23040092-05 HS23040092-06 HS23040092-07 HS23040092-08

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23040092

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Unit Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
California	2919 2022-2023	30-Apr-2023
Dept of Defense	L21-682	31-Dec-2023
Florida	E87611-36	30-Jun-2023
Illinois	2000322022-9	09-May-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Kentucky	123043, 2022-2023	30-Apr-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2022-2023	30-Apr-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-22-29	30-Apr-2023
Utah	TX026932022-13	31-Jul-2023

Sample Receipt Checklist

Work Order ID: HS23040092

Date/Time Received: 03-Apr-2023 14:00

Client Name: ERMSW-HOU

Received by: Malcolm BurlesonCompleted By: /S/ Malcolm Burleson

eSignature

03-Apr-2023 14:48

Date/Time

Reviewed by: /S/ Bernadette A. Fini

eSignature

04-Apr-2023 08:51

Date/Time

Matrices:

WATER

Carrier name:

Client

Shipping container/cooler in good condition?

Yes No Not Present

Custody seals intact on shipping container/cooler?

Yes No Not Present

Custody seals intact on sample bottles?

Yes No Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes No Not Present

Chain of custody present?

Yes No 1 Page(s)

Chain of custody signed when relinquished and received?

Yes No COC IDs:293114

Samplers name present on COC?

Yes No

Chain of custody agrees with sample labels?

Yes No

Samples in proper container/bottle?

Yes No

Sample containers intact?

Yes No

Sufficient sample volume for indicated test?

Yes No

All samples received within holding time?

Yes No

Container/Temp Blank temperature in compliance?

Yes No

Temperature(s)/Thermometer(s):

1.9UC 1.4C / 2.6UC 2.1C / 3.1UC 2.6C |IR31

Cooler(s)/Kit(s):

46055/49783/49993

Date/Time sample(s) sent to storage:

04032023

Water - VOA vials have zero headspace?

Yes No No VOA vials submitted

Water - pH acceptable upon receipt?

Yes No N/A

pH adjusted?

Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH

+1 513 733 5336

Everett, WA

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Fort Collins, CO

+1 970 490 1511

Holland, MI

+1 616 399 6070

Chain of Custody Form

HS23040092

Environmental Resources Mgmt.

Sulphur Dome

Page _____ of _____

COC ID: 293114

ALS Project Manager:



Customer Information		Project Information						
Purchase Order	0677804	Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)			
Work Order		Project Number		B	MA EPH_W_La (MA EPH)			
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA VPH_LA_W (MA VPH)			
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056_anions_W (Cl,SO4,Br)			
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four	E	ALK_W 2320B (carb, bicarb),pH			
			840 W. Sam Houston Pkwy., Suite 6	F	H2S_W (H2S)			
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G	HG_W (Mercury)			
Phone	(281) 600-1000	Phone	(281) 600-1000	H	ICP_TW (As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn)			
Fax	(281) 600-1001	Fax	(281) 600-1001	I	SULFD_4500S F (Sulfide)			
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAACountsPayable@erm.com	J	TDS_W 2540C (TDS)			

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	No. 21	3/30/23	1045	W	1,23	12	X	X	X	X	X	X	X	X	X	X	X
2	No. 22		1100														
3	No. 23		1115														
4	19-580		1345														
5	19-582		1400														
6	19-1103		1500														
7	19-1055		1515														
8	19-995		1310														
9																	
10																	

Sampler(s) Please Print & Sign <i>John Sanghera DS, S. Brown</i>	Shipment Method	Required Turnaround Time: (Check Box)	<input type="checkbox"/> Other _____	Results Due Date:
		<input checked="" type="checkbox"/> STD 10 Wk Days	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days
			<input type="checkbox"/> 24 Hour	

Relinquished by: <i>DS</i>	Date: 3/31/23	Time: 1400	Received by:	Notes: ERM Sulphur Dome
Relinquished by: <i>DS</i>	Date: 3/31/23	Time: 1400	Received by (Laboratory): <i>John Himes</i>	Cooler ID: 46053 Cooler Temp: -0.9
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): <i>John Himes</i>	QC Package: (Check One Box Below)

Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035	49993	3.1	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist
			<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV
			<input type="checkbox"/> Level IV SW846/CLP	
			<input type="checkbox"/> Other	

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.

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Lab #: 858424 Job #: 53553 IS-102884 Co. Job#:
 Sample Name: 1101529-BS Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: 0677804
 Location: Sulphur Dome
 Formation/Depth:
 Sampling Point:

Date Sampled: 2/10/2023 11:20 Date Received: 2/13/2023 Date Reported: 3/13/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.837					
Oxygen -----	14.68					
Nitrogen -----	59.75					
Carbon Dioxide -----	1.04					
Methane -----	23.55	-35.63	-151.4		33	22
Ethane -----	0.120				0.18	0.22
Ethylene -----	nd					
Propane -----	0.0084				0.012	0.022
Propylene -----	nd					
Iso-butane -----	0.0112					
N-butane -----	nd					
Iso-pentane -----	0.0019					
N-pentane -----	nd					
Hexanes + -----	0.0012					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.28

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 858425 Job #: 53553 IS-102884 Co. Job#:
 Sample Name: Brine Pond 4 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: 0677804
 Location: Sulphur Dome
 Formation/Depth:
 Sampling Point:

Date Sampled: 2/10/2023 12:45 Date Received: 2/13/2023 Date Reported: 3/13/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.034					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.14					
Oxygen -----	22.32					
Nitrogen -----	75.05					
Carbon Dioxide -----	0.61					
Methane -----	0.845	-33.1	-81		0.57	0.38
Ethane -----	0.0022				0.0016	0.0020
Ethylene -----	nd					
Propane -----	0.0004				0.00030	0.00056
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0007					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.54

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen. Carbon and hydrogen of methane obtained online via GC-C-IRMS and GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857136 Job #: 53439 IS-102884 Co. Job#:

Sample Name: Brine Well 22 BS Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/25/2023 12:00 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.35					
Oxygen -----	0.47					
Nitrogen -----	61.78					
Carbon Dioxide -----	7.47					
Methane -----	28.45	-33.03	-129.6		7.7	5.1
Ethane -----	0.287				0.084	0.11
Ethylene -----	nd					
Propane -----	0.0926				0.026	0.047
Propylene -----	nd					
Iso-butane -----	0.0216					
N-butane -----	0.0216					
Iso-pentane -----	0.0083					
N-pentane -----	0.0055					
Hexanes + -----	0.0449					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.82

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857137 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: 6X Brine Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/25/2023 13:30 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.91					
Oxygen -----	0.74					
Nitrogen -----	79.17					
Carbon Dioxide -----	5.31					
Methane -----	11.72	-38.98	-171.7		2.4	1.6
Ethane -----	0.462				0.10	0.13
Ethylene -----	0.0193					
Propane -----	0.389				0.081	0.15
Propylene -----	0.0006					
Iso-butane -----	0.0312					
N-butane -----	0.0893					
Iso-pentane -----	0.0162					
N-pentane -----	0.0193					
Hexanes + -----	0.120					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.84

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857138 Job #: 53439 IS-102884 Co. Job#:

Sample Name: Brine Well 7A BS Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/25/2023 14:10 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.744					
Oxygen -----	16.39					
Nitrogen -----	41.21					
Carbon Dioxide -----	0.29					
Methane -----	40.83	-35.60	-150.3		25	17
Ethane -----	0.397				0.26	0.32
Ethylene -----	0.0013					
Propane -----	0.0990				0.061	0.11
Propylene -----	nd					
Iso-butane -----	0.0286					
N-butane -----	0.0106					
Iso-pentane -----	0.0013					
N-pentane -----	nd					
Hexanes + -----	0.0030					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.70

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857139 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: Central Pond Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 1/25/2023 16:30 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.26					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.98					
Oxygen -----	0.41					
Nitrogen -----	84.79					
Carbon Dioxide -----	12.25					
Methane -----	0.302			0.062	0.042	
Ethane -----	0.0015			0.00033	0.00041	
Ethylene -----	nd					
Propane -----	nd			< 0.0002	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0037					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.86

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient methane concentration for carbon and hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857140 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: 019-1055 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/26/2023 8:00 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.39					
Oxygen -----	9.78					
Nitrogen -----	82.00					
Carbon Dioxide -----	6.53					
Methane -----	0.300	-53.9			0.12	0.080
Ethane -----	0.0013				0.00057	0.00071
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0020					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.69

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857141 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: 019-582 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/26/2023 8:30 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.76					
Oxygen -----	5.03					
Nitrogen -----	82.36					
Carbon Dioxide -----	10.83					
Methane -----	0.0186			0.0042		0.0028
Ethane -----	nd			< 0.0001		< 0.0002
Ethylene -----	nd					
Propane -----	nd			< 0.0001		< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0018					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.83

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient methane concentration for carbon and hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857142 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: 019-580 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/26/2023 9:10 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.64					
Oxygen -----	5.59					
Nitrogen -----	79.08					
Carbon Dioxide -----	13.23					
Methane -----	0.456	-56.4		0.12	0.077	
Ethane -----	nd			< 0.0002	< 0.0002	
Ethylene -----	nd					
Propane -----	nd			< 0.0002	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0042					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.86

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857143 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: 019-995 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 1/26/2023 9:45 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.75					
Oxygen -----	6.30					
Nitrogen -----	80.84					
Carbon Dioxide -----	10.81					
Methane -----	0.294			0.070	0.047	
Ethane -----	nd			< 0.0002	< 0.0002	
Ethylene -----	nd					
Propane -----	nd			< 0.0002	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0019					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.84

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient methane concentration for carbon and hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857144 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: CP BS 1 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 1/30/2023 11:00 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.04					
Oxygen -----	8.91					
Nitrogen -----	45.65					
Carbon Dioxide -----	3.58					
Methane -----	40.41	-34.20	-147.2		15	10
Ethane -----	0.261				0.11	0.13
Ethylene -----	0.0097					
Propane -----	0.0702				0.027	0.050
Propylene -----	nd					
Iso-butane -----	0.0259					
N-butane -----	0.0189					
Iso-pentane -----	0.0083					
N-pentane -----	0.0051					
Hexanes + -----	0.0083					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.78

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857145 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: CP BS 2 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 1/30/2023 11:30 Date Received: 2/01/2023 Date Reported: 2/15/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.905					
Oxygen -----	15.50					
Nitrogen -----	65.33					
Carbon Dioxide -----	1.29					
Methane -----	16.69	-38.37	-160.5		22	15
Ethane -----	0.209				0.29	0.37
Ethylene -----	0.0067					
Propane -----	0.0445				0.060	0.11
Propylene -----	nd					
Iso-butane -----	0.0115					
N-butane -----	0.0091					
Iso-pentane -----	0.0032					
N-pentane -----	0.0019					
Hexanes + -----	0.0029					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.41

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 857146 Job #: 53439 IS-102884 Co. Job#:
 Sample Name: CP BS 3 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled:	1/30/2023	12:30	Date Received:	2/01/2023	Date Reported:	2/15/2023
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Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.54					
Oxygen -----	21.68					
Nitrogen -----	69.85					
Carbon Dioxide -----	2.47					
Methane -----	4.39	-35.45	-143		1.2	0.80
Ethane -----	0.0472				0.014	0.017
Ethylene -----	0.0022					
Propane -----	0.0128				0.0036	0.0065
Propylene -----	nd					
Iso-butane -----	0.0033					
N-butane -----	0.0028					
Iso-pentane -----	0.0006					
N-pentane -----	nd					
Hexanes + -----	0.0039					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.82

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
 Hydrogen of methane obtained online via GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 859257 Job #: 53621 IS-102884 Co. Job#:

Sample Name: Brine Well 7B-BS Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Westlake

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/16/2023 11:45 Date Received: 2/20/2023 Date Reported: 3/20/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.955					
Oxygen -----	19.64					
Nitrogen -----	76.59					
Carbon Dioxide -----	0.51					
Methane -----	2.26	-46.02	-183.6		6.0	4.0
Ethane -----	0.0333				0.092	0.11
Ethylene -----	0.0011					
Propane -----	0.0085				0.023	0.042
Propylene -----	nd					
Iso-butane -----	0.0011					
N-butane -----	0.0024					
Iso-pentane -----	0.0005					
N-pentane -----	0.0004					
Hexanes + -----	0.0010					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.18

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861523 Job #: 53774 IS-102884 Co. Job#:
 Sample Name: BS 19 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 10:00 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	0.976					
Oxygen -----	29.18					
Nitrogen -----	43.27					
Carbon Dioxide -----	2.83					
Methane -----	23.62	-32.77	-109.4		7.5	5.0
Ethane -----	0.106				0.037	0.046
Ethylene -----	nd					
Propane -----	0.0093				0.0030	0.0055
Propylene -----	nd					
Iso-butane -----	0.0034					
N-butane -----	nd					
Iso-pentane -----	0.0004					
N-pentane -----	nd					
Hexanes + -----	0.0021					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.76

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861524 Job #: 53774 IS-102884 Co. Job#:
 Sample Name: BS 17 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 11:00 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.69					
Oxygen -----	16.22					
Nitrogen -----	74.92					
Carbon Dioxide -----	5.42					
Methane -----	1.73	-44.2	-175		0.37	0.25
Ethane -----	0.0148				0.0034	0.0043
Ethylene -----	nd					
Propane -----	0.0021				0.00046	0.00085
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0028					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.86

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
 Carbon and hydrogen of methane obtained online via GC-C-IRMS and GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861525 Job #: 53774 IS-102884 Co. Job#:
 Sample Name: BS 18 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 11:20 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.21					
Oxygen -----	14.38					
Nitrogen -----	52.67					
Carbon Dioxide -----	3.08					
Methane -----	28.32	-36.62	-154.9		8.7	5.8
Ethane -----	0.240				0.080	0.100
Ethylene -----	nd					
Propane -----	0.0616				0.019	0.035
Propylene -----	nd					
Iso-butane -----	0.0176					
N-butane -----	0.0132					
Iso-pentane -----	0.0044					
N-pentane -----	0.0024					
Hexanes + -----	0.0044					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.80

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861526 Job #: 53774 IS-102884 Co. Job#:
 Sample Name: BS 12 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 12:00 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.62					
Oxygen -----	19.99					
Nitrogen -----	70.00					
Carbon Dioxide -----	3.51					
Methane -----	4.72	-44.36	-181		1.0	0.70
Ethane -----	0.138				0.033	0.042
Ethylene -----	nd					
Propane -----	0.0108				0.0025	0.0045
Propylene -----	nd					
Iso-butane -----	0.0025					
N-butane -----	0.0019					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0038					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.84

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
 Hydrogen of methane obtained online via GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861527 Job #: 53774 IS-102884 Co. Job#:

Sample Name: BS 08 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 12:45 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.31					
Oxygen -----	16.43					
Nitrogen -----	57.26					
Carbon Dioxide -----	2.88					
Methane -----	21.89	-34.96	-143.1		6.0	4.0
Ethane -----	0.146				0.044	0.055
Ethylene -----	0.0044					
Propane -----	0.0482				0.014	0.025
Propylene -----	nd					
Iso-butane -----	0.0158					
N-butane -----	0.0108					
Iso-pentane -----	0.0034					
N-pentane -----	0.0015					
Hexanes + -----	0.0030					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.80

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861528 Job #: 53774 IS-102884 Co. Job#:
Sample Name: BS 07 Co. Lab#:
Company: Environmental Resources Management (ERM)
API/Well:
Container: IsoFlask
Field/Site Name: Sulphur Dome
Location: Sulphur, Louisiana
Formation/Depth:
Sampling Point:
Date Sampled: 2/28/2023 13:10 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.66					
Oxygen -----	22.94					
Nitrogen -----	71.73					
Carbon Dioxide -----	3.27					
Methane -----	0.398	-36.7			0.086	0.057
Ethane -----	0.0050				0.0012	0.0015
Ethylene -----	nd					
Propane -----	0.0006				0.0001	0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0013					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.84

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen. Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 861529 Job #: 53774 IS-102884 Co. Job#:
 Sample Name: BS 06 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, Louisiana

Formation/Depth:

Sampling Point:

Date Sampled: 2/28/2023 13:25 Date Received: 3/07/2023 Date Reported: 4/05/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.68					
Oxygen -----	21.86					
Nitrogen -----	72.96					
Carbon Dioxide -----	3.22					
Methane -----	0.278			0.061	0.041	
Ethane -----	0.0042			0.0010	0.0013	
Ethylene -----	nd					
Propane -----	nd			< 0.0001	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0012					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.83

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient concentration for hydrocarbon analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 862446 Job #: 53865 IS-102884 Co. Job#:
 Sample Name: No. 20 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/09/2023 13:40 Date Received: 3/14/2023 Date Reported: 4/26/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.023					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.01					
Oxygen -----	22.40					
Nitrogen -----	76.38					
Carbon Dioxide -----	0.16					
Methane -----	0.0245			0.029	0.019	
Ethane -----	nd			< 0.0002	< 0.0002	
Ethylene -----	nd					
Propane -----	nd			< 0.0002	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0005					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.26

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient methane concentration for isotopic analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865459 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: No. 21 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled:	3/30/2023 10:45	Date Received:	4/03/2023	Date Reported:	5/06/2023	
Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.11					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.29					
Oxygen -----	20.65					
Nitrogen -----	75.31					
Carbon Dioxide -----	1.77					
Methane -----	0.860	-36.2	-122		0.36	0.24
Ethane -----	0.0080				0.0036	0.0045
Ethylene -----	nd					
Propane -----	0.0011				0.00046	0.00085
Propylene -----	nd					
Iso-butane -----	0.0004					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0018					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.72

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen. Hydrogen of methane obtained online via GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865460 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: No. 22 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 11:00 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.098					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.43					
Oxygen -----	20.90					
Nitrogen -----	71.96					
Carbon Dioxide -----	2.40					
Methane -----	3.16	-38.40	-156		0.96	0.64
Ethane -----	0.0410				0.013	0.017
Ethylene -----	0.0005					
Propane -----	0.0064				0.0020	0.0037
Propylene -----	nd					
Iso-butane -----	0.0015					
N-butane -----	0.0010					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0020					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.80

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865461 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: No. 23 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 11:15 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	0.040					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.09					
Oxygen -----	21.18					
Nitrogen -----	76.89					
Carbon Dioxide -----	0.69					
Methane -----	0.105	-34.0			0.080	0.054
Ethane -----	0.0013				0.0011	0.0013
Ethylene -----	nd					
Propane -----	0.0002				0.0001	0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0007					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.45

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient concentration for hydrocarbon analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865462 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: 19-580 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 13:45 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.17					
Oxygen -----	14.38					
Nitrogen -----	80.66					
Carbon Dioxide -----	3.75					
Methane -----	0.0421			0.030	0.020	
Ethane -----	nd			< 0.0002	< 0.0002	
Ethylene -----	nd					
Propane -----	nd			< 0.0001	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0008					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.50

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Insufficient concentration for hydrocarbon analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865463 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: 19-582 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 14:00 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.27					
Oxygen -----	13.10					
Nitrogen -----	80.92					
Carbon Dioxide -----	4.66					
Methane -----	0.0516			0.029	0.020	
Ethane -----	nd			< 0.0002	< 0.0002	
Ethylene -----	nd					
Propane -----	nd			< 0.0001	< 0.0003	
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0007					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.60

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Methane isotopes obtained online via GC-C-IRMS and GC-P-IRMS.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865464 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: 19-1603 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 15:00 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.26					
Oxygen -----	11.67					
Nitrogen -----	82.50					
Carbon Dioxide -----	3.77					
Methane -----	0.802	-89.5	-282		0.47	0.31
Ethane -----	0.0009				0.00056	0.00071
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0013					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.54

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865465 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: 19-1055 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 15:15 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.23					
Oxygen -----	13.74					
Nitrogen -----	80.18					
Carbon Dioxide -----	4.67					
Methane -----	0.180	-53.5			0.10	0.068
Ethane -----	0.0007				0.00045	0.00057
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0015					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.59

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Carbon of methane obtained online via GC-C-IRMS.

Insufficient methane concentration for hydrogen isotope analysis.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 865466 Job #: 54097 IS-102884 Co. Job#:
 Sample Name: 19-995 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoFlask
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation/Depth:
 Sampling Point:

Date Sampled: 3/30/2023 13:10 Date Received: 4/03/2023 Date Reported: 5/06/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰	Dissolved gas cc/L	Dissolved gas ppm
Carbon Monoxide -----	nd					
Helium -----	na					
Hydrogen -----	nd					
Argon -----	1.29					
Oxygen -----	11.66					
Nitrogen -----	81.99					
Carbon Dioxide -----	4.83					
Methane -----	0.231	-56.6			0.12	0.078
Ethane -----	0.0005				0.00028	0.00035
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0002
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0018					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.60

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.