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Stephen Lee, Director
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Resources
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DATE

March 5, 2024

SUBJECT

7th Analytical Data Submittal
Sulphur Mines Dome
Calcasieu Parish, Louisiana

REFERENCE

0722101

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 Energy Natural Resources (LDENR) Injection & Mining Division with final laboratory analytical reports for groundwater, surface water, and oil samples collected at the Sulphur Mines Dome in Calcasieu Parish.

Included in this report are data received in January and February 2024, which includes the results of the 4th Quarter bubble site sampling event.

Enclosed are the following:

- Table 1 – Groundwater Data
- Table 2 – Surface Water Data
- Table 3 – Central Lake Water Column Profile
- Table 4 – Gas Data
- Table 5 – Oil Data
- Figure 1-4 – Sample Location Maps
- Figure 5 – Piper Diagram
- Figure 6 – Central Lake TDS Trend
- Figure 7 – Gas Sampling Equipment
- Figure 8 – Methane Isotopes
- Figure 9 – Gas Sample Nitrogen
- Figure 10 – Methane Isotope Comparison
- Attachment 1 – Laboratory Reports

Only final laboratory reports received since the previous data submittal are provided in Attachment 1 (see Section 3 below). Supplemental submittals will be made as additional final laboratory analytical data are received.

1. WATER SAMPLING RESULTS

In December 2023, January 2024, and February 2024, additional samples of groundwater and surface water were collected at the site and surrounding properties. The sampling locations are shown on Figures 1-4. The water samples were analyzed by ALS Global laboratory in Houston, Texas, a Louisiana Environmental Laboratory Accreditation Program (LELAP) accredited laboratory. Dissolved gases and stable isotope samples were submitted to and analyzed by Isotech, a Stratum Reservoir Company in Champaign, Illinois. All samples were hand delivered or shipped under proper Chain-of-Custody in laboratory supplied containers with appropriate preservative and handling requirements.

1.1 GROUNDWATER SAMPLING RESULTS

Monthly groundwater samples continue to be collected from the industrial water wells operated by Westlake, as well as the Cottages Well (019-17636Z) located west of Cavern 7 (see Figure 1). At each well, water was allowed to flow 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 to date are summarized in Table 1.

Reported constituent concentrations have consistently been 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. Zinc was reported above the GWSS in 019-1603 during the September 2023 sampling event. Due to the pumping operations, this well was not able to be resampled until December. Both the December 2023 and January 2024 zinc concentrations are below the GWSS. In January 2024, zinc was reported above the GWSS in 019-17636Z and all other constituents were consistent with the historical samples. The zinc exceedance was not confirmed in the February sample. With the exception of the few minor TPH fraction detections, the volatile organic compounds and TPH fractions have been reported as not detected in the water wells since January 2023.

A Piper diagram depicting the water quality of multiple samples is provided as Figure 5. The Piper diagram illustrates the differences between the Chicot aquifer water and the produced water and brine, as well as the overall consistency of the groundwater quality within the Chicot aquifer. The data for the Chicot sands have consistently plotted in a tight cluster, with the "500-foot" and "700-foot" sands having slightly different water quality signatures. At this time, there is no indication that the groundwater at these locations has been influenced by or mixed with brine, or with formation water from the oil producing zones.

1.2 MONITORING WELL SAMPLING

Monitoring wells within the MW-1 cluster (MW-1-200, MW-1-500, and MW-1-700) were sampled in December 2023, and the MW-2 cluster wells (MW-2-200, MW-2-500, and MW-2-700) were sampled in January 2024. At MW-1-200 the depth to water within the well was shallow enough to use a peristaltic pump to collect the sample, with intake tubing set at the middle of the screen. However, due to the depth of water (i.e. >30 ft) in the other wells a submersible pump was used to collect samples. For the submersible pump, the pump was set about 90 feet below ground surface (approx. 40 feet in the water), and the intake was set below the pump, via a drop tube, to be in the middle of the screened interval. During pumping, water quality parameters (pH, specific conductance, oxidation-reduction potential, dissolved oxygen, temperature, and turbidity) were monitored along with the drawdown in the well to ensure a representative sample was collected from the aquifer. Once the water quality parameters stabilized a sample was collected.

The water in the monitoring wells near the salt dome appears to be somewhat different than the water further away from the salt dome. At the MW-1 location, the water becomes slightly more saline and softer with depth, with lower calcium and magnesium concentrations and higher sodium and potassium concentrations. At the MW-2 location the water is significantly different, where the pH is significantly higher and increases with depth under highly reducing conditions. This high pH and anoxic setting results in a decrease in dissolved iron, magnesium, and manganese, all of which are present at much lower concentrations than in other samples. Dissolved gas samples show the presence of methane without carbon dioxide (CO₂), suggesting that microorganisms are utilizing available CO₂ and hydrogen (H) to form methane, leading to an increase in pH.

As a general observation, the water in the 200-foot-deep wells at both the MW-1 and MW-2 locations had high amounts of dissolved gas. There did not appear to be any free gas but rather dissolved gas that is liberated as the pressure is reduced at the surface. Gas was not observed in the water of the "500-foot" or "700-foot" sands at either location. During the drilling process, wood, and other organic debris has been observed within the upper confining layer and the "200-foot" sand. Wood has occasionally been observed in the "500-foot" and "700-foot" sands as well but with much less frequency compared with shallower depths. The high amount of dissolved gas in the "200-foot" sand is likely a result of decaying organic material naturally present in the shallow Chicot sands and confining layer. The gas analysis is discussed in Section 2 below.

Also, similar to claims made by residents, warm to hot water has been observed in the recently installed monitoring wells in the "500-foot" and "700-foot" sands ranging between 85°-105°F (30°-40°C), which is much warmer than the expected temperature at those depths. The temperature at the Westlake industrial water wells, and at the residential wells sampled was within the expected range of 65-70°F.

1.3 RESIDENTIAL WELL SAMPLING

In response to LDENR Third Supplement to Compliance Order No. IMD 2022-027 item 3.d. and subsequent plan, all identifiable and operational residential water wells within 2 miles of Cavern 7 have been sampled (Figure 2). With the availability of public water supplied by Houston River Water Works District 11, very few water wells are still present and used in the area of the Sulphur Dome. The results of the water well sampling are summarized in Table 1.

Domestic water wells 019-13434Z and 019-17636Z (no listed use, but serves camp houses), irrigation well 019-13785Z (currently listed as irrigation well, but well registration form indicates domestic), as well as noncommunity water well 019-1261, were the only “residential” water wells operational and located within 2-miles of Cavern 7. Water well 019-6559Z is an inactive domestic well without power or plumbing a no sample was collected.

Two wells were identified by residents who responded to ERM’s water well survey indicating that they had wells on their property. Both of these wells are inactive, and do not have utilities connected. One additional water well was identified on Dale Street during a water well search (Figure 2). The property owner indicated that the well has not been in operation for 14 years and, based on field observation, is without power or plumbing.

Several of the residents near the Sulphur Dome have commented about hot water within the Chicot, with one resident claiming the water was 124°F when the well was installed. One resident claimed the water melted the PVC casing of their old well which resulted in an unusable well that was eventually plugged and abandoned.

1.4 SURFACE WATER SAMPLING RESULTS

Due to the increasing chloride concentrations observed in the Central Lake during the 4th Quarter 2023, additional surface water samples were collected from the Central Lake to monitor chloride levels. A sample was collected from BS-12 in January and February 2024. The sampling location is shown in Figures 3. Surface water sample data is summarized in Table 2.

Chloride concentrations have significantly decreased in the Central Lake since December 2023. The site has received over 12-inches of rain since the December sampling event which has increased the water level within the Central Lake. Chloride has been elevated when the water level has been low. The chloride fluctuation appears to be seasonal and sensitive to the depth of the water column. The concentrations will continue to be monitored with the quarterly sampling events, or more frequently as needed.

1.4.1 CENTRAL LAKE WATER COLUMN PROFILE

Field readings from the Central Lake water column are continuing on a weekly basis. The profile data collected from the monitoring station are provided in Table 3. Generally, the water quality is consistent throughout the Central Lake. The specific conductance increased during the 2nd half of 2023, and began decreasing in late 2023 to early 2024. A trend of the field measured TDS compared with water depth is shown on Figure 6. Laboratory reported TDS confirms the general trend observed in the field data. The surface water will continue to be monitored to evaluate seasonal changes over time.

2. GAS SAMPLING RESULTS

During the 4th Quarter 2023 a new sampling technique was employed in an attempt to better isolate the gas at the bubble sites using gas collection by water displacement. The method utilized a fluid filled vessel which was set with the intake under the water but the vessel above the water to be under slight vacuum. The gas rises up into the vessel and displaces the water trapping the gas above the water level. Once the vessel is filled with gas the inlet valve is closed containing the gas. The gas is then forced into the sampling container by pumping water through the water intake tube into the gas filled vessel to displace the gas (Figure 7). Limiting introduction of atmospheric air into the sample continues to be a challenge and the sampling methodology is continually being modified and improved.

The majority of bubbles sites were successfully sampled using this technique. The sample collected at BS-8 was received empty at the lab so there are no data for BS-8 during the 4th Quarter 2023. At a few bubble sites (BS-13, BS-14, BS-21, BS-23, and BS-25) there was no free gas observed bubbling even with agitation of the sediments. At these locations a dissolved gas sample was collected. Methane levels were very low at these locations with the highest reported at BS-21 at 1.97 mol%. Methane isotopes were unable to be evaluated due to insufficient methane at all but the BS-21 location.

Dissolved gas was collected at two additional bubbles sites, BS-27 and BS-28, in January 2024. The bubble sites were identified during a period of flooding due to heavy rains. BS-27 had intermittent bubbling and at the time of sampling was bubbling very infrequently. BS-28 was observed at the MW-2-500 locations with gas bubbling outside of the 8-inch surface casing. Dissolved gas samples continue to be collected from the water wells on a monthly basis. Dissolved gas samples were also collected from the monitoring wells, with the exception of MW-1-700 due to pump failure during sampling. The gas data are summarized in Table 4 and sampling locations are shown on Figures 1 and 2.

The methane isotopic data have been plotted on Figure 8 for comparison with other gas samples collected. In general, the gas collected from the caverns, oil wells, and bubble sites plot as thermogenic gas, originating from deep hydrocarbon sources.

With a few exceptions, obtaining deuterium isotopic ratio data from the dissolved methane in the industrial water wells has been difficult due to the small quantity of methane present in the water. The available methane isotopic data for the water wells indicates that the methane is more depleted in Carbon-13 (^{13}C) compared with the bubble sites and oil wells. Based solely on the $\delta^{13}\text{C}$ ratio, the industrial wells appear to plot in a mixed gas range, generally between thermogenic and biogenic. The Cottages well methane is more depleted in ^{13}C compared with the industrial water wells and plots as biogenic gas.

Conversely, the monitoring wells installed on the dome had significant amounts of gas dissolved in the water. The gas from the monitoring wells has a biogenic signature being depleted in ^{13}C , with MW-1-500 and MW-2-700 having the most depleted ^{13}C methane. The other monitoring wells sampled (MW-1-200, MW-2-200, and MW-2-500) are not as depleted in ^{13}C but plot in an area that might be mixed gas. Bubble Site 28 was identified at the MW-2-500 location and the gas from BS-28 was enriched in ^{13}C , plotting in the thermogenic range, while the gas within MW-2-500 is different than the BS-28 gas being more depleted in ^{13}C suggesting the presence of biogenic gas. It is likely that there is mixing of the gas in the Chicot sands on and near the salt dome with deep thermogenic gas moving upward through the sands mixing with natural biogenic gas forming in the sands from the decay of naturally present organic matter.

2.1 PRESENCE OF GAS IN THE CHICOT AQUIFER

Gas, specifically methane and nitrogen, has been well documented in the Chicot aquifer in the Lake Charles area. Studies have been published documenting the occurrence of gas (Hodges, et al., 1963), and warning of the risk of using the gaseous water (Harder, et al., 1965) in the Chicot aquifer. Nitrogen has been attributed to atmospheric gas introduced in recharge areas because the concentration observed in the groundwater is relatively consistent with the solubility of nitrogen in atmospheric gas. Methane has been reported to occur at and above its range of solubility with two likely sources: decaying plant matter and petroleum compounds (Hodges, et al., 1963). While no free gas was observed in the Chicot sands, Hodges, et al., (1963) evaluated the methane saturation at a test site in the Lake Charles area and found the methane saturation is significantly higher in the "200-foot" sand than in the deeper sands. In this study, the areas of highest gas appear to occur near the Lockport oil and gas field in Calcasieu Parish and associated faulting, which is analogous to the Sulphur Dome.

Harder, et al., (1965) suggests that the Sulphur Mines field has a good potential for gas to move from deeper sources into the fresh-water because it is a relatively old field with extensive drilling. Gas has not been observed in appreciable quantities within the industrial water wells located approximately 2,000-feet west of the salt dome. The gas within the groundwater appears to increase closer to the salt dome, with small amounts of gas reported in the Cottages well (019-17636Z), and larger amounts of gas reported in the monitoring wells installed on the dome, which is likely a mixture of

deep thermogenic gas and shallower biogenic gas. It is reasonable that the gas observed at the Sulphur Dome is associated with the piercement dome and oil-bearing formations, “migrating through natural or manmade channels” (Hodges, et al., 1963).

2.2 SAMPLING METHODOLOGY REVIEW

To compare the results of the dissolved gas and the gas sampling techniques, the nitrogen composition was evaluated for each sample. Atmospheric gas is mostly nitrogen so elevated percent nitrogen in the gas may indicate atmospheric air being introduced into the sample. Figure 9 shows the nitrogen mol % for quarterly sampling results at each bubble site. Generally, the dissolved gas samples have elevated nitrogen in the 60-70 mol % range because the sample is collected as a water sample and the gas is separated at the lab. Surface water would naturally have mostly atmospheric gas dissolved in the water. The nitrogen mol % from the background soil sample collected during the 4th Quarter 2023 is shown on Figure 9.

Based on the data in Figure 9, the attempt to isolate the gas during the 4th Quarter sampling event was moderately successful. Many of the bubble sites had much less nitrogen in the sample suggesting that atmospheric gas was effectively limited from entering the sample. A few of the bubble sites had similar nitrogen levels to previous sample events and may not have been isolated as effectively. BS-10 has typically been dry and difficult to locate. The gas sample is collected from the dry soil, and has a significant amount of background soil gas.

However, the isotopic composition of the methane is generally consistent regardless of the sampling method because the lab isolates the methane in the gas to run the isotopic analyses (Figure 10). The stable isotopic analysis of methane is valuable for evaluating the source of the methane.

3. OIL SAMPLING

One oil sample was collected in February 2024 from Cavern 7 (see Figure 4) and submitted to SPL under proper chain-of-custody for general assay. The oil data are summarized in Table 5. The oil from Cavern 7 has remained consistent over time. The latest sample collected is nearly identical to a sample collected in August 2022. Cavern 7 oil has been consistently different than the oil produced around the dome with higher API gravity and vanadium, and lower salt content. This sample was also submitted to Alpha Analytical for environmental fingerprinting. Those results will be submitted to LDENR by Newfields.

4. LABORATORY REPORT INVENTORY

ERM conducted a review of the laboratory reports submitted to LDENR either via email or attached to a data submittal. One lab report (SPL 1030_23090306) for two oil samples collected in August 2023 was identified as not having been previously submitted. However, the data were included in the summary tables of previous

submittals. Also, one lab report (ALS HS23111864) for water samples collected in November 2023 should have been included in the 6th data summary but was inadvertently left out of the attachment to that submittal. That lab report was submitted via email on December 12, 2023. Both of these lab reports are included in the Attachment 1 of this submittal.

5. PROPOSED SURFACE WATER SAMPLING REDUCTION

The majority of the bubble sites are located within the Central Lake. Based on the data collected during 2023, there is little variation between the surface water samples collected at the bubble sites in the Central Lake. Beginning in March 2024 (1st Quarter 2024) it is proposed to reduce the water quality sampling at the bubble sites within the Central Lake to 5 locations, instead of every bubble site location. Each bubble site will be sampled for gas or dissolved gas, but the water quality sampling will change to include only 5 locations distributed around the Central Lake. Also, BS-9 and BS-19 are within the same water body and only one water quality sample will be collected from that water body. It is proposed that the following bubble site locations be included for water quality sampling during the quarterly sampling events:

Proposed Water Quality Sample Locations

Bubble Site	Water Body
BS-1	Bermed Area
BS-3	Central Lake
BS-5	
BS-6	
BS-12	
BS-25	
BS-9	Pad 4 Pond
BS-26	Salt Lake
Brine Well 7B	Well Vault

6. SCHEDULE

Water wells have been sampled on a monthly basis for 14 months. There has been no change in water quality for any of the industrial water wells over that time. Once the monitoring wells are completed (March 2024), it is proposed to sample the monitoring wells, and the Cottages Well (019-17636Z) on a bi-monthly schedule and move the industrial water wells to a quarterly sampling schedule. The bubble sites will continue to be sampled as discovered with a full round of sampling all bubble sites completed quarterly. The next quarterly event of bubble site sampling is planned for March 2024. The proposed sampling schedule for 2024 is shown below:

Industrial Water Wells	Monitoring Wells & Cottages Well	Bubble Sites
February 2024	March 2024	March 2024
March 2024	May 2024	June 2024
June 2024	July 2024	September 2024
September 2024	September 2024	December 2024
December 2024	November 2024	

We will continue to report additional sampling results to LDNR as they are received, with final laboratory reports provided via email within 48 hours of receipt.

Should you have any questions or need additional 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



SAH/DCU/pcv



REFERENCES CITED

Harder, A.H., H.M. Whitman, and S.M. Rogers, 1965, *Methane in the fresh-water aquifers of Southwestern Louisiana and theoretical explosion hazards*, US Geological Survey, Water Resources Pamphlet No. 14, 22 pp.

Hodges, A.L., Jr., S.M. Rogers, A.H. Harder, 1963, *Gas and brackish water in fresh-water aquifer, Lake Charles area, Louisiana*, US Geological Survey, Water Resources Pamphlet No. 13, 35 pp.



FIGURES



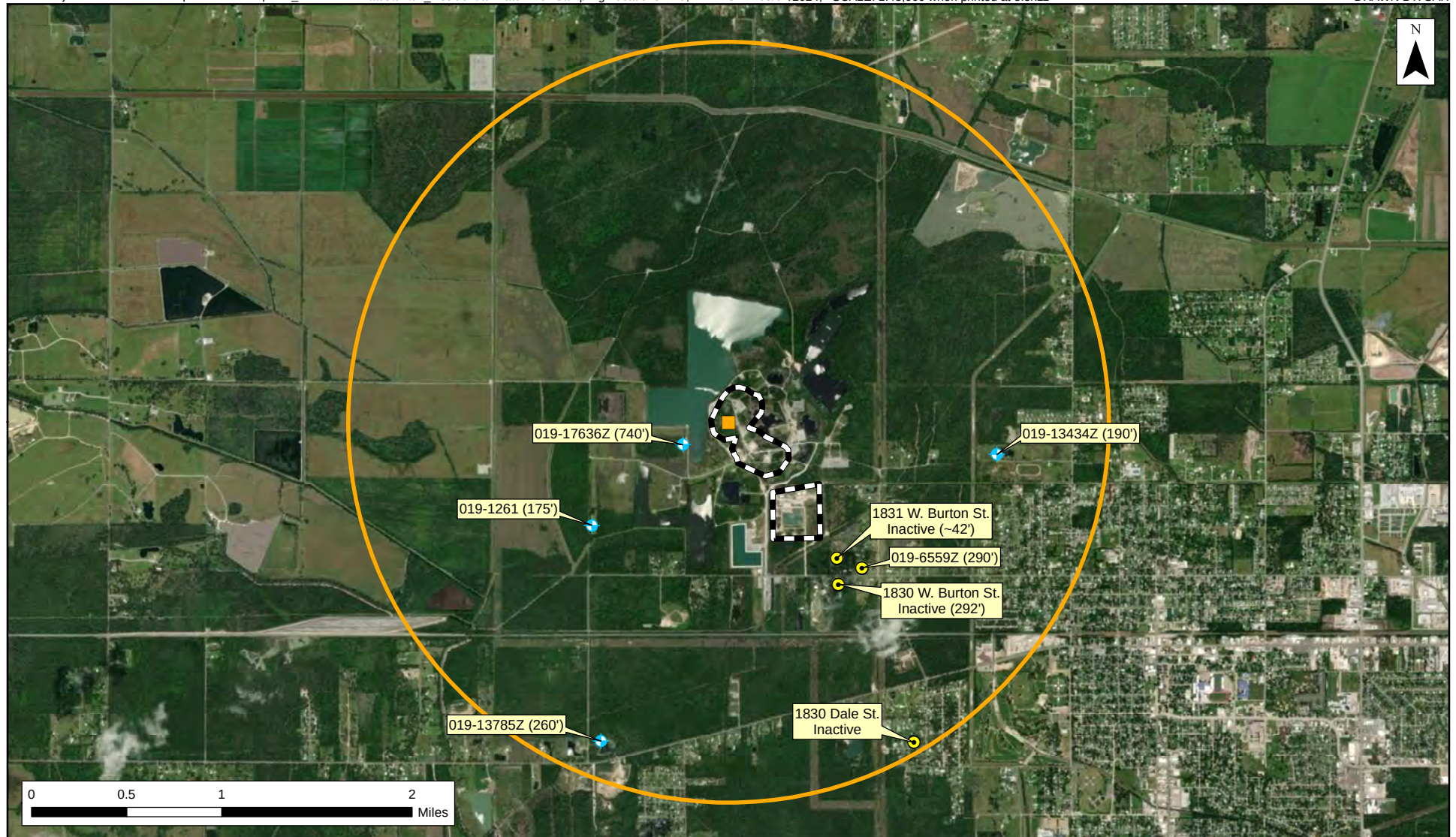
Legend

- Water Well Sample Location
- Monitoring Well Sample Location
- Produced Water Sample Location
- Brine Sample Location
- Westlake Property

Notes:
2023 NAIP imagery via USDA.

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





Legend

- Water Well Sample Location
- Inactive Water Well
- Cavern 7
- 2-mile Buffer
- Westlake Property

Notes:
Imagery basemap via ArcGIS Online.

Figure 2
Residential Water Well Sampling Locations
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana





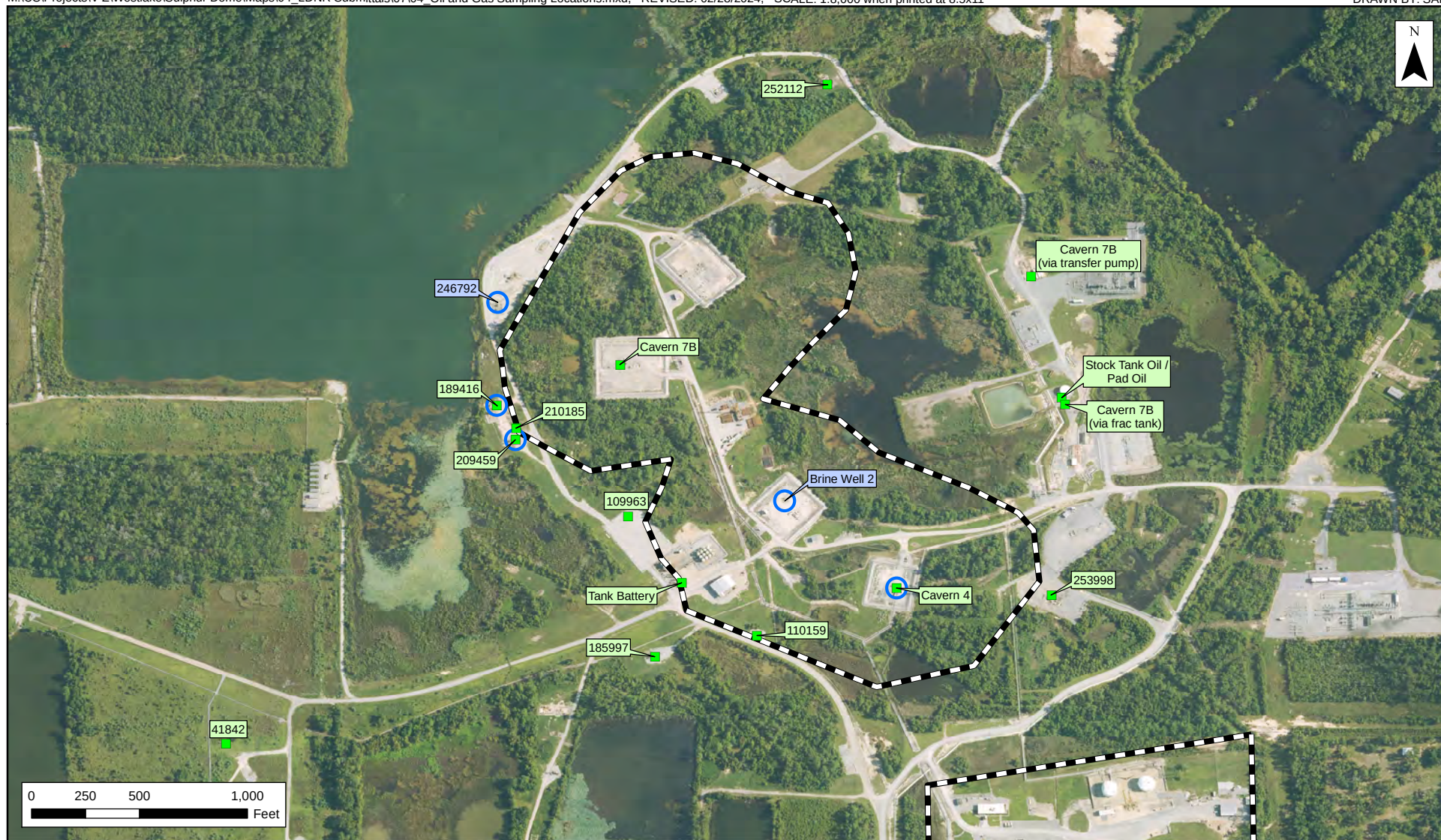
Legend

- Surface Water Sample Location (non-bubble site)
- Bubble Site Water/Gas Sample Location
- Sheen Sample Location
- Westlake Property

Notes:
2023 NAIP imagery via USDA.

Figure 3
Surface Water Sampling Locations
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana





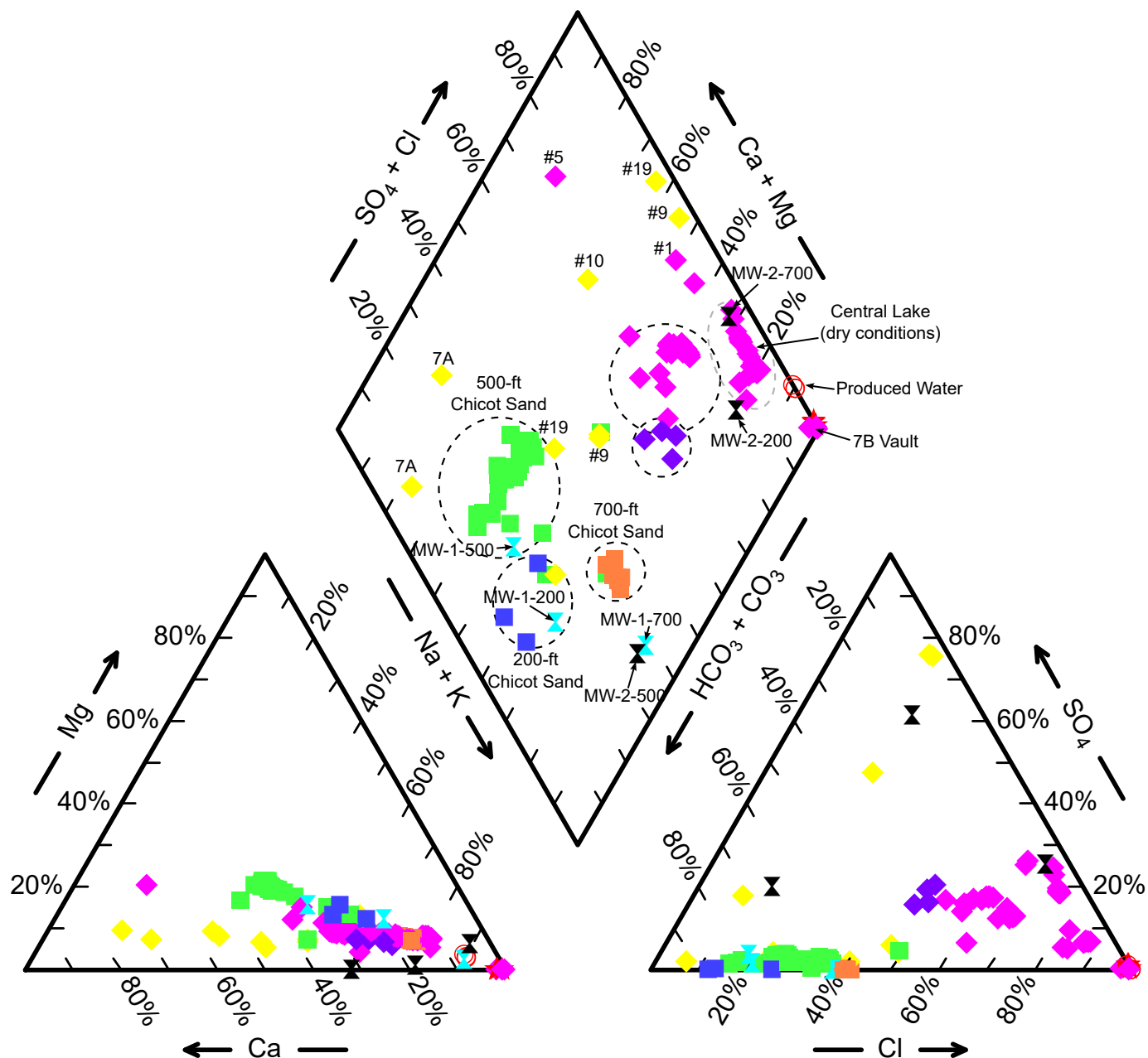
Legend

- Oil Sample Location
- Gas Sample Location
- Westlake Property

Notes:
2023 NAIP imagery via USDA.

Figure 4
Oil and Gas Sampling Locations
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana



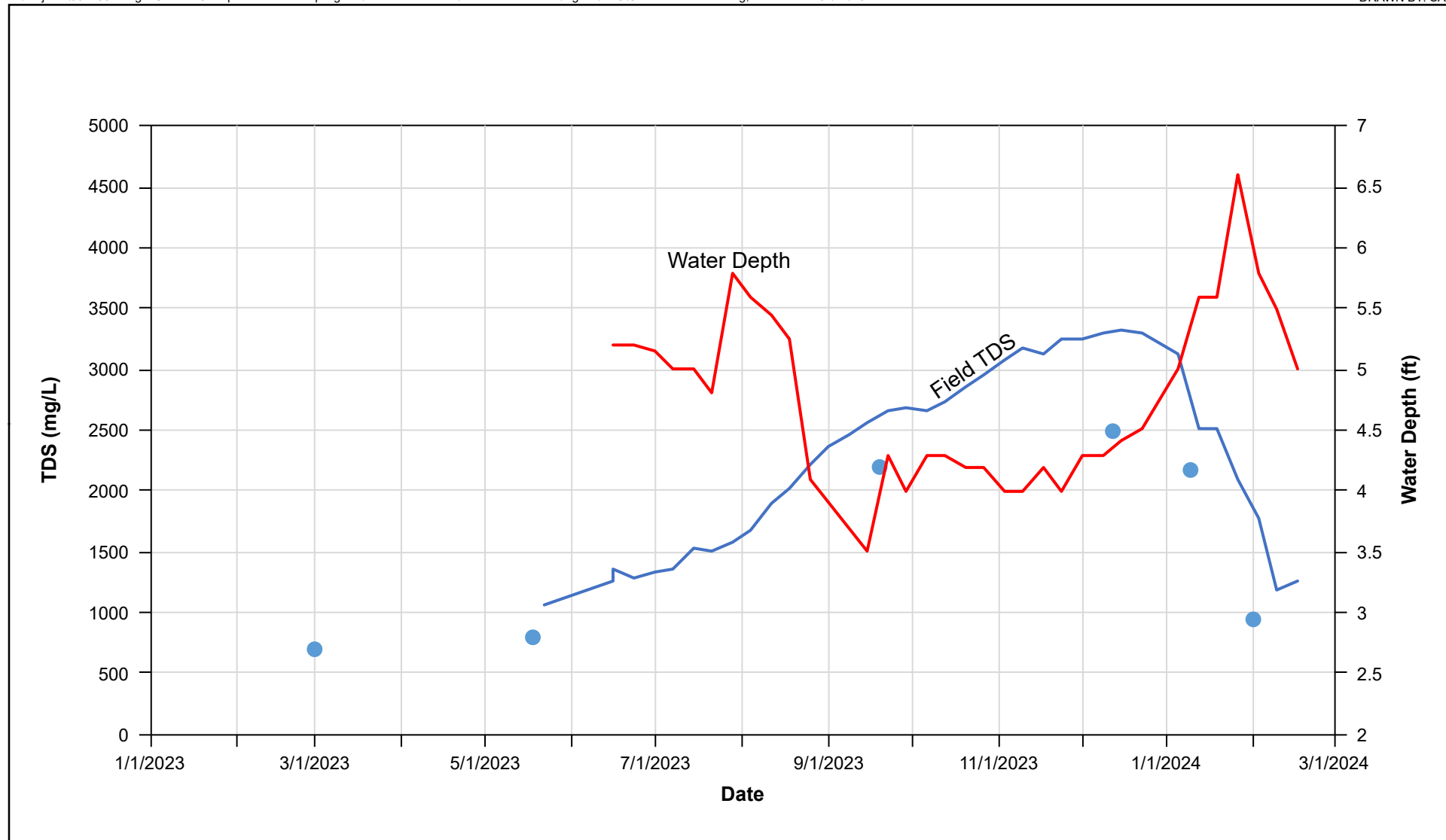


Legend

- ◆ Central Lake Surface Water
- ◆ Salt Lake Surface Water
- ◆ Other Surface Water
- Industrial Water Well
- Residential Water Well
- Cottages Well
- ▲ MW-1 Monitoring Wells
- ✕ MW-2 Monitoring Wells
- Produced Water
- ★ Brine

Figure 5
Piper Diagram
 Sulphur Dome
 Westlake US 2, LLC
 Calcasieu Parish, Louisiana





Legend

- Field TDS (mg/L)
- Water Depth (ft)
- Laboratory TDS (mg/L)

Notes:

Field TDS measured from approximately 5-ft deep with handheld Ultrameter II, which is calculated based on Specific Conductivity.

Figure 6
Central Lake TDS Trend
 Sulphur Dome
 Westlake US 2, LLC
 Calcasieu Parish, Louisiana



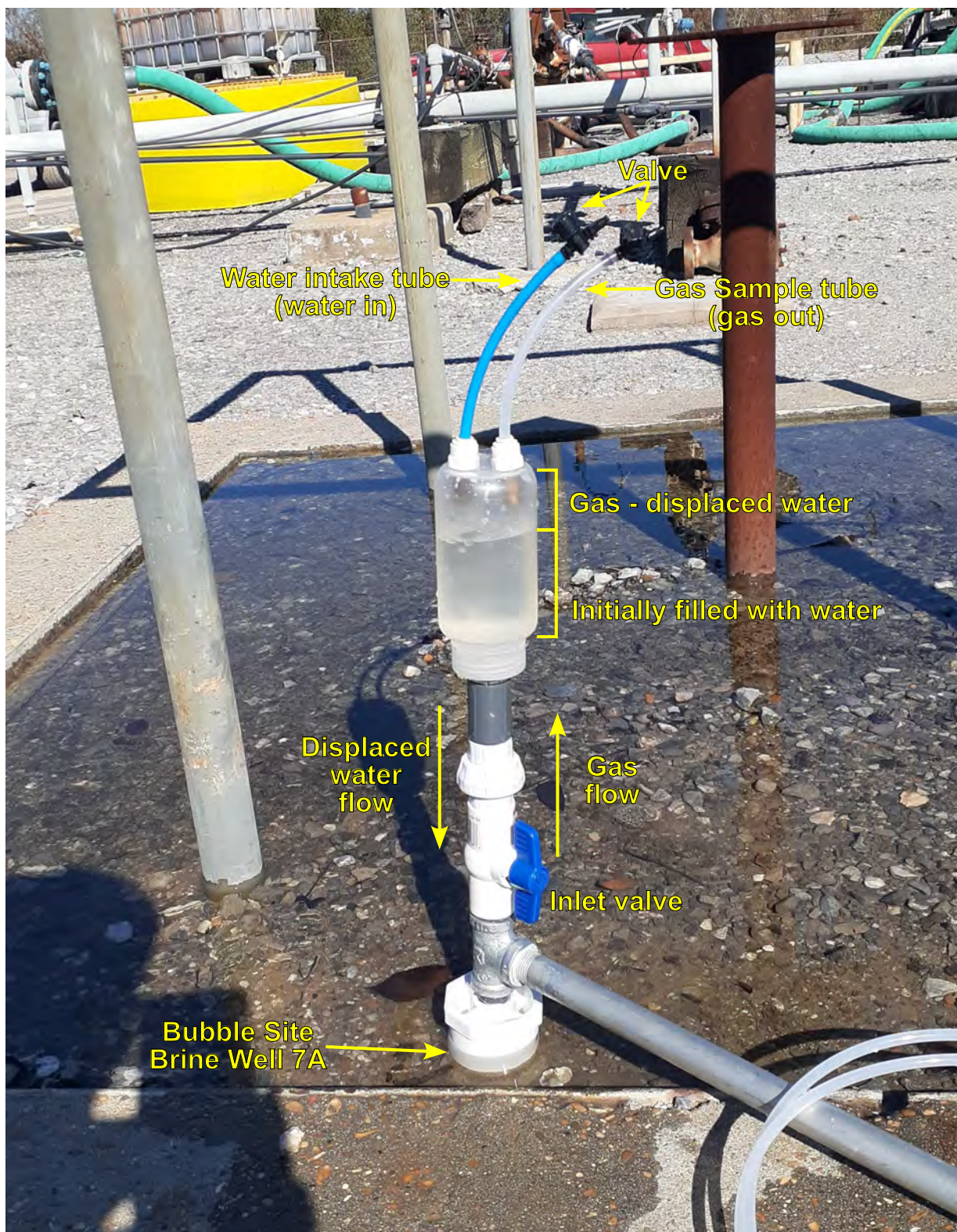
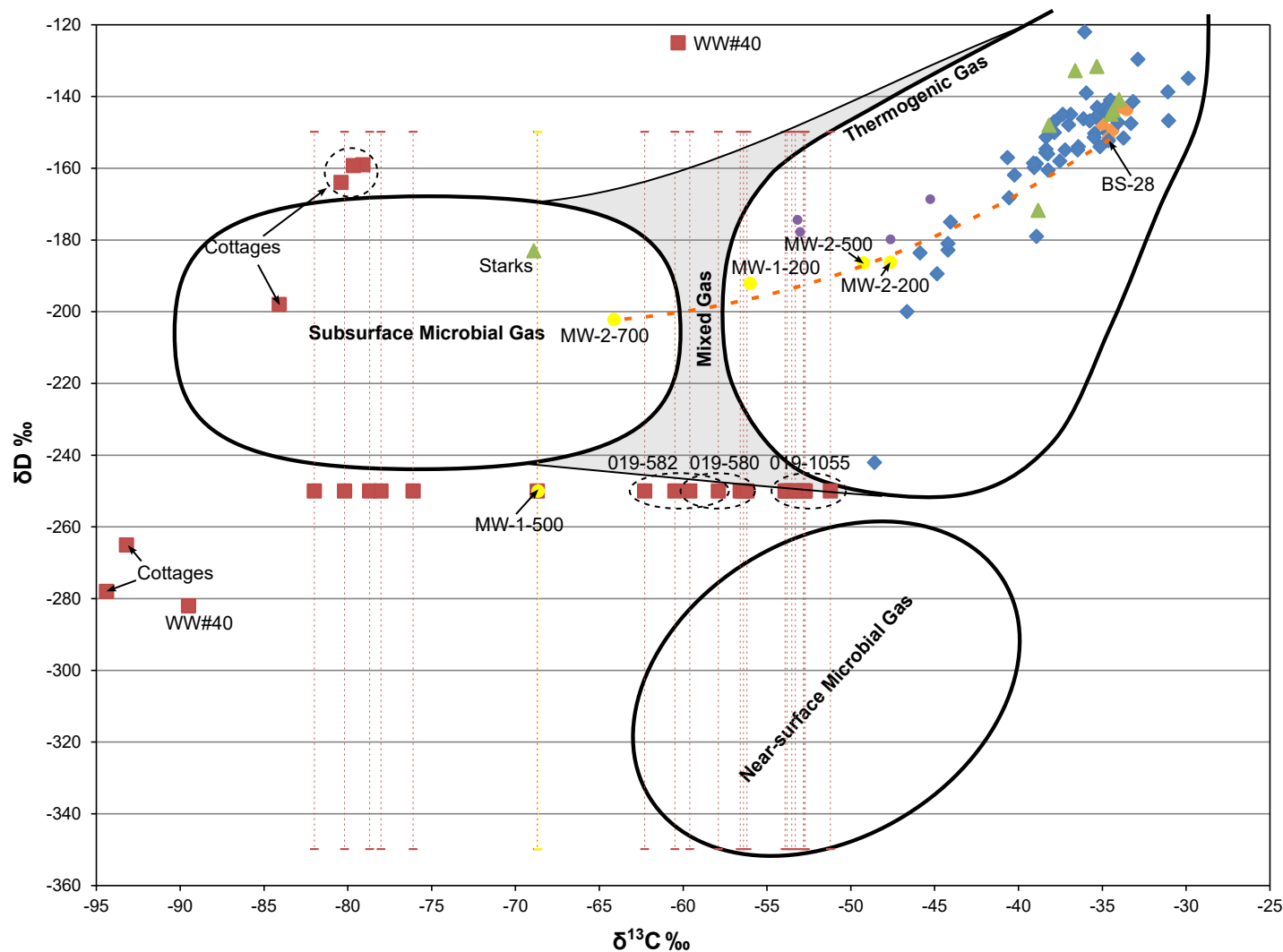


Figure 7
Gas Sampling Equipment
Sulphur Dome
Westlake US 2, LLC
Calcasieu Parish, Louisiana



Legend

- Cavern Gas (Lonquist)
- ◆ Bubble Site
- Groundwater
- Monitoring Well
- ▲ Brine
- Production Gas
- - - Potential Mixing Line

Notes:

If δD is not analyzed due to insufficient methane in sample δD is assumed at -250‰ with error bars added.
 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 8

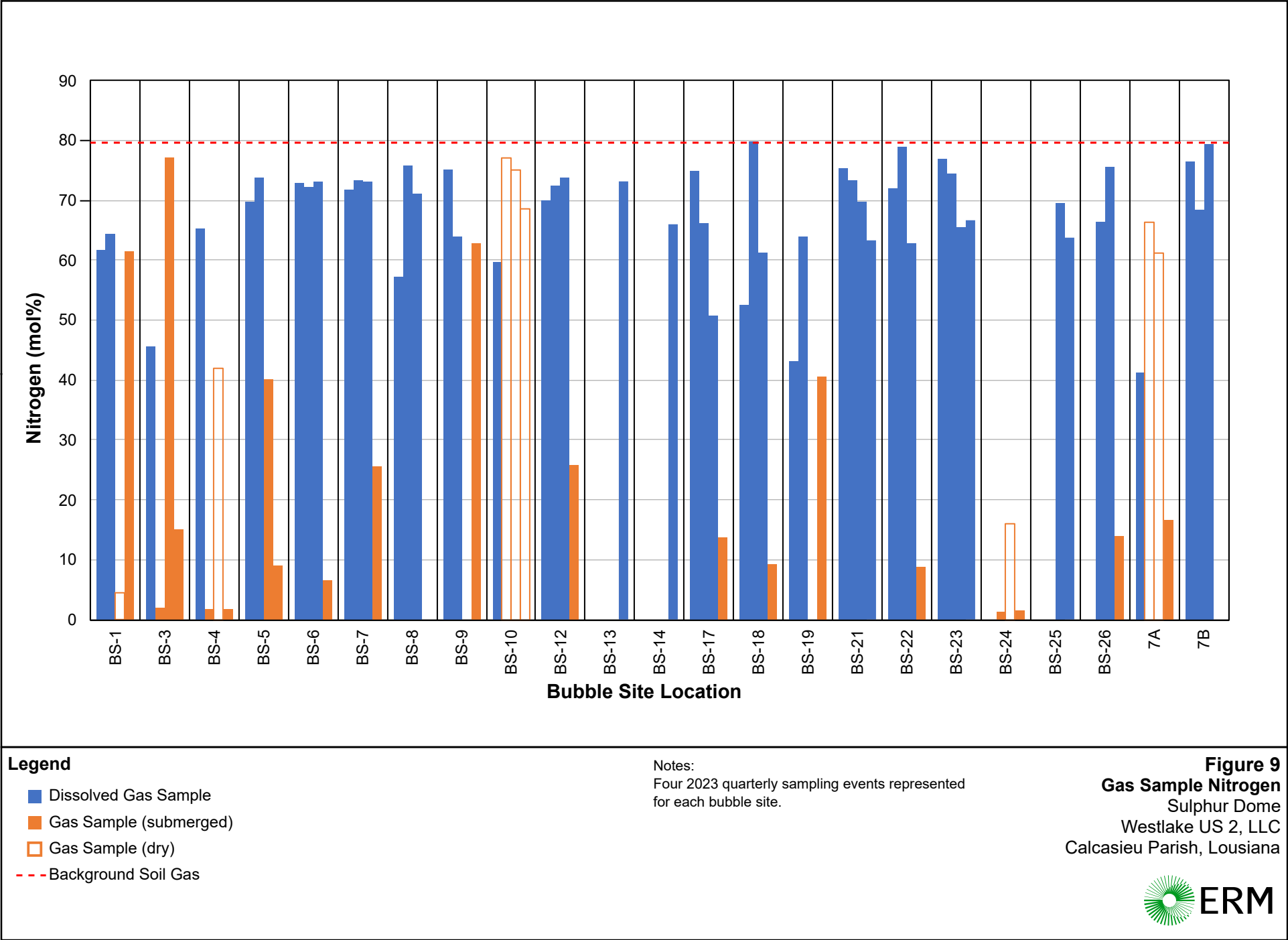
Methane Isotopes

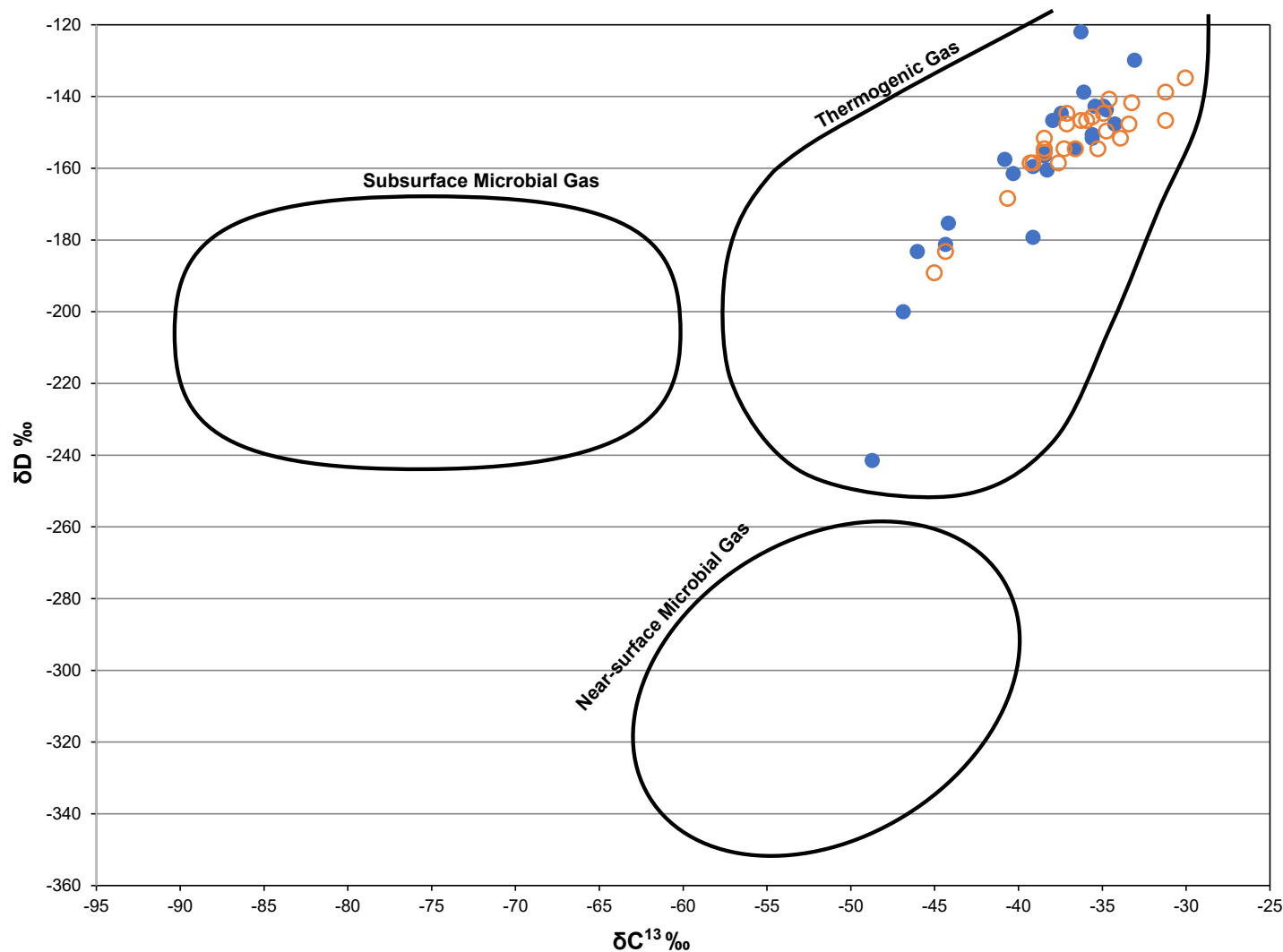
Sulphur Dome

Westlake US 2, LLC

Calcasieu Parish, Louisiana







Legend

- Dissolved Gas Sample
- Gas Sample

Notes:

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

Figure 10
Methane Isotopes Comparison
 Sulphur Dome
 Westlake US 2, LLC
 Calcasieu Parish, Louisiana





TABLES

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

		Sample ID	019-580													
		Sample Location	WW #11													
		Sample Interval (ft)	469'													
		Sample Date	1/26/23	3/30/23	4/27/23	5/22/23	6/16/23	7/17/23	8/22/23	9/20/23	10/25/23	11/28/23	12/14/23	1/31/24	2/20/24	
		Sampler	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	
Constituent	Units		Groundwater													
Total Metals																
Arsenic	mg/L	0.01	0.000477 J	<0.0004	0.000615 J	<0.0004	0.000452 J	0.000556 J	<0.0004	<0.0004	0.000688 J	<0.0004	<0.0004	0.000723 J	0.000481 J	
Barium	mg/L	2	0.23	0.235	0.205	0.216	0.197	0.200	0.221	0.233	0.217	0.196	0.207	0.227	0.265	
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	<0.0002	NA	NA	
Calcium	mg/L	NS	26.8	25.4	15.8	24.1	22.7	18.9	25.1	27.9	24.5	21.9	24.0	21.9	27.7	
Chromium	mg/L	0.1	<0.0004	<0.0004	0.000559 J	<0.0004	0.000462 J	<0.0004	0.00172 J	<0.0004	<0.0004	<0.0004	0.000681 J	0.000559 J	<0.0004	
Iron ^(a)	mg/L	0.3	5.12	4.25	2.72	1.81	3.61	6.07	4.97	3.57	3.84	3.53	3.66	3.51	1.45	
Lead	mg/L	0.015	0.00144 J	<0.0006	<0.0006	<0.0006	<0.0006	0.00388	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	
Magnesium	mg/L	NS	8.03	8.10	4.32	7.19	7.43	5.88	7.71	8.54	7.66	7.31	7.35	7.00	8.70	
Manganese ^(a)	mg/L	0.05	0.412	0.413	0.215	0.317	0.355	0.329	0.411	0.471	0.397	0.36	0.373	0.353	0.352	
Mercury	mg/L	0.002	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000520 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000330 J	
Nickel	mg/L	0.073	NA	NA	0.00368	<0.0006	<0.0006	<0.0006	0.000793 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.000724 J	
Potassium	mg/L	NS	2.93	2.68	2.42	2.62	2.51	1.99	2.64	3.06	2.84	2.42	2.63	2.44	2.91	
Selenium	mg/L	0.05	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA	
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	<0.0002	NA	NA	
Sodium	mg/L	NS	31.9	27.7	71.5	27.4	24.6	19.7	30.2	30.1	28.2	24.3	24.8	23.4	32.5	
Strontium	mg/L	NS	0.246	0.228	0.183	0.212	0.214	0.175	0.215	0.247	0.220	0.191	0.195	0.203	0.255	
Vanadium	mg/L	0.026	NA	NA	0.00434 J	<0.0006	0.00322 J	<0.0006	<0.0006	<0.0006	0.0151	0.00157 J	<0.0006	0.00216 J	0.00273 J	
Zinc	mg/L	1.1	0.0147	0.0495	0.350	0.011	0.0130	0.00934	0.00613	0.0215	0.0103	0.0094	0.0065	0.0109	0.0138	
Anions/Water Quality Parameters																
Bicarbonate Alkalinity	mg/L	NS	200	115	116	114	107	118	120	123	114	112	113	111	120	
Bromide	mg/L	NS	0.0992 J	<0.03	<0.03	0.169	<0.03	<0.03	0.0634 J	<0.03	<0.03	<0.03	<0.03	<0.03	0.0647 J	
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<3.5	<3.5	<3.5	<3.5	<3.5	
Chloride ^(a)	mg/L	250	35.7	26.4	40.7	38.7	23.7	23.7	37.1	38.1	24.8	23.9	23.8	23.1	37.5	
Sulfate ^(a)	mg/L	250	2.91	3.67	2.21	3.3	4.28	4.07	2.95	2.58	5.13	4.33	4.65	4.10	4.64	
Total Dissolved Solids (TDS) ^(a)	mg/L	500	236	186	210	266	204	222	204	232	168	210	138	238	244	
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	<0.5	NA	NA	NA	NA	NA	NA	
pH ^(a)	SI	6.5 - 8.5	NA	7.04 H	NA	7.30 H	7.22 H	7.85 H	7.63 H	7.25 H	7.12 H	7.16	7.48 H	7.78 H	7.33 H	
pH (field)	SI	6.5 - 8.5	6.41	NA	5.79	6.68	NA	6.40	6.90	NA	5.83	5.99	6.88	7.15	6.18	
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	<0.5	
Sulfide	mg/L	NS	<1	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.2	
Volatile Organic Compounds																
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Toluene	mg/L	1	<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	
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<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	<0.017	<0.085	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.019	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
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	<0.002	<0.002	<0.002	
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	0.0243	<0.008	<0.008	
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.012	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
Aromatics >C12-C16	mg/L	0.15	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0661	<0.004	<0.004	<0.004	<0.004	
Aromatics >C16-C21	mg/L	0.15	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0115	0.0214	<0.003	<0.003	<0.003	<0.003	
Aromatics >C21-C35	mg/L	0.15	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.0450	<0.009	<0.009	<0.009	<0.009	
Stable Isotopes																
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample ID Sample Location Sample Interval (ft) Sample Date Sampler			019-582													
			WW #13													
			609'													
			1/26/23 ERM	3/30/23 ERM	4/27/23 ERM	5/22/23 ERM	6/16/23 ERM	7/17/23 ERM	8/22/23 ERM	9/20/23 ERM	10/25/23 ERM	11/28/23 ERM	12/14/23 ERM	1/31/24 ERM	2/20/24 ERM	
Constituent	Units		Groundwater													
Total Metals		RECAP GWSS														
Arsenic	mg/L	0.01	0.000812 J	<0.0004	0.000451 J	0.000418 J	0.000635 J	0.000436 J	0.000488 J	<0.0004	0.000739 J	<0.0004	<0.0004	0.000697 J	0.000475	
Barium	mg/L	2	0.239	0.221	0.243	0.232	0.210	0.217	0.224	0.197	0.218	0.188	0.206	0.215	0.214	
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	<0.0002	NA	NA	
Calcium	mg/L	NS	25.5	23.9	25.8	24.6	22.9	21.1	24.2	22.6	22.9	22.3	23.5	21.7	22.2	
Chromium	mg/L	0.1	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000697 J	0.000469 J	<0.0004	0.00105 J	0.000929 J	0.000631 J	<0.0004	
Iron ^(a)	mg/L	0.3	4.03	4.02	6.09	6.13	3.28	3.12	3.49	4.49	3.23	2.55	4.70	4.04	2.01	
Lead	mg/L	0.015	<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	
Magnesium	mg/L	NS	7.81	7.66	7.58	7.36	7.36	6.45	7.47	7.05	7.05	7.47	7.08	6.91	6.78	
Manganese ^(a)	mg/L	0.05	0.417	0.388	0.388	0.408	0.361	0.349	0.372	0.353	0.379	0.423	0.388	0.362	0.310	
Mercury	mg/L	0.002	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000640 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	
Nickel	mg/L	0.073	NA	NA	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.000831 J	0.000872 J	0.000704 J	<0.0006	
Potassium	mg/L	NS	2.94	2.50	2.70	2.55	2.49	2.28	2.74	3.30	2.64	2.60	2.54	2.40	2.31	
Selenium	mg/L	0.05	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA	
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	<0.0002	NA	NA	
Sodium	mg/L	NS	28.0	26.4	30.2	27.8	24.7	22.2	29.8	46.5	26.2	24.8	24.4	23.4	25.7	
Strontium	mg/L	NS	0.240	0.208	0.231	0.218	0.221	0.195	0.215	0.201	0.216	0.195	0.192	0.197	0.209	
Vanadium	mg/L	0.026	NA	NA	0.00352 J	<0.0006	0.00358 J	<0.0006	<0.0006	<0.0006	0.0148	0.00222 J	<0.0006	0.00200 J	0.00167 J	
Zinc	mg/L	1.1	0.0107	0.0166	0.0474	0.019	0.00897	0.0102	0.656	0.00742	0.0115	0.00754	0.00922	0.00897	0.00841	
Anions/Water Quality Parameters																
Bicarbonate Alkalinity	mg/L	NS	180	115	119	120	109	119	116	132	114	112	113	113	120	
Bromide	mg/L	NS	0.0860 J	<0.03	<0.03	0.168	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.0680 J	
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Chloride ^(a)	mg/L	250	23.4	26.3	40.4	38.1	23.2	23.6	27.7	31.0	23.6	23.8	23.8	23.1	34.2	
Sulfate ^(a)	mg/L	250	4.11	3.68	2.69	2.9	4.30	4.41	3.44	2.73	4.61	4.18	4.42	3.93	3.72	
Total Dissolved Solids (TDS) ^(a)	mg/L	500	212	200	236	248	190	234	226	256	214	184	158	228	244	
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	2.14	NA	NA	NA	NA	NA	NA	
pH ^(a)	SI	6.5 - 8.5	NA	7.01 H	NA	7.37 H	7.36 H	7.75 H	7.23 H	7.42 H	7.21 H	7.24 H	7.57 H	7.54 H	7.13 H	
pH (field)	SI	6.5 - 8.5	6.45	6.53	5.89	6.42	NA	6.38	6.80	NA	5.60	6.09	6.91	7.32	6.11	
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	<0.5	
Sulfide	mg/L	NS	<1	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.2	
Volatile Organic Compounds																
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Toluene	mg/L	1	<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	
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<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	<0.017	<0.085	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0192	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
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	<0.002	<0.002	<0.002	
Aliphatics >C16-C35	mg/L	7.3	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0206	<0.008	<0.008	0.0205	0.0204	<0.008	
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.012	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
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	<0.004	<0.004	<0.004	
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	<0.003	<0.003	<0.003	
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	<0.009	<0.009	<0.009	
Stable Isotopes																
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Constituent		Units	Sample ID Sample Location Sample Interval (ft) Sample Date Sampler	019-995										
				WW #12										
				485										
				1/26/23 ERM	3/30/23 ERM	4/27/23 ERM	5/22/23 ERM	6/16/23 ERM	8/22/23 ERM	10/25/23 ERM	11/28/23 ERM	12/14/23 ERM	1/31/24 ERM	2/20/24 ERM
Groundwater														
Total Metals		RECAP GWSS												
Arsenic	mg/L	0.01	0.000762 J	<0.0004	0.000739 J	0.000497 J	<0.0004	0.000638 J	0.000623 J	0.000555 J	0.000461 J	0.000782 J	0.000756 J	
Barium	mg/L	2	0.214	0.234	0.242	0.207	0.205	0.211	0.174	0.197	0.194	0.186	0.222	
Cadmium	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	
Calcium	mg/L	NS	26.4	25.3	27.7	24.8	23.0	24.3	21.1	22.8	24.1	20.4	25.2	
Chromium	mg/L	0.1	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000600 J	<0.0004	<0.0004	0.000577 J	0.000513 J	<0.0004	
Iron ^(a)	mg/L	0.3	0.821	4.76	3.42	2.11	4.88	3.53	1.23	3.42	1.38	1.26	1.04	
Lead	mg/L	0.015	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	
Magnesium	mg/L	NS	8.02	7.87	8.14	7.47	7.51	7.66	6.40	7.46	7.40	6.41	7.96	
Manganese ^(a)	mg/L	0.05	0.388	0.403	0.416	0.403	0.375	0.377	0.222	0.35	0.411	0.328	0.366	
Mercury	mg/L	0.002	<0.00003	0.0000310 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000310 J	
Nickel	mg/L	0.073	NA	NA	0.00531	<0.0006	0.000820 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	
Potassium	mg/L	NS	3.00	2.60	2.79	2.61	2.53	2.65	2.20	2.36	2.61	2.22	2.67	
Selenium	mg/L	0.05	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA	
Silver	mg/L	0.18	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000242 J	<0.0002	<0.0002	<0.0002	NA	NA	
Sodium	mg/L	NS	29.9	30.3	32.2	30.5	25.0	27.2	31.6	24.1	25.4	22.3	29.3	
Strontium	mg/L	NS	0.241	0.221	0.244	0.223	0.220	0.207	0.214	0.197	0.201	0.184	0.235	
Vanadium	mg/L	0.026	NA	NA	0.00299 J	<0.0006	0.00370 J	<0.0006	0.0130	0.00228 J	<0.0006	0.00220 J	0.00308 J	
Zinc	mg/L	1.1	0.00426	<0.002	0.00276 J	<0.002	<0.002	0.00218 J	0.00245 J	0.00385 J	0.00244 J	0.00461	0.00932	
Anions/Water Quality Parameters														
Bicarbonate Alkalinity	mg/L	NS	258	122	124	128	194	118	129	116	116	117	119	
Bromide	mg/L	NS	0.0931 J	0.0782 J	<0.03	0.164	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.0655 J	
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<3.5	<3.5	<3.5	<3.5	<3.5	
Chloride ^(a)	mg/L	250	28.7	36.3	37.5	34.1	23.4	22.2	23.0	24.8	23.6	23.0	27.6	
Sulfate ^(a)	mg/L	250	3.63	2.80	2.12	2.53	3.57	4.11	1.98	4.38	4.04	3.63	2.50	
Total Dissolved Solids (TDS) ^(a)	mg/L	500	226	240	202	222	194	228	180	182	138	224	220	
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	3.84	NA	NA	NA	NA	NA	
pH ^(a)	SI	6.5 - 8.5	NA	6.94 H	NA	7.55 H	7.30 H	7.32H	7.49 H	7.18 H	7.75 H	7.74 H	7.34 H	
pH (field)	SI	6.5 - 8.5	6.35	6.53	5.64	6.18	NA	6.87	6.15	6.56	6.84	6.98	6.32	
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	
Sulfide	mg/L	NS	<1	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.2	
Volatile Organic Compounds														
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Toluene	mg/L	1	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
TPH Fractions														
Aliphatics >C6-C8	mg/L	3.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.017	<0.085	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.019	<0.07	<0.01	<0.01	<0.01	
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	<0.001	
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	<0.002	
Aliphatics >C16-C35	mg/L	7.3	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0235	0.0746	<0.008	
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.012	<0.07	<0.01	<0.01	<0.01	
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	<0.001	
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	<0.004	
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	<0.003	
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	<0.009	
Stable Isotopes														
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample ID Sample Location Sample Interval (ft) Sample Date Sampler			019-1055													
			WW #19													
			520'													
			1/26/23 ERM	3/30/23 ERM	4/27/23 ERM	5/18/23 ERM	6/16/23 ERM	7/17/23 ERM	8/22/23 ERM	9/20/23 ERM	10/25/23 ERM	11/28/23 ERM	12/14/23 ERM	1/31/24 ERM	2/20/24 ERM	
Constituent	Units		Groundwater													
Total Metals		RECAP GWSS														
Arsenic	mg/L	0.01	0.000419 J	<0.0004	0.000461 J	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000668 J	0.000616 J	0.000661 J	0.000731 J	<0.0004	
Barium	mg/L	2	0.265	0.263	0.242	0.256	0.207	0.262	0.229	0.275	0.259	0.241	0.258	0.269	0.314	
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	<0.0002	NA	NA	
Calcium	mg/L	NS	28.7	27.5	24.7	25.9	22.6	24.7	24.2	30.1	26.8	22.3	25.7	25.7	29.4	
Chromium	mg/L	0.1	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000535 J	<0.0004	<0.0004	0.00113 J	0.00105 J	0.000638 J	<0.0004	
Iron ^(a)	mg/L	0.3	3.81	3.96	3.48	3.42	4.24	3.72	3.29	3.83	3.68	7.61	3.63	3.58	4.11	
Lead	mg/L	0.015	<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	
Magnesium	mg/L	NS	8.66	8.42	7.32	7.78	7.32	7.45	7.46	9.04	8.31	7.24	8.06	7.98	9.12	
Manganese ^(a)	mg/L	0.05	0.420	0.400	0.353	0.379	0.359	0.369	0.344	0.432	0.392	0.339	0.388	0.363	0.432	
Mercury	mg/L	0.002	<0.00003	0.0000300 J	<0.00003	<0.00003	<0.00003	0.0000570 J	<0.00003	<0.00003	<0.00003	0.0000480 J	0.0000690 J	<0.00003	0.0000320 J	
Nickel	mg/L	0.073	NA	NA	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.00146 J	<0.0006	<0.0006	<0.0006	
Potassium	mg/L	NS	3.10	2.69	2.54	2.74	2.48	2.59	2.54	3.29	2.95	2.31	2.75	2.63	3.06	
Selenium	mg/L	0.05	0.00114 J	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA	
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	<0.0002	NA	NA	
Sodium	mg/L	NS	34.4	32.0	28.5	29.6	24.8	29.0	28.3	35.1	35.6	23.9	32.2	30.7	35.0	
Strontium	mg/L	NS	0.262	0.238	0.225	0.24	0.215	0.229	0.215	0.266	0.249	0.196	0.23	0.233	0.288	
Vanadium	mg/L	0.026	NA	NA	0.00320 J	<0.0006	0.00311 J	<0.0006	<0.000698 J	<0.0006	0.0136	0.00209 J	0.00629	0.00246 J	0.000831 J	
Zinc	mg/L	1.1	0.00993	0.0107	0.0163	0.0906	0.00514	0.0231	0.0260	0.0241	0.0318	0.0275	0.00595	0.00892	0.00589	
Anions/Water Quality Parameters																
Bicarbonate Alkalinity	mg/L	NS	250	123	119	118	108	135	119	121	120	113	118	120	122	
Bromide	mg/L	NS	0.0982 J	<0.03	<0.03	0.167	<0.03	<0.03	<0.03	<0.03	<0.03	0.0700 J	<0.03	0.0592 J	0.0745 J	
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<3.5	<3.5	<3.5	<3.5	<3.5	
Chloride ^(a)	mg/L	250	38.3	36.8	40.6	37.6	23.6	37.4	36.4	37.8	39.6	24.8	39.8	38.3	38.9	
Sulfate ^(a)	mg/L	250	3.51	3.39	3.55	3.85	4.21	3.77	3.64	3.45	4.00	4.02	4.44	3.58	3.72	
Total Dissolved Solids (TDS) ^(a)	mg/L	500	244	230	220	274	176	272	238	244	180	180	236	266	246	
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	1.11	NA	NA	NA	NA	NA	NA	
pH ^(a)	SI	6.5 - 8.5	NA	7.16 H	NA	7.14 H	7.38 H	7.70 H	7.21 H	7.23 H	7.22 H	7.16 H	7.52 H	7.47 H	7.12 H	
pH (field)	SI	6.5 - 8.5	6.82	6.53	5.84	6.46	NA	6.25	7.03	NA	5.73	5.85	6.89	6.83	6.32	
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	<0.5	
Sulfide	mg/L	NS	<1	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.2	
Volatile Organic Compounds																
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Toluene	mg/L	1	<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	
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<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	<0.017	<0.085	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.019	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
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	<0.002	<0.002	<0.002	
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	<0.008	<0.008	<0.008	
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.012	<0.07	<0.01	<0.01	<0.01	
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	<0.001	<0.001	<0.001	
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	<0.004	<0.004	<0.004	
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	<0.003	<0.003	<0.003	
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	<0.009	<0.009	<0.009	
Stable Isotopes																
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample ID Sample Location Sample Interval (ft) Sample Date Sampler		019-1603 520'							019-17636Z Cottages Well 740'											
		WW #40							Cottages Well											
		3/30/23	5/18/23	6/16/23	9/19/23	12/14/23	1/31/24	3/9/23	4/27/23	5/18/23	6/16/23	7/17/23	8/22/23	9/20/23	10/25/23	11/28/23	12/14/23	1/31/24	2/20/24	
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	
Constituent	Units	Groundwater							Groundwater											
Total Metals		RECAP GWSS																		
Arsenic	mg/L	0.01	0.000974 J	0.0044	0.000466 J	<0.0004	0.00215	0.000561 J	<0.0004	0.000464 J	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000502 J	<0.0004
Barium	mg/L	2	0.258	0.178	0.136	0.173	0.389	0.193	0.187	0.187	0.171	0.172	0.187	0.160	0.181	0.178	0.177	0.188	0.198	0.212
Cadmium	mg/L	0.005	<0.0002	<0.0002	<0.0002002	<0.0002	<0.0002	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA
Calcium	mg/L	NS	26.9	56	22.4	19.7	26.5	20.4	13.7	14.5	14.5	14.4	13.4	12.2	14.4	13.2	13.5	13.8	14.4	14.6
Chromium	mg/L	0.1	<0.0004	0.000825 J	0.000415 J	0.000721 J	0.00123 J	0.000496 J	<0.0004	<0.0004	0.00103 J	0.000522 J	0.00744	0.000562 J	<0.0004	<0.0004	<0.0004	0.000404 J	0.00634	<0.0004
Iron ^(a)	mg/L	0.3	12.4	0.69	4.39	3.45	68.1	1.69	5.57	2.48	4.76	6.04	2.34	1.46	2.35	3.22	3.49	3.32	3.46	2.97
Lead	mg/L	0.015	<0.0006	0.000702 J	<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	<0.0006
Magnesium	mg/L	NS	8.33	6.58	7.37	6.34	7.76	6.48	3.69	3.97	4.05	3.96	3.72	3.38	4.05	3.70	3.98	3.85	3.96	3.98
Manganese ^(a)	mg/L	0.05	0.506	0.348	0.491	0.297	0.728	0.330	0.193	0.192	0.224	0.211	0.190	0.156	0.183	0.178	0.185	0.182	0.192	0.194
Mercury	mg/L	0.002	<0.0003	0.0000720 J	0.0000400 J	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000117 J	<0.0003	0.0000510 J	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Nickel	mg/L	0.073	NA	0.00202	0.000750 J	0.000615 J	0.00133 J	<0.0006	NA	0.00330	0.00408	0.00304	0.00239	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.00221	<0.0006
Potassium	mg/L	NS	2.81	2.61	2.43	3.62	2.65	2.35	2.03	2.24	2.31	2.20	2.12	2.03	2.38	2.18	2.11	2.18	2.19	2.22
Selenium	mg/L	0.05	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA
Silver	mg/L	0.18	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA
Sodium	mg/L	NS	32.1	92.9	24.0	52.1	25.7	23.2	57.7	65.2	71.2	66.2	71.2	72.1	77.9	73.5	75.2	72.5	77.8	79.5
Strontium	mg/L	NS	0.235	0.397	0.210	0.177	0.237	0.181	0.160	0.167	0.171	0.179	0.157	0.141	0.166	0.165	0.156	0.161	0.165	0.175
Vanadium	mg/L	0.026	NA	0.0136	0.00320 J	<0.0006	<0.0006	0.00202 J	NA	0.00270 J	0.0006	0.00295 J	<0.0006	0.000689 J	<0.0006	0.0139	0.00204 J	<0.0006	0.00312 J	0.00303 J
Zinc	mg/L	1.1	0.0845	0.0231	0.0200	1.47	0.0362	0.0343	0.255	0.320	0.202	0.203	0.798	0.0237	0.0981	0.166	0.170	0.151	1.65	0.123
Anions/Water Quality Parameters																				
Bicarbonate Alkalinity	mg/L	NS	125	183	113	144	114	112	139	134	139	132	153	153	141	146	142	144	143	143
Bromide	mg/L	NS	0.101	<0.03	0.143	<0.03	<0.03	<0.03	0.102	0.105	0.19	0.179	0.156	0.118	0.106	0.122	0.126	0.152	0.215	0.108
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<3.5	<3.5	<5	<5	<5	<5	<5	<5	<5	<3.5	<3.5	<3.5	<3.5	<3.5
Chloride ^(a)	mg/L	250	36.6	115	23.0	27.0	24.4	23.3	52.8	55.6	52.8	52.6	59.6	57.5	54.5	56.9	57.4	56.8	56.7	56.4
Sulfate ^(a)	mg/L	250	0.426 J	14.5	3.00	2.87	3.16	3.78	<0.2	0.286 J	0.574	0.608	0.277 J	0.462 J	0.300 J	0.491 J	0.297 J	0.322 J	0.317 J	0.304 J
Total Dissolved Solids (TDS) ^(a)	mg/L	500	206	446	192	224	120	226	274	250	284	244	308	270	270	236	268	200	294	304
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.38	NA	NA	NA	NA	NA	NA
pH ^(a)	SI	6.5 - 8.5	7.23 H	8.02 H	7.45 H	7.38 H	7.66 H	7.93 H	NA	NA	7.63 H	7.30 H	7.91 H	7.32 H	7.44 H	7.63 H	7.29 H	7.49 H	7.59 H	7.46 H
pH (field)	SI	6.5 - 8.5	6.68	6.65	NA	6.81	6.99	7.61	7.67	5.73	7.06	NA	6.28	7.05	NA	6.05	6.63	6.94	6.47	6.53
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfide	mg/L	NS	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.2	<1.2
Volatile Organic Compounds																				
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Toluene	mg/L	1	<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	<0.0002	<0.0002
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<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	<0.01	<0.01	<0.01	<0.017	<0.085	<0.01	<0.01	<0.01
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	<0.01	<0.01	<0.01	<0.019	<0.07	<0.01	<0.01	<0.01
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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
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	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35	mg/L	7.3	<0.008	<0.008	<0.008	<0.008	0.0191	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0132	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.012	<0.07	<0.01	<0.01	<0.01
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	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
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	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
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	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
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	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Stable Isotopes																				
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Constituent	Units	Sample ID Sample Location Sample Interval (ft) Sample Date Sampler	MW-1			MW-2			019-13434Z	019-1261	019-13785Z
			MW-1-200	MW-1-500	MW-1-700	MW-2-200	MW-2-500	MW-2-700			
			162-172'	503-513'	708-718'	230-240'	502-512'	700-710'			
			12/28/23 ERM	12/27/23 ERM	12/28/23 ERM	1/31/24 ERM	1/31/24 ERM	1/30/24 ERM			
Monitoring Wells		Residential Wells									
Total Metals		RECAP GWSS	0.00881	0.00629	0.00571	0.000423 J	0.000871 J	<0.002	0.0165	0.00115 J	0.00342
Arsenic	mg/L	0.01	0.231	0.251	0.318	0.0759	0.0727	0.249	0.288	0.203	0.276
Barium	mg/L	2	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002
Cadmium	mg/L	0.005	22.6	25.2	16.4	14.0	3.61	433	21.1	26.7	25.8
Calcium	mg/L	NS	0.00178 J	0.000690 J	0.191	0.000546 J	0.000870 J	0.00253 J	0.00223 J	0.000654 J	0.000634 J
Chromium	mg/L	0.1	9.33	8.52	157	0.0782 J	0.0149 J	0.171 J	0.0804 J	0.0962 J	0.335
Iron ^(a)	mg/L	0.3	0.00163 J	<0.0006	0.00652	<0.0006	<0.0006	<0.003	<0.0006	<0.0006	0.000918 J
Lead	mg/L	0.015	8.82	7.26	3.38	0.549	3.37	<0.05	6.94	7.29	9.20
Magnesium	mg/L	NS	0.176	0.344	0.750	0.00714	0.00120 J	<0.003	0.132	0.0887	0.0868
Manganese ^(a)	mg/L	0.05	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Mercury	mg/L	0.002	0.0065	0.00102 J	0.147	0.000895 J	0.00123 J	<0.003	<0.0006	0.000964 J	<0.0006
Nickel	mg/L	0.073	2.33	2.27	2.28	6.58	26.7	510	1.04	1.22	1.21
Potassium	mg/L	NS	<0.0011	<0.0011	0.00329	NA	NA	NA	<0.0011	<0.0011	<0.0011
Selenium	mg/L	0.05	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002
Silver	mg/L	0.18	91.9	43.2	230	67.9	74.5	762	68.9	59.7	64.2
Sodium	mg/L	NS	0.225	0.245	0.195	0.250	0.358	12.0	0.228	0.230	0.307
Strontium	mg/L	NS	0.00335 J	0.00164 J	0.0147	0.000751 J	0.00162 J	<0.003	0.00178 J	0.00133 J	0.00146 J
Vanadium	mg/L	0.026	0.00801	0.0221	0.0488	0.00578	0.00280 J	0.0123 J	0.0782	0.0595	0.0291
Zinc	mg/L	1.1									
Anions/Water Quality Parameters											
Bicarbonate Alkalinity	mg/L	NS	268	170	253	39.0	40.4	<3.5	208	214	213
Bromide	mg/L	NS	<0.03	<0.03	0.212	<0.03	<0.03	<0.15	<0.03	0.0980 J	0.101
Carbonate Alkalinity	mg/L	NS	<3.5	<3.5	46.2	<3.5	108	103	<3.5	<3.5	<3.5
Chloride ^(a)	mg/L	250	41.0	24.1	124	36.5	36	1,680	19.1	17.3	42.2
Sulfate ^(a)	mg/L	250	4.89	6.55	0.245 J	127	64.1	835	0.468 J	<0.200	0.380 J
Total Dissolved Solids (TDS) ^(a)	mg/L	500	272	184	466	274	320	5,600	212	226	298
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH ^(a)	SI	6.5 - 8.5	8.29 H	7.80 H	9.09 H	7.99 H	10.1 H	12.3 H	7.76 H	7.67 H	8.08
pH (field)	SI	6.5 - 8.5	8.38	7.34	9.32	9.67	10.22	12.65	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
Sulfide	mg/L	NS	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2
Volatile Organic Compounds											
Benzene	mg/L	0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Ethylbenzene	mg/L	0.7	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Toluene	mg/L	1	<0.0002	<0.0002	0.015	0.00063 J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
m,p-Xylene	mg/L	10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<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
Aliphatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0373	<0.01	<0.01
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
Aliphatics >C12-C16	mg/L	0.15	<0.002	<0.002	<0.002	<0.002	0.0216	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35	mg/L	7.3	<0.008	<0.008	<0.008	<0.008	0.0310	<0.008	<0.008	<0.008	<0.008
Aromatics >C8-C10	mg/L	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0286	<0.01	<0.01
Aromatics >C10-C12	mg/L	0.15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0181	<0.001	<0.001
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
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
Aromatics >C21-C35	mg/L	0.15	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.004	<0.009	<0.009
Stable Isotopes											
δD	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ18O	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ13C (DIC)	‰	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

Table 1
Groundwater Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample ID			6X Brine	007-B Brine		SN 973224	SN 973365	SN 974245	Tank Battery	189416	
Sample Location			SN 57788	SN 67270	7B-Brine	Starks Tie-In	Brine Well 18	Brine Well 21	Brine Well 22	Produced Water	SN 189416
Sample Interval (ft)			Brine	3,000'	3,000'						1,300'
Sample Date			1/25/23	2/16/23	7/27/23	10/30/23	10/30/23	10/30/23	10/30/23	5/25/23	8/28/23
Sampler			ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Constituent	Units		Brine							Produced Water	
Total Metals			RECAP GWSS								
Arsenic	mg/L	0.01	0.0300 J	<0.04	<0.04	NA	NA	NA	NA	<0.008	<0.008
Barium	mg/L	2	0.220	<0.19	<0.19	NA	NA	NA	NA	60.1	67.4
Cadmium	mg/L	0.005	<0.01	<0.02	<0.02	NA	NA	NA	NA	<0.004	<0.004
Calcium	mg/L	NS	722	1,320	1,360	NA	NA	NA	NA	2,940	2,920
Chromium	mg/L	0.1	0.243	0.722	0.114 J	NA	NA	NA	NA	0.0717 J	0.0593 J
Iron ^(a)	mg/L	0.3	25.7	9.65 J	2.78 J	NA	NA	NA	NA	1.94 J	31.1
Lead	mg/L	0.015	<0.03	<0.06	<0.06	NA	NA	NA	NA	<0.012	0.0839
Magnesium	mg/L	NS	8.16 J	8.64 J	9.30 J	NA	NA	NA	NA	971	832
Manganese ^(a)	mg/L	0.05	0.953	0.487 J	0.361 J	NA	NA	NA	NA	1.43	6.78
Mercury	mg/L	0.002	<0.00003	<0.00003	<0.00003	NA	NA	NA	NA	<0.00003	<0.00003
Nickel	mg/L	0.073	NA	NA	0.211	NA	NA	NA	NA	<0.012	0.124
Potassium	mg/L	NS	14.4	13.8 J	14.0 J	NA	NA	NA	NA	185	182
Selenium	mg/L	0.05	<0.0550	<0.11	<0.11	NA	NA	NA	NA	<0.022	<0.022
Silver	mg/L	0.18	<0.01	<0.02	<0.02	NA	NA	NA	NA	<0.004	<0.004
Sodium	mg/L	NS	100,000	82,600	91,900	NA	NA	NA	NA	44,000	45,400
Strontium	mg/L	NS	2.66	11.0	10.7	NA	NA	NA	NA	134	149
Vanadium	mg/L	0.026	NA	NA	<0.06	NA	NA	NA	NA	<0.012	<0.012
Zinc	mg/L	1.1	0.481	1.70	1.55	NA	NA	NA	NA	0.0695 J	7.10
Anions/Water Quality Parameters											
Bicarbonate Alkalinity	mg/L	NS	159	140	124	NA	NA	NA	NA	204	95.9
Bromide	mg/L	NS	<3	<7.5	<15	NA	NA	NA	NA	79.5	96.4
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	NA	NA	NA	NA	<5	<5
Chloride ^(a)	mg/L	250	213,000	201,000	179,000	NA	NA	NA	NA	79,900	70,500
Sulfate ^(a)	mg/L	250	1,380	3,060	3,270	NA	NA	NA	NA	1,340	<10
Total Dissolved Solids (TDS) ^(a)	mg/L	500	239,000	300,000	255,000	NA	NA	NA	NA	161,000	159,000
Total Organic Carbon (TOC)	mg/L	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH ^(a)	SI	6.5 - 8.5	NA	NA	6.75 H	NA	NA	NA	NA	6.97 H	8.10 H
pH (field)	SI	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfides											
Hydrogen Sulfide	mg/L	NS	<0.5	<0.5	<0.5	NA	NA	NA	NA	1.7	23.1
Sulfide	mg/L	NS	<1	<1	<1.7	NA	NA	NA	NA	<1.7	<1.7
Volatile Organic Compounds											
Benzene	mg/L	0.005	0.170	0.092	0.360	NA	NA	NA	NA	<0.0002	<0.005
Ethylbenzene	mg/L	0.7	0.0075 J	<0.0003	0.0059	NA	NA	NA	NA	<0.0003	<0.0075
Toluene	mg/L	1	0.110	0.025	0.130	NA	NA	NA	NA	<0.0002	<0.005
m,p-Xylene	mg/L	10	0.013 J	<0.0005	0.0079	NA	NA	NA	NA	<0.0005	<0.012
o-Xylene	mg/L	10	0.0091 J	<0.0003	0.0079	NA	NA	NA	NA	<0.0003	<0.0075
Xylenes, Total	mg/L	10	0.022	<0.0003	0.016	NA	NA	NA	NA	<0.0003	<0.0075
TPH Fractions											
Aliphatics >C6-C8	mg/L	3.2	0.0997	0.0803	0.147	NA	NA	NA	NA	0.144	1.08
Aliphatics >C8-C10	mg/L	0.15	<0.01	0.107	<0.01	NA	NA	NA	NA	0.0131	2.58
Aliphatics >C10-C12	mg/L	0.15	<0.001	NA	<0.00192	NA	NA	NA	NA	0.969	5.78
Aliphatics >C12-C16	mg/L	0.15	<0.002	NA	0.0288	NA	NA	NA	NA	3.77	37.4
Aliphatics >C16-C35	mg/L	7.3	<0.008	NA	0.774	NA	NA	NA	NA	4.44	118
Aromatics >C8-C10	mg/L	0.15	0.0284	0.422	0.373	NA	NA	NA	NA	0.0557	1.23
Aromatics >C10-C12	mg/L	0.15	<0.001	NA	0.00293	NA	NA	NA	NA	0.211	1.62
Aromatics >C12-C16	mg/L	0.15	<0.004	NA	0.0109	NA	NA	NA	NA	1.29	12.8
Aromatics >C16-C21	mg/L	0.15	<0.003	NA	0.0281	NA	NA	NA	NA	1.09	19.5
Aromatics >C21-C35	mg/L	0.15	<0.009	NA	0.161	NA	NA	NA	NA	1.05	38.2
Stable Isotopes											
δD	‰	NS	NA	NA	NA	-19.9	-17.7	-17.5	-16.9	NA	-11.8
δ18O	‰	NS	NA	NA	NA	-4.18	-3.95	-4.03	-4.00	NA	1.06
δ13C (DIC)	‰	NS	NA	NA	NA	-13.2	-14.0	-14.1	-13.9	NA	NA

Notes
J - Estimated Value reported below the detection limit.
H - pH is received at the lab outside of hold time.
< - Not Detected at the reporting limit shown.
Bolded values detected in the sample.
NA - Not Analyzed
NS - No Standard
^(a) - EPA Secondary MCL (No RECAP standard)
Shaded values exceed standard

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

LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler Units	#1			#3				#4			#5				#6				
	Brine Well 22 BS	BS-1	BS-1	CP BS 1	BS-3	BS-3	BS-3	CP BS 2	BS-4	BS-4	CP BS 3	BS-5	BS-5	BS-5	BS-6	BS-6	BS-6		
	1/25/23	5/18/23	12/11/23	1/30/23	5/22/23	9/18/23	12/11/23	1/30/23	5/22/23	12/11/23	1/30/23	5/17/23	9/19/23	12/13/23	2/28/23	5/18/23	9/19/23		
	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface		
	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM		
Constituent	Bubble Site (Surface Water)																		
Total Metals																			
Arsenic	mg/L	0.00149 J	0.00594	0.00135 J	0.000862 J	0.00113 J	0.00442	0.00142 J	0.000868 J	0.00110 J	0.00211	0.000769 J	0.00139 J	0.00168 J	0.00151 J	0.000784 J	0.00108 J	0.00200	0.00134 J
Barium	mg/L	0.300	0.317	0.122	0.160	0.156	0.453	0.344	0.367	0.276	0.201	0.155	0.216	0.413	0.385	0.116	0.152	0.446	0.37
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	<0.0002	<0.0002
Calcium	mg/L	71.2	83.5	98.2	75.3	65.9	88.2	174	64.2	69.6	175	77.7	73.3	74.5	147	66.3	66.3	82.8	142
Chromium	mg/L	0.000847 J	0.00159 J	0.000590 J	<0.0004	0.00201 J	0.000602 J	0.000578 J	<0.0004	<0.0004	0.00159 J	<0.0004	0.000998 J	<0.0004	0.00274 J	<0.0004	0.000731 J	<0.0004	0.00196 J
Iron	mg/L	1.14	3.04	0.879	0.132 J	0.118 J	0.254	1.06	0.0258 J	0.0647 J	8.23	0.125 J	0.160 J	0.0875 J	0.0794 J	0.0485 J	0.0249 J	0.0871 J	0.0757 J
Lead	mg/L	0.00208	0.00466	<0.0006	<0.0006	<0.0006	0.000710 J	<0.0006	<0.0006	<0.0006	0.00103 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Magnesium	mg/L	19.8	16.1	25.9	15.0	12.0	25.4	41.8	12.6	13.6	42.6	15.0	14.7	28.0	40.1	11.7	12.4	31.1	38.8
Manganese	mg/L	0.797	1.75	1.34	0.266	0.389	0.859	0.977	0.458	0.747	3.15	0.232	2.28	0.523	0.145	0.813	0.645	1.18	0.19
Mercury	mg/L	<0.00003	0.0000990 J	<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	0.0000670 J	<0.00003	<0.00003
Nickel	mg/L	NA	0.00641	0.00473	NA	0.00114 J	0.00212	0.00838	NA	0.00385	0.00519	NA	0.00168 J	0.000849 J	0.00322	NA	0.00124 J	0.00128 J	0.00265
Potassium	mg/L	2.57	2.83	2.81	2.90	2.17	4.09	5.28	2.58	2.34	5.52	2.86	2.53	4.25	4.78	2.31	2.18	4.63	4.71
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	<0.0011	<0.0011
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	<0.0002	<0.0002
Sodium	mg/L	156	123	161	174	155	534	630	166	176	581	19.1	203	571	792	142	161	598	649
Strontium	mg/L	0.619	0.598	0.622	0.556	0.479	0.894	1.32	0.482	0.532	1.21	0.578	0.552	0.883	1.19	0.441	0.496	0.930	1.14
Vanadium	mg/L	NA	0.00639	0.00189 J	NA	0.00324 J	0.0115	0.00626	NA	0.00181 J	0.00569	NA	0.00207 J	0.00499 J	0.00628	NA	0.00171 J	0.00667	0.00593
Zinc	mg/L	0.00857	0.0179	0.0135	0.00452	0.0448	0.0243	0.0395	0.00213 J	0.00289 J	0.0186	0.00748	0.00250 J	0.00357 J	0.0297	<0.002	0.00307 J	0.00336 J	0.00469
Anions/Water Quality Parameters																			
Bicarbonate Alkalinity	mg/L	269	178	84.9	241	149	206	114	238	164	105	245	150	107	146	148	143	116	146
Bromide	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Carbonate Alkalinity	mg/L	<5	<5	<3.50	<5	<5	<5	<3.50	<5	<5	<3.50	<5	<5	13.8	<3.50	<5	<5	<5	<3.50
Chloride	mg/L	317	213	346	308	322	928	1,110	296	340	1,140	343	332	982	1,140	253	302	957	1,150
Sulfate	mg/L	45.2	70.3	179	113	89.6	74.9	473	111	83.5	531	135	82.9	105	388	96.8	90.7	101	386
Total Dissolved Solids (TDS)	mg/L	676	760	716	80.0	880	1,990	2,500	512	864	2,940	892	792	1,990	2,870	710	784	2,030	2,810
pH	SI	NA	7.20 H	7.18 H	NA	7.75 H	6.97 H	7.41 H	NA	7.66 H	6.93 H	NA	7.79 H	8.61 H	7.85 H	NA	7.96 H	7.84 H	7.96 H
Sulfides																			
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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	<1	<1.7	<1.7	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1.7
Volatile Organic Compounds																			
Benzene	mg/L	0.00120	<0.0002	0.00066 J	<0.0002	<0.0002	0.00046 J	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Ethylbenzene	mg/L	<0.0003	0.00058 J	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Toluene	mg/L	0.00079 J	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	<0.0002	<0.0002	0.00087 J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
m,p-Xylene	mg/L	<0.0005	<0.0005	0.00066 J	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total	mg/L	<0.0003	<0.0003	0.00066 J	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
TPH Fractions																			
Aliphatics >C6-C8	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.134	<0.01	<0.01	<0.01	0.0645	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12	mg/L	<0.001	0.0202	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aliphatics >C12-C16	mg/L	0.0746	0.234	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35	mg/L	0.249	0.876	0.0367	<0.008	<0.008	0.0546	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0193	<0.008	<0.008	<0.008	0.0288
Aromatics >C8-C10	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0102	<0.01	<0.01	<0.01
Aromatics >C10-C12	mg/L	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aromatics >C12-C16	mg/L	0.0417	0.0179	0.0146	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Aromatics >C16-C21	mg/L	0.121	0.0535	0.0259	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Aromatics >C21-C35	mg/L	<0.009	0.0511	0.0197	<0.009	<0.009	0.0290	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.0145	<0.009	<0.009	<0.009	0.0379	<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 2
Surface Water Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler Constituent Units	#7				#8				#9			#10
	BS-7	BS-7	BS-7	BS-7	BS-8	BS-8	BS-8	BS-8	Brine Pond 4 BS		BS-9	1101529-BS
	2/28/23 Surface ERM	5/17/23 Surface ERM	9/19/23 Surface ERM	12/12/23 Surface ERM	2/28/23 Surface ERM	5/18/23 Surface ERM	9/19/23 Surface ERM	12/12/23 Surface ERM	2/10/23 Surface ERM	5/18/23 Surface ERM	12/13/23 Surface ERM	2/10/23 Surface ERM
Bubble Site (Surface Water)												
Total Metals												
Arsenic mg/L	0.000886 J	0.00118 J	0.00206	0.00129 J	0.000975 J	0.00150 J	0.00189 J	0.00134 J	0.00176 J	0.00419	0.00154 J	0.000896 J
Barium mg/L	0.119	0.194	0.451	0.355	0.127	0.224	0.475	0.388	0.118	0.168	0.037	0.0594
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
Calcium mg/L	65.8	66.3	74.5	132	68.1	74	80.1	140	38.6	50.2	303	55.8
Chromium mg/L	<0.0004	0.000695 J	<0.0004	0.00179 J	<0.0004	0.000627 J	0.000472 J	0.00238 J	<0.0004	0.000513 J	0.00192 J	<0.0004
Iron mg/L	0.0546 J	0.0565 J	0.0248 J	0.0657 J	0.166 J	0.27	0.0310 J	0.0580 J	0.609	0.694	1.83	0.0432 J
Lead mg/L	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.000694 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Magnesium mg/L	11.5	13.2	29.7	35.8	12	14.7	30.7	37.9	4.2	5.93	26.5	5.64
Manganese mg/L	1.03	2.36	0.435	0.194	0.972	2.15	0.602	0.146	0.204	0.614	0.11	0.0295
Mercury mg/L	<0.00003	0.000133 J	<0.00003	<0.00003	<0.00003	0.000109 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Nickel mg/L	NA	0.00130 J	0.000966 J	0.00255	NA	0.00179 J	0.00106 J	0.00254	NA	0.00192 J	0.00504	NA
Potassium mg/L	2.36	2.19	4.31	4.3	2.39	2.54	4.51	4.47	1.17	2.39	3.45	2.44
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
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
Sodium mg/L	140	171	591	592	144	196	631	653	64.6	83.4	334	37.6
Strontium mg/L	0.426	0.509	0.895	1.07	0.457	0.56	0.951	1.15	0.243	0.35	1.4	0.237
Vanadium mg/L	NA	0.00226 J	0.00588	0.00568	NA	0.00434 J	0.00532	0.00599	NA	0.0105	0.00487 J	NA
Zinc mg/L	<0.002	0.0171	0.00219 J	0.00463	0.0658	0.0171	0.0296	0.0823	0.00496	0.0221	0.0516	0.00654
Anions/Water Quality Parameters												
Bicarbonate Alkalinity mg/L	162	147	116	144	144	148	99.4	144	163	188	71.0	107
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
Carbonate Alkalinity mg/L	<5	<5	<5	<3.50	<5	<5	14.0	<3.50	<5	<5	<3.50	<5
Chloride mg/L	253	333	975	1,170	251	333	1,010	1,180	95.8	117	241	47
Sulfate mg/L	95.1	85.7	101	386	96.2	84.9	105	388	16.5	13.3	1,170	133
Total Dissolved Solids (TDS) mg/L	712	832	1,890	2,530	748	836	1,770	2,770	290	416	1,640	412
pH	NA	7.95 H	8.01 H	7.83 H	NA	8.00 H	8.69 H	7.84 H	NA	8.09 H	7.76 H	NA
Sulfides												
Hydrogen Sulfide mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	23.9
Sulfide mg/L	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1
Volatile Organic Compounds												
Benzene 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
Ethylbenzene mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Toluene 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
m,p-Xylene mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
TPH Fractions												
Aliphatics >C6-C8 mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10 mg/L	<0.01	<0.01	0.0118	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12 mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aliphatics >C12-C16 mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35 mg/L	<0.008	<0.008	<0.008	0.0207	<0.008	<0.008	0.0334	<0.008	<0.008	<0.008	<0.008	<0.008
Aromatics >C8-C10 mg/L	0.0103	<0.01	<0.01	<0.01	0.0101	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >C10-C12 mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00424	<0.001
Aromatics >C12-C16 mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Aromatics >C16-C21 mg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0137	<0.003
Aromatics >C21-C35 mg/L	<0.009	<0.009	0.0243	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<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 2
Surface Water Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler Constituent Units	#12								#13	#14	#17				#18			
	BS-12	BS-12	BS-12	BS-12	BS-12	BS-12	BS-12	BS-12	BS-13	BS-14	BS-17	BS-17	BS-17	BS-17	BS-18	BS-18	BS-18	BS-18
	2/28/23	5/18/23	9/19/23	12/12/23	1/9/24	1/9/24	1/31/24	12/13/23	12/13/23	2/28/23	5/17/23	9/20/23	12/13/23	2/28/23	5/17/23	9/19/23	12/13/23	
	Surface	Surface	Surface	Surface	Surface	Bottom	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	
	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Bubble Site (Surface Water)																		
Total Metals																		
Arsenic	mg/L	0.000861 J	0.00121 J	0.00217	0.00135 J	NA	NA	NA	0.00152 J	0.00133 J	0.000797 J	0.00130 J	0.00192 J	0.00140 J	0.000916 J	0.00124 J	0.00195 J	0.00132 J
Barium	mg/L	0.119	0.168	0.440	0.411	NA	NA	NA	0.371	0.118	0.188	0.475	0.400	0.125	0.183	0.450	0.405	0.405
Cadmium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Calcium	mg/L	66.9	70.2	80.7	151	NA	NA	NA	152	147	65.8	71.3	77.5	156	68.6	70.1	86.2	150
Chromium	mg/L	<0.0004	0.000565 J	0.000960 J	0.00236 J	NA	NA	NA	0.00260 J	0.00227 J	<0.0004	0.00127 J	<0.0004	0.00200 J	<0.0004	0.000762 J	<0.0004	0.00244 J
Iron	mg/L	0.0570 J	0.0237 J	0.0404 J	0.0689 J	NA	NA	NA	0.0712 J	0.0460 J	0.0795 J	0.0852 J	0.0764 J	0.162 J	0.0686 J	0.0526 J	0.0298 J	0.0896 J
Lead	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	NA	NA	NA	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Magnesium	mg/L	11.9	14.2	32.6	41.4	NA	NA	NA	41	38.2	11.5	14.1	29.0	42.1	12	14	32.9	41.0
Manganese	mg/L	0.885	0.732	0.768	0.159	NA	NA	NA	0.134	0.233	1.00	1.29	0.785	0.195	1.03	1.43	0.484	0.134
Mercury	mg/L	<0.00003	0.000206	<0.00003	<0.00003	NA	NA	NA	<0.00003	<0.00003	<0.00003	0.000338	<0.00003	<0.00003	<0.00003	0.0000970 J	<0.00003	<0.00003
Nickel	mg/L	NA	0.00126 J	0.00137 J	0.00255	NA	NA	NA	0.0034	0.00238	NA	0.00159 J	0.00123 J	0.00398	NA	0.00144 J	0.00102 J	0.0029
Potassium	mg/L	2.3	2.33	4.79	4.93	NA	NA	NA	4.85	4.71	2.36	2.42	4.07	5.00	2.42	2.35	4.66	4.84
Selenium	mg/L	<0.0011	<0.0011	<0.0011	<0.0011	NA	NA	NA	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011
Silver	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Sodium	mg/L	146	194	603	693	NA	NA	NA	626	674	137	197	564	808	143	189	594	843
Strontium	mg/L	0.451	0.533	0.947	1.25	NA	NA	NA	1.24	1.19	0.435	0.54	0.900	1.240	0.452	0.536	0.975	1.24
Vanadium	mg/L	NA	0.00202 J	0.00636	0.00592	NA	NA	NA	0.00506	0.00527	NA	0.00221 J	0.00586	0.00637	NA	0.00207 J	0.00646	0.00609
Zinc	mg/L	0.0445	0.00299 J	0.0118	0.0134	NA	NA	NA	0.00759	0.00472	0.0119	<0.002	0.00505	0.0321	<0.002	0.00659	<0.002	0.00572
Anions/Water Quality Parameters																		
Bicarbonate Alkalinity	mg/L	142	146	107	148	NA	NA	NA	144	144	144	149	130	143	148	146	106	146
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	<0.03
Carbonate Alkalinity	mg/L	<5	<5	<5	<3.50	NA	NA	NA	<3.50	<3.50	<5	<5	<5	<3.50	<5	<5	17.6	<3.50
Chloride	mg/L	257	327	972	1,170	834	816	337	1,170	1,130	248	328	984	1,170	248	331	971	1,140
Sulfate	mg/L	96.5	84.9	103	385	393	385	236	391	397	95.9	84.7	101	400	95.9	83.8	102	379
Total Dissolved Solids (TDS)	mg/L	712	802	2,210	2,510	2,190	2,020	960	1,970	2,140	732	928	2,160	2,390	706	748	1,950	2,330
pH	SI	NA	8.07 H	8.15 H	7.87 H	6.89	6.79	NA	7.85 H	7.91 H	NA	7.84 H	7.74 H	7.85 H	NA	7.94 H	8.73 H	7.90 H
Sulfides																		
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulfide	mg/L	<1	<1.7	<1.7	<1.7	NA	NA	NA	<1.7	<1.7	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1.7
Volatile Organic Compounds																		
Benzene	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Ethylbenzene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	NA	NA	NA	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Toluene	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
m,p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	NA	NA	NA	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	NA	NA	NA	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
TPH Fractions																		
Aliphatics >C6-C8	mg/L	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	mg/L	<0.01	<0.01	0.0123	<0.01	NA	NA	NA	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aliphatics >C12-C16	mg/L	<0.002	<0.002	<0.002	<0.002	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35	mg/L	<0.008	<0.008	<0.008	<0.008	NA	NA	NA	<0.008	0.0173	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Aromatics >C8-C10	mg/L	0.0102	<0.01	<0.01	<0.01	NA	NA	NA	<0.01	<0.01	0.0101	<0.01	<0.01	<0.01	0.0101	<0.01	<0.01	<0.01
Aromatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aromatics >C12-C16	mg/L	<0.004	<0.004	<0.004	<0.004	NA	NA	NA	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Aromatics >C16-C21	mg/L	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Aromatics >C21-C35	mg/L	<0.009	<0.009	<0.009	<0.009	NA	NA	NA	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<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 2
Surface Water Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler		#19			#21				#22				#23				#24	
		BS-19	BS-19	BS-19	No. 21	BS-21	BS-21	BS-21	No. 22	BS-22	BS-22	BS-22	No. 23	BS-23	BS-23	BS-23	BS-24	BS-24
		2/28/23	5/18/23	12/11/23	3/30/23	5/17/23	9/19/23	12/13/23	3/30/23	5/17/23	9/19/23	12/13/23	3/30/23	5/18/23	9/19/23	12/12/23	5/22/23	12/11/23
		Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Constituent Units		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Bubble Site (Surface Water)																		
Total Metals																		
Arsenic	mg/L	0.00355	<0.0004	0.00111 J	0.000855 J	0.00115 J	0.00184 J	0.00138 J	0.000998 J	0.00120 J	0.00186 J	0.00136 J	0.000930 J	0.00126 J	0.00250	0.00142 J	0.00124 J	0.00173 J
Barium	mg/L	0.127	0.149	0.0326	0.116	0.163	0.400	0.395	0.135	0.175	0.496	0.388	0.132	0.18	0.460	0.393	0.226	0.327
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	<0.0002
Calcium	mg/L	62	19.8	267	78.4	65.5	77.7	146	89.2	71.9	78.8	155	84.1	73.1	85.9	149	71.8	192
Chromium	mg/L	<0.0004	0.000530 J	<0.0004	<0.0004	0.000779 J	<0.0004	0.00271 J	<0.0004	0.000811 J	<0.0004	0.00231 J	<0.0004	0.000789 J	<0.0004	0.00248 J	<0.0004	0.00100 J
Iron	mg/L	0.102 J	2.43	0.657	0.0273 J	0.0315 J	0.0291 J	0.0827 J	0.0375 J	0.0302 J	0.330	0.0448 J	0.0270 J	0.0654 J	0.0343 J	0.0799 J	0.327	2.56
Lead	mg/L	<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	<0.0006	0.000602 J
Magnesium	mg/L	4.36	6.72	23.7	13.9	13.1	29.2	39.8	15.9	14.4	29.2	40.7	14.8	13.7	32.5	40.5	12.5	40.2
Manganese	mg/L	0.24	0.314	0.0462	0.445	0.99	0.540	0.142	0.43	1.04	1.03	0.196	0.379	1.08	0.696	0.216	0.574	2.22
Mercury	mg/L	<0.00003	0.000407	<0.00003	<0.00003	0.000151 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.000003	<0.00003	0.000124 J	<0.00003	<0.00003	<0.00003	<0.00003
Nickel	mg/L	NA	<0.0006	0.000384	NA	0.00143 J	0.000935 J	0.00298	NA	0.00142 J	0.00103 J	0.00267	NA	0.00117 J	0.00119 J	0.00277	0.000869 J	0.0041
Potassium	mg/L	0.962	3.03	3.22	2.15	2.21	4.16	4.71	2.45	2.37	4.30	4.93	2.33	2.51	5.03	4.9	2.6	7.04
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	<0.0011
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	<0.0002
Sodium	mg/L	71.2	58.3	200	186	169	570	664	211	195	534	679	205	175	586	661	161	385
Strontium	mg/L	0.338	0.17	1.36	0.495	0.501	0.898	1.20	0.559	0.545	0.919	1.24	0.542	0.546	0.937	1.20	0.519	1.28
Vanadium	mg/L	NA	<0.0006	0.00105 J	NA	0.00184 J	0.00473 J	0.00592	NA	0.00197 J	0.00528	0.00583	NA	0.00167 J	0.00711	0.00612	0.00246 J	0.00442 J
Zinc	mg/L	0.00535	0.132	0.0121	<0.002	0.0657	0.00372 J	0.0139	0.00431	0.0368	0.00635	0.0143	0.00291 J	0.0588	0.00284 J	0.00868	0.00278 J	0.0428
Anions/Water Quality Parameters																		
Bicarbonate Alkalinity	mg/L	240	159	73.5	162	147	106	148	162	148	124	142	162	148	120	146	176	197
Bromide	mg/L	<0.03	0.144	<0.03	<0.03	<0.03	<0.06	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Carbonate Alkalinity	mg/L	<5	<5	<3.50	<5	<5	13.2	<3.50	<5	<5	<5	<3.50	<5	<5	<5	<3.50	<5	<3.50
Chloride	mg/L	98.4	30.1	221	342	334	921	1,120	343	330	999	1,170	346	312	960	1,160	314	905
Sulfate	mg/L	6.72	7.5	1,110	93.9	83.6	100	375	94.1	83.7	105	400	94	89.1	99.3	387	79.9	492
Total Dissolved Solids (TDS)	mg/L	408	286	1,640	872	776	2,000	2,460	812	812	2,300	2,680	844	1,540	1,810	2,580	840	1,570
pH	SI	NA	8.03 H	7.72 H	7.74 H	7.88 H	8.62 H	7.87 H	7.70 H	7.98 H	8.02 H	7.88 H	7.58 H	7.79 H	7.94 H	7.89 H	7.58 H	7.24 H
Sulfides																		
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<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	<1	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7	<1.7
Volatile Organic Compounds																		
Benzene	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	0.00074 J	0.0037
Ethylbenzene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00044 J
Toluene	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	0.0011	0.0050
m,p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Xylenes, Total	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
TPH Fractions																		
Aliphatics >C6-C8	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0758	0.719
Aliphatics >C8-C10	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aliphatics >C12-C16	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aliphatics >C16-C35	mg/L	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.0183	<0.008	<0.008	<0.008	0.0172	<0.008	<0.008	<0.008	0.0197	<0.008	<0.008
Aromatics >C8-C10	mg/L	0.0105	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Aromatics >C12-C16	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Aromatics >C16-C21	mg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Aromatics >C21-C35	mg/L	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.0374	<0.009	<0.009	<0.009	0.0366	<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 2
Surface Water Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

LDNR Sample No. Sample ID Sample Date Sample Interval (ft) Sampler	#25		#26			WPB PPB No.7A		WPB PPB No.7B				#2	#20					
	BS-25	BS-25	BS-26	BS-26	BS-26	Brine Well 7A BS	7A-BS	Brine Well 7B BS	BW-7B-BS	7B-BS	Culvert		Central Pond	No. 20				
	9/20/23	12/12/23	7/17/23	9/18/23	12/11/23	1/25/23	12/11/23	2/16/23	5/18/23	9/18/23	12/12/23	1/25/23	1/9/24	3/9/23				
	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface				
ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM				
Constituent	Bubble Site (Surface Water)														Surface Water			
Units																		
Total Metals																		
Arsenic	mg/L	0.00215	0.00143 J	0.00246	0.00130 J	0.00190 J	0.000767 J	0.00192 J	0.0202 J	<0.0004	0.000799 J	<0.002	0.00141 J	NA	0.00192 J	0.00109 J		
Barium	mg/L	0.393	0.386	1.07	0.540	0.504	0.232	0.133	1.23	0.118	3.71	1.04	0.0832	NA	0.146	0.43		
Cadmium	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000664 J	<0.01	<0.0002	0.000336 J	<0.001	<0.0002	NA	<0.0004	<0.0002		
Calcium	mg/L	83.7	151	11.5	9.70	10.20	24.5	29.8	141	23.8	65.6	61.9	58.2	NA	149	8.98		
Chromium	mg/L	0.00101 J	0.00224 J	0.00322 J	<0.0004	0.000515 J	0.000474 J	0.00218 J	0.114 J	0.00175 J	0.000523 J	0.00341 J	0.00101 J	NA	0.00458 J	<0.0004		
Iron	mg/L	0.172 J	0.0452 J	1.06	0.0902 J	0.146 J	0.0406 J	0.267	3.34 J	0.98	1.43	1.35	0.207	NA	2.07	0.148 J		
Lead	mg/L	<0.0006	<0.0006	0.00946	<0.0006	0.000846 J	<0.0006	0.00251	<0.03	0.00245	0.00300	0.00409 J	<0.0006	NA	<0.00120	<0.0006		
Magnesium	mg/L	33.5	40.6	1.90	1.70	1.91	1.54	2.29	2.85 J	1.73	1.78	1.77	5.44	NA	37.8	1.6		
Manganese	mg/L	0.557	0.181	0.516	0.0277	0.0524	0.0215	0.0205	0.509	0.161	0.211	0.324	0.00934	NA	0.847	0.0163		
Mercury	mg/L	<0.00003	<0.00003	0.0000500 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.000358	<0.00003	<0.00003	<0.00003	NA	<0.00003	<0.00003		
Nickel	mg/L	0.00115 J	0.00249	0.00271	<0.0006	0.000815 J	NA	0.0033	NA	0.00417	0.00268	0.00858 J	NA	NA	NA	NA		
Potassium	mg/L	4.87	4.87	1.19	1.44	1.55	1.02	1.42	1.78 J	1.3	2.13	3.58	2.86	NA	3.22	1.2		
Selenium	mg/L	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.0011	<0.055	<0.0011	0.00156 J	<0.0055	<0.0011	NA	<0.0022	<0.0011		
Silver	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.0002	<0.0002	<0.001	<0.0002	NA	<0.0004	<0.0002		
Sodium	mg/L	609	685	30.8	38.7	37.1	8.45	6.20	26,400	1,390	27,400	11,200	158	NA	1080	27.5		
Strontium	mg/L	1.01	1.22	0.174	0.161	0.153	0.167	0.186	0.678	0.16	0.683	0.427	0.341	NA	0.941	0.134		
Vanadium	mg/L	0.00687	0.0058	0.00483	0.00160 J	0.00248 J	NA	0.00830	NA	0.00113 J	<0.0006	<0.003	NA	NA	NA	NA		
Zinc	mg/L	0.00256 J	0.00468	0.0638	<0.002	0.0438	0.0466	0.209	1.97	0.451	0.291	0.427	0.0153	NA	0.0258	<0.002		
Anions/Water Quality Parameters																		
Bicarbonate Alkalinity	mg/L	104	148	48.8	44.4	40.9	159	67.3	128	78.4	241	112	210	NA	495	37.4		
Bromide	mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<1.5	<0.06	<1.5	<0.3	<0.03	<0.03	<0.06	<0.03		
Carbonate Alkalinity	mg/L	<5	<3.50	<5	<5	<3.50	<5	<3.50	<5	<5	<5	<3.5	<5	NA	<5	<5		
Chloride	mg/L	620	1,160	35.9	37.8	38.3	6.45	5.60	55,900	2,400	48,000	16,500	215	NA	2090	32		
Sulfate	mg/L	96.2	391	16.1	16.6	21.7	2.97	13.3	243	14.2	155	57.0	92.1	NA	183	17.2		
Total Dissolved Solids (TDS)	mg/L	2,280	2,600	180	120	140	320	70.0	97,400	4,840	67,200	45,200	498	NA	3600	148		
pH	SI	8.37 H	7.98 H	7.38 H	7.05 H	7.44 H	NA	7.82 H	NA	7.65 H	7.93 H	7.34 H	NA	NA	NA	NA		
Sulfides																		
Hydrogen Sulfide	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5		
Sulfide	mg/L	<1.7	<1.7	<1.7	<1.7	<1.7	<1	<1.7	<1	<1.7	<1.7	<1.7	<1	NA	<1	<1.7		
Volatile Organic Compounds																		
Benzene	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00034 J	0.00059 J	0.00075 J	<0.0002	0.00080 J	0.003	<0.0002	NA	<0.0002	<0.0002		
Ethylbenzene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00180	0.0020	0.0023	<0.0003	0.00086 J	0.0034	<0.0003	NA	<0.0003	<0.0003		
Toluene	mg/L	<0.0002	<0.0002	0.00051 J	<0.0002	<0.0002	0.00055 J	0.0018	0.0073 J	<0.0002	<0.0002	0.001	<0.0002	NA	<0.0002	<0.0002		
m,p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0020 J	0.0024	0.0030	<0.0005	0.0013 J	0.0061	<0.0005	NA	<0.0005	<0.0005		
o-Xylene	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00052 J	0.0020	<0.0003	0.0010	0.0045	<0.0003	NA	<0.0003	<0.0003		
Xylenes, Total	mg/L	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00200	0.0029	0.0050	<0.0003	0.0024	0.011	<0.0003	NA	<0.0003	<0.0003		
TPH Fractions																		
Aliphatics >C6-C8	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01		
Aliphatics >C8-C10	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	NA	<0.01	<0.01		
Aliphatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001		
Aliphatics >C12-C16	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002		
Aliphatics >C16-C35	mg/L	<0.008	<0.008	<0.008	0.0405	<0.008	<0.008	0.0217	0.239	<0.008	0.137	0.0824	<0.008	NA	<0.008	<0.008		
Aromatics >C8-C10	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.0285	<0.01	0.0192	<0.01	<0.01	<0.01	<0.01	NA	<0.01	0.012		
Aromatics >C10-C12	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00551	<0.001	<0.001	<0.001	<0.001	NA	<0.001	<0.001		
Aromatics >C12-C16	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0225	<0.004	<0.004	<0.004	<0.004	NA	<0.004	<0.004		
Aromatics >C16-C21	mg/L	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0188	<0.003	<0.003	<0.003	<0.003	NA	<0.003	<0.003		
Aromatics >C21-C35	mg/L	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.079	<0.009	<0.009	<0.009	<0.009	NA	<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
Central Lake Water Column Profile
 Sulphur Dome
 Calcasieu Parish, Louisiana

1/30/2023	LDNR #4 (water depth 2.55 ft)				
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
0.5	6.14	1317	31	17.5	NR
2.55	6.3	1321	-4	17.1	NR

5/22/2023	LDNR #5 (water depth 5.0 ft)				
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
0	6.95	1509	59	30.1	1058
1	6.95	1513	69	30.1	1058
2	6.96	1515	77	30	1057
3	6.94	1513	83	29.7	1059
4	6.96	1513	84	29.6	1057
5	6.77	1522	-64	28.7	1065

6/15/2023	13:55	Water Column Station (water depth 5.2 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.55	1665	113	34.3	1238
3	7.02	1671	137	34.7	1241
5	7.52	1692	39	33.7	1254

6/16/2023	12:58	Water Column Station (water depth 5.2 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.67	1792	205	33.5	1256
3	7.70	1786	174	33.3	1254
5	7.30	1902	-240	33.4	1352

6/23/2023	8:13	Water Column Station (water depth 5.2 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.53	NR	165	27.7	NR
3	7.56	NR	155	29.1	1291
5	7.54	1814	-186	29.8	1282

6/30/2023	13:40	Water Column Station (water depth 5.15 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.60	1883	64	36.1	1322
3	7.50	1878	84	34.8	1325
5	7.50	1876	94	35.0	1320

7/7/2023	8:45	Water Column Station (water depth 5.0 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.60	1910	103	29.3	1355
3	7.61	1951	107	29.6	1389
5	7.59	1916	113	29.7	1364

7/14/2023	13:00	Water Column Station (water depth 5.0 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.85	NR	161	35.2	NR
3	7.65	2032	148	34.2	1449
5	7.59	1962	140	33.1	1529

Table 3
Central Lake Water Column Profile
 Sulphur Dome
 Calcasieu Parish, Louisiana

7/21/2023	9:10	Water Column Station (water depth 4.8 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.72	2123	168	31.6	1515
3	7.67	2117	162	31.7	1514
5	7.70	2104	155	31.4	1509

7/28/2023	7:15	Water Column Station (water depth 5.8 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.66	2238	168	29.3	1609
3	7.61	2106	165	29.9	1513
5	7.48	2185	151	29.5	1568

8/4/2023	9:25	Water Column Station (water depth 5.6 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.62	2328	161	32.4	1678
3	7.56	2317	149	32.5	1669
5	7.47	2317	79	32.6	1670

8/11/2023	7:30	Water Column Station (water depth 5.45 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.64	2648	101	29.7	1935
3	7.75	2588	18	30.6	1888
5	7.58	2593	-147	31.1	1885

8/18/2023	7:30	Water Column Station (water depth 5.25 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.71	2871	141	28.9	2116
3	7.58	2813	103	30.1	2067
5	7.54	2747	-48	30.3	2023

8/25/2023	9:00	Water Column Station (water depth 4.1 ft.)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.71	3071	149	29.6	2253
3	7.69	3034	121	30.3	2215
5	7.58	3038	-8	30.2	2219

9/1/2023	10:00	Water Column Station (water depth NR)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	8.06	3233	34	31.1	2371
3	8.10	3203	25	29.4	2357
5	7.62	3216	-13	29.6	2366

9/8/2023	7:45	Water Column Station (water depth NR)			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	8.06	3373	109	28.9	2486
3	8.16	3337	87	30.1	2458
5	7.87	3341	-32	30.4	2457

Table 3
Central Lake Water Column Profile
Sulphur Dome
Calcasieu Parish, Louisiana

9/15/2023	7:20	Water Column Station (water depth 3'5")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	8.04	3554	149	25	2650
3	7.96	3416	144	26.2	2545
5	7.55	3426	-81	26.2	2549

9/22/2023	8:15	Water Column Station (water depth 4'3")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	8.19	3625	146	28.6	2699
3	8.23	3570	131	28.7	2652
5	7.50	3587	-114	28.5	2660

9/29/2023	7:30	Water Column Station (water depth 4')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.43	3614	152	26.5	2684
3	7.42	3601	121	27.1	2689
5	7.41	3603	-32	27.3	2685

10/6/2023	8:00	Water Column Station (water depth 4'3")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.57	3584	103	24.3	2681
3	7.44	3572	96	24.8	2671
5	7.55	3558	10	24.7	2660

10/13/2023	9:42	Water Column Station (water depth 4'3")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.95	3555	146	22.8	2665
3	7.92	3641	148	23.6	2733
5	7.94	3646	135	23.7	2737

10/20/2023	8:00	Water Column Station (water depth 4'2")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.88	3775	109	21	2854
3	7.97	3738	116	21.4	2823
5	7.92	3770	119	21.7	2846

10/27/2023	8:42	Water Column Station (water depth 4'2")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	8.19	4035	80	26.9	3036
3	7.96	3990	26.7	26.7	2995
5	7.92	3946	26.3	26.3	2962

11/3/2023	9:00	Water Column Station (water depth 4')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.83	4025	208	16.2	3086
3	7.77	4060	161	19.3	3116
5	7.72	4035	186	15.7	3088

11/10/2023	10:17	Water Column Station (water depth 4')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.7	4150	164	22.1	3160
3	7.63	4179	128	22	3187
5	7.55	4161	2	21.8	3178

Table 3
Central Lake Water Column Profile
 Sulphur Dome
 Calcasieu Parish, Louisiana

11/17/2023	9:45	Water Column Station (water depth 4'2")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.52	4115	192	20.5	3144
3	7.45	4119	160	20.9	3143
5	7.46	4113	84	20.8	3136

11/24/2023	8:01	Water Column Station (water depth 4')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.75	4238	181	15.6	3758
3	7.76	4220	146	15.4	3239
5	7.70	4209	96	15.3	3240

12/1/2023	8:00	Water Column Station (water depth 4'3")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.85	4132	-41	17.8	3171
3	7.81	4144	21	17.3	3173
5	7.75	4204	39	17.6	3237

12/8/2023	9:00	Water Column Station (water depth 4'3")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.66	4275	141	16.7	3288
3	7.72	4175	109	16.7	3203
5	7.61	4276	75	16.9	3294

12/15/2023	9:00	Water Column Station (water depth 4'4")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.62	4287	-66	14.5	3311
3	7.77	4301	-32	15.1	3315
5	7.68	4300	5	15.5	3310

12/22/2023	8:30	Water Column Station (water depth 4'5")			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.74	4296	65	18.1	3311
3	7.76	4305	32	18	28
5	7.69	4289	77	17.9	3301

1/4/2024	13:35	Water Column Station (water depth 5')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.63	4040	115	15.7	3092
3	7.59	4041	97	14.3	2101
5	7.70	4044	227	14.9	3127

1/12/2024	8:48	Water Column Station (water depth 5.6')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	5.50	3236	69	15.6	2486
3	7.51	3303	61	16.0	2544
5	7.54	3268	89	16.3	2509

1/18/2024	12:39	Water Column Station (water depth 5.6')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.57	3141	94	11.6	2416
3	7.54	3235	69	10.7	2492
5	7.50	3240	-45	10.3	2507

Table 3
Central Lake Water Column Profile
 Sulphur Dome
 Calcasieu Parish, Louisiana

1/26/2024	9:08	Water Column Station (water depth 6.6')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.35	2464	-21	16.3	1860
3	7.28	2616	13	15.7	1988
5	7.33	2731	-114	15.0	2081

2/2/2024	9:03	Water Column Station (water depth 5.8')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.19	1578	68	16.7	1151
3	7.14	1616	62	16.2	1183
5	7.39	2359	-132	17.4	1773

2/9/2024	8:35	Water Column Station (water depth 5.5')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.34	1570	58	18.7	1143
3	7.27	1572	76	18.5	1144
5	7.29	1607	14	18.5	1171

2/16/2024	9:00	Water Column Station (water depth 5.0')			
Depth (ft)	pH	SC (uS/cm)	ORP (mV)	Temp (°C)	TDS (ppm)
1	7.42	1690	184	17.8	1237
3	7.31	1664	111	18.2	1217
5	7.35	1700	47	17.1	1245

Notes:

Readings were recorded with an Ultrameter II, hand-held meter

NR - Not Recorded

Table 4
Gas Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		LDNR #1				LDNR #3				LDNR #4				LDNR #5			
		Brine Well 22 BS				CP BS 1				CP BS 2				CP BS 3			
		1/25/23	5/18/23	9/20/23*	12/11/23*	1/30/23	5/22/23*	9/18/23*	12/11/23*	1/30/23	5/22/23*	9/20/23*	12/11/23*	1/30/23	5/17/23	9/20/23*	12/13/23*
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)															
Carbon Monoxide	mol%	ND	0.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.099	ND	ND
Helium	mol%	NA	NA	0.0053	ND	NA	ND	ND	ND	NA	ND	ND	ND	NA	NA	ND	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.35	1.31	0.0612	0.669	1.04	0.0448	0.917	0.543	0.905	0.0360	0.550	0.0266	1.54	1.12	0.540	0.131
Oxygen	mol%	0.47	17.47	0.96	14.23	8.91	0.086	20.38	2.87	15.5	0.16	8.93	0.23	21.68	15.89	11.11	2.44
Nitrogen	mol%	61.78	64.5	4.41	61.50	45.65	2.11	77.1	15.08	65.33	1.87	41.87	1.73	69.85	73.83	40.07	8.90
Carbon Dioxide	mol%	7.47	6.37	2.57	0.46	3.58	2.14	0.089	2.02	1.29	1.56	1.55	1.75	2.47	2.79	0.52	0.59
Methane	mol%	28.45	10.00	89.73	22.56	40.41	94.46	1.49	78.53	16.69	94.48	46.17	94.44	4.39	6.20	46.82	86.34
Ethane	mol%	0.287	0.110	1.50	0.382	0.261	0.673	0.0108	0.575	0.209	1.30	0.64	1.27	0.0472	0.0488	0.579	1.08
Ethylene	mol%	ND	ND	0.0006	0.0002	0.0097	0.0286	0.003	0.0178	0.0067	0.0540	0.0223	0.0447	0.0022	0.0042	0.0874	0.0362
Propane	mol%	0.0926	0.0412	0.414	0.107	0.0702	0.198	0.0036	0.159	0.0445	0.294	0.144	0.277	0.0128	0.0120	0.1590	0.272
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	0.0216	0.0070	0.0977	0.0255	0.0259	0.0751	0.0013	0.0608	0.0115	0.0819	0.0408	0.0790	0.0033	0.0030	0.0406	0.0741
N-butane	mol%	0.0216	0.0070	0.106	0.0277	0.0189	0.0647	0.0016	0.0519	0.0091	0.0757	0.0372	0.0720	0.0028	0.0021	0.0387	0.0685
Iso-pentane	mol%	0.0083	0.0017	0.0410	0.0112	0.0083	0.0356	0.0009	0.0286	0.0032	0.0318	0.0158	0.0301	0.0006	0.0006	0.0133	0.0250
N-pentane	mol%	0.0055	0.0012	0.0308	0.0093	0.0051	0.0262	0.0008	0.0223	0.0019	0.0220	0.0111	0.0205	ND	ND	0.0092	0.0165
Hexanes +	mol%	0.0449	0.0064	0.0685	0.0227	0.0083	0.0548	0.0020	0.0411	0.0029	0.0341	0.0173	0.0291	0.0039	0.0009	0.0148	0.0261
Stable Isotopes																	
$\delta^{13}\text{C}$ (CH ₄)	‰	-33.03	-24.86	-39.25	-39.09	-34.2	-34.66	-31.24	-33.88	-38.37	-38.5	-37.03	-37.69	-35.45	-39.21	-37.16	-37.36
δD (CH ₄)	‰	-129.6	-81.1	-158.6	-158.7	-147.2	-141.0	-138.7	-151.6	-160.5	-151.3	-145.0	-158.0	-143	-159.8	-147.9	-154.9
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		LDNR #6				LDNR #7				LDNR #8			LDNR #9		
		BS 06				BS 07				BS 08			Brine Pond 4		
		2/28/23	5/18/23	9/20/23	12/12/23*	2/28/23	5/17/23	9/20/23	12/12/23*	2/28/23	5/18/23	9/20/23	2/10/23	5/18/23	12/13/23*
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)													
Carbon Monoxide	mol%	ND	0.22	0.093	ND	ND	0.31	0.15	ND	ND	0.33	0.16	0.034	0.26	ND
Helium	mol%	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.68	1.63	1.06	0.108	1.66	1.64	1.2	0.365	1.31	1.71	1.19	1.14	1.50	0.700
Oxygen	mol%	21.86	21.22	23.75	1.78	22.94	17.64	24.65	6.63	16.43	12.99	27.26	22.32	30.16	15.35
Nitrogen	mol%	72.96	72.30	73.08	6.58	71.73	73.45	73.16	25.40	57.26	75.89	71.03	75.05	63.88	62.75
Carbon Dioxide	mol%	3.22	4.39	0.15	0.75	3.27	6.46	0.4	0.42	2.88	7.63	0.28	0.61	2.70	0.63
Methane	mol%	0.278	0.234	1.84	89.64	0.398	0.493	0.427	64.68	21.89	1.44	0.0769	0.845	1.49	20.40
Ethane	mol%	0.0042	0.0014	0.0112	0.669	0.0050	0.0057	0.0100	2.22	0.146	0.0040	0.0020	0.0022	0.0032	0.121
Ethylene	mol%	ND	ND	0.0007	0.0363	ND	ND	ND	ND	0.0044	ND	ND	ND	ND	0.0008
Propane	mol%	ND	0.0014	0.0041	0.235	0.0006	ND	0.0013	0.176	0.0482	0.0008	0.0007	0.0004	ND	0.0238
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0003
Iso-butane	mol%	ND	ND	0.0014	0.0831	ND	ND	ND	0.0452	0.0158	ND	ND	ND	ND	0.0114
N-butane	mol%	ND	ND	0.001	0.0644	ND	ND	ND	0.0365	0.0108	ND	ND	ND	ND	0.0051
Iso-pentane	mol%	ND	ND	0.0003	0.0270	ND	ND	ND	0.0135	0.0034	ND	ND	ND	ND	0.0037
N-pentane	mol%	ND	ND	ND	0.0142	ND	ND	ND	0.0072	0.0015	ND	ND	ND	ND	0.0022
Hexanes +	mol%	0.0012	0.0028	0.0018	0.0142	0.0013	0.0041	0.0024	0.0111	0.0030	0.0040	0.0031	0.0007	0.0040	0.0065
Stable Isotopes															
δ ¹³ C (CH ₄)	‰	NA	NA	-34.8	-34.83	-36.7	-48.9	-39.5	-45.00	-34.96	-60.3	NA	-33.1	-38.9	-33.44
δD (CH ₄)	‰	NA	NA	-144	-150.0	NA	NA	NA	-189.4	-143.1	NA	NA	-81	NA	-147.5
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		LDNR #10				LDNR #12				LDNR #13	LDNR #14	LDNR #17			
		110159-BS				BS 12				BS 13	BS 14	BS 17			
		2/10/23	5/22/23*	9/20/23*	12/12/23*	2/28/23	5/18/23	9/20/23	12/12/23*	12/13/23	12/13/23	2/28/23	5/17/23	9/20/23	12/13/23*
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)													
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	0.23	0.13	ND	ND	ND	ND	0.17	0.3	ND
Helium	mol%	NA	ND	ND	ND	NA	NA	NA	ND	NA	NA	NA	NA	NA	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	0.837	0.970	0.910	0.748	1.62	1.68	1.12	0.315	1.22	1.48	1.69	1.57	1.13	0.213
Oxygen	mol%	14.68	21.72	16.81	15.67	19.99	20.99	24.67	6.00	24.49	29.11	16.22	17.08	31.25	2.84
Nitrogen	mol%	59.75	77.00	75.02	68.50	70.00	72.41	73.77	25.63	73.05	66.00	74.92	66.25	50.78	13.63
Carbon Dioxide	mol%	1.04	0.062	1.69	1.55	3.51	4.56	0.24	0.47	1.17	1.98	5.42	7.42	0.7	1.02
Methane	mol%	23.55	0.247	5.56	13.48	4.72	0.122	0.065	65.00	0.0670	1.41	1.73	7.42	15.57	80.49
Ethane	mol%	0.12	0.0004	0.0030	0.0470	0.138	0.0014	0.0015	2.29	0.0011	0.0231	0.0148	0.0714	0.225	1.45
Ethylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002
Propane	mol%	0.0084	ND	0.0004	0.0017	0.0108	0.0007	0.0004	0.177	ND	ND	0.0021	0.0090	0.0279	0.197
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	0.0112	ND	0.0009	0.0028	0.0025	ND	ND	0.0459	ND	ND	ND	0.0025	0.0071	0.0620
N-butane	mol%	ND	ND	0.0002	ND	0.0019	ND	ND	0.0359	ND	ND	ND	0.0016	0.0049	0.0448
Iso-pentane	mol%	0.0019	ND	0.0002	0.0004	ND	ND	ND	0.0137	ND	ND	ND	ND	0.0015	0.0205
N-pentane	mol%	ND	ND	0.0001	ND	ND	ND	ND	0.0073	ND	ND	ND	ND	0.0009	0.0118
Hexanes +	mol%	0.0012	0.0001	0.0006	0.0005	0.0038	0.0058	0.0023	0.0106	ND	ND	0.0028	0.0025	0.0052	0.0187
Stable Isotopes															
δ ¹³ C (CH ₄)	‰	-35.63	-25.78	-22.20	-30.02	-44.36	NA	NA	-44.36	NA	-66.5	-44.2	-39.07	-40.39	-40.70
δD (CH ₄)	‰	-151.4	-107	-103.2	-134.9	-181	NA	NA	-182.8	NA	NA	-175	-179	-161.9	-168.2
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		LDNR #18				LDNR #19			LDNR #21				LDNR #22			
		BS 18				BS 19			No. 21				No. 22			
		2/28/23	5/17/23	9/20/23	12/13/23*	2/28/23	5/18/23	12/11/23*	3/30/23	5/17/23	9/20/23	12/13/23	3/30/23	5/17/23	9/20/23	12/12/23*
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)														
Carbon Monoxide	mol%	ND	0.066	0.27	ND	ND	0.26	ND	0.11	0.25	0.12	ND	0.098	0.11	0.3	ND
Helium	mol%	NA	NA	NA	ND	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.21	1.09	1.28	0.134	0.976	1.50	0.535	1.29	1.61	1.09	1.42	1.43	1.25	1.33	0.126
Oxygen	mol%	14.38	16.45	34.44	2.48	29.18	28.03	10.73	20.65	18.44	26.85	25.21	20.90	16.79	32.90	2.25
Nitrogen	mol%	52.67	79.94	61.19	9.16	43.27	63.87	40.42	75.31	73.33	69.78	63.27	71.96	79.02	62.91	8.79
Carbon Dioxide	mol%	3.08	1.67	0.3	0.71	2.83	2.92	1.27	1.77	5.64	0.16	2.79	2.40	2.54	0.47	0.69
Methane	mol%	28.32	0.784	2.49	86.23	23.62	3.40	46.71	0.860	0.721	1.970	7.230	3.16	0.288	2.06	86.33
Ethane	mol%	0.240	0.0028	0.0208	0.863	0.106	0.0130	0.280	0.0080	0.0015	0.0194	0.0665	0.410	0.0010	0.0253	1.34
Ethylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0005	ND	ND	0.0184
Propane	mol%	0.0616	0.0007	0.0052	0.228	0.093	0.0007	0.0258	0.0011	0.0008	0.0032	0.0087	0.0064	0.0003	0.0045	0.233
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002
Iso-butane	mol%	0.176	0.0002	0.0015	0.0711	0.0034	ND	0.0164	0.0004	ND	0.001	0.0036	0.0015	ND	0.0012	0.0735
N-butane	mol%	0.132	ND	0.0012	0.0607	ND	ND	0.0001	ND	ND	0.0005	ND	0.0010	ND	0.0010	0.0646
Iso-pentane	mol%	0.0044	ND	ND	0.0266	0.0004	ND	0.0044	ND	ND	ND	0.0007	ND	ND	ND	0.0296
N-pentane	mol%	0.0024	ND	ND	0.0178	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0208
Hexanes +	mol%	0.0044	0.0006	0.0045	0.0235	0.0021	0.0036	0.0095	0.0018	0.0031	0.0017	ND	0.0020	0.0010	0.0073	0.0324
Stable Isotopes																
$\delta^{13}\text{C}$ (CH ₄)	‰	-36.62	-46.8	-37.5	-36.57	-32.77	-36.1	-36.27	-36.2	-48.0	-38.0	-38.00	-38.40	-44.40	-37.00	-38.50
δD (CH ₄)	‰	-154.9	-200	-145	-154.0	-109.4	-139	-146.2	-122	NA	150	-147	-156	NA	NA	-154.7
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		LDNR #23				LDNR #24			LDNR #25		LDNR #26		
		No. 23				BS-24			BS-25		BS-26		
		3/30/23	5/18/23	9/20/23	12/12/23	5/22/23*	9/20/23*	12/11/23*	9/20/23	12/12/23	7/17/23	9/18/23	12/11/23*
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)											
Carbon Monoxide	mol%	0.040	0.25	0.24	ND	ND	ND	ND	0.2	ND	ND	0.063	ND
Helium	mol%	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.09	1.68	1.4	1.42	0.0271	0.210	0.0269	1.3	1.46	1.46	1.29	0.213
Oxygen	mol%	21.18	14.37	30.67	28.99	0.13	4.05	0.27	28.32	33.30	18.56	17.19	2.25
Nitrogen	mol%	76.89	74.50	65.61	66.73	1.37	16.04	1.66	69.58	63.82	66.42	75.71	13.90
Carbon Dioxide	mol%	0.69	6.71	0.45	2.30	2.26	2.35	2.51	0.4	1.18	7.87	3.62	1.39
Methane	mol%	0.105	2.47	1.61	0.548	94.64	76.08	94.02	0.195	0.233	5.68	2.12	81.36
Ethane	mol%	0.0013	0.0124	0.0131	0.0081	0.884	0.729	0.869	0.0027	0.0038	0.0076	0.0116	0.723
Ethylene	mol%	ND	ND	ND	ND	0.150	0.110	0.133	ND	ND	ND	ND	ND
Propane	mol%	0.0002	0.0044	0.0036	0.0008	0.270	0.214	0.253	ND	ND	ND	0.0009	0.0634
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	ND	0.0015	0.0011	ND	0.0828	0.0663	0.0799	ND	ND	ND	0.0006	0.0736
N-butane	mol%	ND	0.0007	0.0008	ND	0.0784	0.0623	0.0747	ND	ND	ND	ND	0.0030
Iso-pentane	mol%	ND	ND	ND	ND	0.0347	0.0282	0.0347	ND	ND	ND	ND	0.0150
N-pentane	mol%	ND	ND	ND	ND	0.0259	0.0214	0.0264	ND	ND	ND	ND	0.0001
Hexanes +	mol%	0.0007	0.0037	0.0038	ND	0.0460	0.0378	0.0445	0.0038	ND	0.0025	0.0027	0.0065
Stable Isotopes													
δ ¹³ C (CH ₄)	‰	-34.0	-33.0	-37.6	-35.7	-35.9	-35.52	-35.28	NA	NA	-48.74	-40.8	-38.38
δD (CH ₄)	‰	NA	-99	NA	NA	-146.8	-145.7	-154.0	NA	NA	-242	-157	-155.6
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location		LDNR #27	LDNR #28	WPB PGG No.7A				WPB PPB No.7B			Sulphur Dome	LDNR #20
Sample ID		BS-27	BS-28	Brine Well 7A BS				Brine Well 7B-BS			Central Pond	No. 20
Sample Date		1/31/24	1/24/24	1/25/23	5/17/23*	9/20/23*	12/11/23*	2/16/23	5/18/23	9/18/23	1/25/23	3/9/23
Sampler		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Surface Water (Bubble Site)									Surface Water	
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26	0.023
Helium	mol%	NA	NA	NA	ND	ND	ND	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.71	0.300	0.744	0.823	0.754	0.215	0.955	1.58	0.969	1.98	1.01
Oxygen	mol%	23.25	1.95	16.39	18.25	15.34	3.92	19.64	25.16	19.27	0.41	22.40
Nitrogen	mol%	73.42	16.00	41.21	66.37	61.16	16.65	76.59	68.50	79.45	84.79	76.38
Carbon Dioxide	mol%	1.51	0.62	0.29	0.07	0.39	0.034	0.51	1.69	0.3	12.25	0.16
Methane	mol%	0.106	80.47	40.83	14.3	22.05	78.13	2.26	3.00	0.0036	0.302	0.0245
Ethane	mol%	0.0007	0.477	0.397	0.132	0.216	0.733	0.0333	0.0427	0.0001	0.0015	ND
Ethylene	mol%	ND	ND	0.0013	0.0001	ND	0.0007	0.0011	ND	ND	ND	ND
Propane	mol%	ND	0.107	0.099	0.0372	0.0607	0.207	0.0085	0.0192	0.0013	ND	ND
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	ND	0.0466	0.0286	0.013	0.0207	0.0699	0.0011	0.0043	0.0007	ND	ND
N-butane	mol%	ND	0.0173	0.0106	0.005	0.0080	0.0258	0.0024	0.0043	0.0012	ND	ND
Iso-pentane	mol%	ND	0.0051	0.013	0.0011	0.0018	0.0052	0.0005	ND	0.0003	ND	ND
N-pentane	mol%	ND	0.0014	ND	0.0003	0.0005	0.0013	0.0004	ND	0.0002	ND	ND
Hexanes +	mol%	ND	0.0007	0.003	0.0022	0.0018	0.0037	0.001	0.0028	0.0009	0.0037	0.005
Stable Isotopes												
$\delta^{13}\text{C}$ (CH ₄)	‰	NA	-34.64	-35.6	-34.94	-33.32	-31.20	-46.02	-38.20	NA	NA	NA
δD (CH ₄)	‰	NA	-152.3	-150.3	-144.2	-141.4	-146.7	-183.6	-117.0	NA	NA	NA
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		WW #11										
		019-580										
		1/26/23	3/30/23	4/27/23	5/22/23	6/16/23	8/22/23	9/20/23	11/28/23	12/14/23	1/31/24	2/20/24
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Water Well										
Carbon Monoxide	mol%	ND	ND	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%	1.64	1.17	1.66	1.76	1.48	1.75	1.66	1.48	1.46	1.79	1.76
Oxygen	mol%	5.59	14.38	9.66	11.60	17.51	8.22	6.23	7.14	7.85	2.29	3.83
Nitrogen	mol%	79.08	80.66	76.17	72.37	73.84	75.69	80.38	84.09	83.27	84.45	83.13
Carbon Dioxide	mol%	13.23	3.75	11.99	14.23	7.13	13.80	11.3	7.24	7.39	11.42	11.27
Methane	mol%	0.456	0.0421	0.517	0.0348	0.0321	0.532	0.433	0.0336	0.0315	0.0504	0.0065
Ethane	mol%	ND	ND	0.0007	ND	0.0005	ND	ND	ND	ND	0.0006	ND
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%	0.0042	0.0008	0.0039	0.0030	0.0041	0.0031	0.0031	0.0127	0.0004	ND	0.0018
Stable Isotopes												
δ ¹³ C (CH ₄)	‰	-56.4	NA	-59.6	NA	NA	-56.6	-56.2	NA	NA	NA	NA
δD (CH ₄)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	-19.21	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		WW #13										
		019-582										
		1/26/23	3/30/23	4/27/23	5/22/23	6/16/23	8/22/23	9/20/23	11/28/23	12/14/23	1/31/24	2/20/24
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Water Well										
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	NA	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%	1.76	1.27	1.61	1.27	1.56	1.58	1.72	1.48	1.31	1.81	1.62
Oxygen	mol%	5.03	13.10	8.07	4.94	16.60	10.74	3.50	8.07	6.70	1.84	3.70
Nitrogen	mol%	82.36	80.92	80.13	88.21	73.36	74.73	79.67	83.08	84.49	84.35	84.88
Carbon Dioxide	mol%	10.83	4.66	9.64	5.26	8.46	12.76	13.9	7.32	7.46	11.93	9.59
Methane	mol%	0.0186	0.0516	0.547	0.313	0.0154	0.189	1.21	0.0474	0.0367	0.0713	0.207
Ethane	mol%	ND	ND	0.0022	0.0012	ND	ND	0.0029	ND	ND	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%	0.0018	0.0007	0.0027	0.0012	0.0023	0.0040	0.0034	0.0021	ND	ND	0.0052
Stable Isotopes												
δ ¹³ C (CH ₄)	‰	NA	NA	-62.3	NA	NA	NA	-57.9	NA	NA	NA	NA
δD (CH ₄)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	-20.51	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		WW #12									
		019-995									
		1/26/23	3/30/23	4/27/23	5/22/23	6/16/23	8/22/23	11/28/23	12/14/23	1/31/24	2/20/24
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Water Well									
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.75	1.29	1.61	1.77	1.60	1.55	1.62	1.81	1.85	1.74
Oxygen	mol%	6.3	11.66	11.53	10.41	14.54	11.52	6.19	3.26	3.02	5.49
Nitrogen	mol%	80.84	81.99	77.35	76.58	75.78	76.96	82.94	82.26	82.91	81.38
Carbon Dioxide	mol%	10.81	4.83	9.19	10.71	8.00	9.95	9.23	12.52	12.09	11.00
Methane	mol%	0.294	0.231	0.313	0.532	0.0701	0.0162	0.0129	0.151	0.124	0.385
Ethane	mol%	ND	0.0005	ND	ND	0.0016	ND	ND	ND	ND	ND
Ethylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propane	mol%	ND	ND	ND	ND	0.0005	ND	ND	ND	ND	ND
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-butane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-pentane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-pentane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexanes +	mol%	0.0019	0.0018	0.0034	0.0020	0.0032	0.0031	0.0047	ND	0.0014	0.0013
Stable Isotopes											
$\delta^{13}\text{C}$ (CH ₄)	‰	NA	-56.6	-68.7	-78.7	NA	NA	NA	NA	NA	-78.0
δD (CH ₄)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA	-20.47	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		WW #19										
		019-1055										
		1/26/23	3/30/23	4/27/23	5/18/23	6/16/23	8/22/23	9/20/23	11/28/23	12/14/23	1/31/24	2/20/24
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Water Well										
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	NA	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%	1.39	1.23	1.68	1.64	1.55	1.55	1.66	1.50	1.43	1.78	1.73
Oxygen	mol%	9.78	13.74	9.15	11.70	15.55	8.81	4.65	8.45	8.51	2.06	2.62
Nitrogen	mol%	82	80.18	78.32	76.17	75.03	79.23	77.74	82.32	80.06	83.87	82.03
Carbon Dioxide	mol%	6.53	4.67	10.43	10.09	7.82	10.04	15.52	7.64	9.71	11.85	13.20
Methane	mol%	0.3	0.180	0.411	0.396	0.049	0.369	0.423	0.0854	0.291	0.435	0.418
Ethane	mol%	0.0013	0.0007	0.0017	0.0021	0.0005	0.0016	0.0021	ND	0.0015	0.0018	0.0020
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%	0.002	0.0015	0.0034	0.0021	0.0021	0.0027	0.0036	0.004	ND	0.0006	0.0040
Stable Isotopes												
δ ¹³ C (CH ₄)	‰	-53.9	-53.5	-52.7	-21.3	NA	-53.8	-52.8	NA	-51.2	-53.3	-52.8
δD (CH ₄)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	-20.10	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler Component Units		WW #40 019-1603						Cottages Well 019-17636Z									
		3/30/23	5/18/23	6/16/23	9/19/23	12/14/23	1/31/24	4/27/23	5/18/23	6/16/23	7/17/23	8/22/23	9/20/23	11/28/23	12/14/23	1/31/24	2/20/24
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
		Water Well															
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.071	ND	ND	ND	ND
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.26	1.57	1.56	1.12	1.77	1.51	1.43	1.58	1.33	1.50	1.34	1.35	1.68	1.73	1.79	1.72
Oxygen	mol%	11.67	10.06	13.05	15.46	5.29	8.5	20.30	17.31	18.77	16.60	13.82	10.78	4.95	2.30	2.05	2.41
Nitrogen	mol%	82.50	73.32	82.13	78.53	81.98	81.95	70.51	70.87	68.11	70.87	75.96	77.25	79.57	78.59	80.52	80.79
Carbon Dioxide	mol%	3.77	4.67	3.25	4.25	10.16	7.85	7.28	7.44	9.81	9.69	7.56	9.41	12.07	15.26	13.12	13.16
Methane	mol%	0.802	10.37	0.0095	0.641	0.799	0.193	0.476	2.80	1.98	1.34	1.32	1.14	1.73	2.12	2.52	1.92
Ethane	mol%	0.0009	0.0075	ND	0.0014	ND	0.0004	ND	ND	ND	ND	ND	0.0017	ND	ND	ND	ND
Ethylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Propane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0009	ND	ND	ND	ND
Propylene	mol%	ND	ND	ND	ND	ND	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	ND	ND	ND	ND	ND
N-butane	mol%	ND	ND	ND	ND	ND	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	ND	ND	ND	ND	ND
N-pentane	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexanes +	mol%	0.0013	0.0035	0.0010	0.0012	ND	ND	0.0015	0.0014	0.0030	0.0019	0.0030	0.0026	0.0039	ND	ND	0.0034
Stable Isotopes																	
δ ¹³ C (CH ₄)	‰	-89.5	-57.53	NA	-60.3	-60.5	NA	-76.1	-94.4	-93.2	-78.3	-80.4	-80.2	-79.1	-82.0	-84.1	-79.7
δD (CH ₄)	‰	-282	-110.9	NA	-125	NA	NA	NA	-278	-265	NA	-164	NA	-159	NA	-198	-159
δ ¹³ C (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-22.5	NA	NA	NA	NA	NA

Notes:

Bolded values deteted in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample Location Sample ID Sample Date Sampler		MW-1		MW-2			SN 57788	SN 32069		SN 37320		SN 973224	SN 973365	SN 974245
		MW-1-200	MW-1-500	MW-2-200	MW-2-500	MW-2-700	6X Brine	Brine Well 2		Cavern 4	Starks Tie-In	Brine Well 18	Brine Well 21	Brine Well 22
		12/28/23	12/27/23	1/31/24	1/31/24	1/30/24	1/25/23	5/22/23*	9/18/23*	9/20/23*	10/30/23	10/30/23	10/30/23	10/30/23
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Component	Units	Monitoring Well					Brine							
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Helium	mol%	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	0.0466	0.0483	0.0560	ND	ND	ND	ND
Argon	mol%	0.359	1.90	0.25	1.65	1.48	1.91	0.0341	0.0547	0.150	1.38	1.68	1.53	1.35
Oxygen	mol%	0.51	0.99	1.23	2.91	13.50	0.74	0.21	0.64	0.88	7.65	1.95	6.80	2.09
Nitrogen	mol%	16.92	88.83	7.27	73.26	77.05	79.17	10.9	12.99	65.43	72.47	75.33	77.42	61.67
Carbon Dioxide	mol%	0.55	6.85	ND	ND	ND	5.31	3.88	2.78	0.28	13.83	12.71	8.33	10.68
Methane	mol%	81.63	1.42	91.12	22.16	7.93	11.72	84.12	82.76	32.05	4.65	8.28	5.77	23.80
Ethane	mol%	0.0323	0.0008	0.0964	0.0134	0.0325	0.462	0.339	0.300	0.173	0.0033	0.039	0.0966	0.332
Ethylene	mol%	ND	ND	ND	0.0015	0.0006	0.0193	ND	ND	ND	ND	0.0011	0.0015	0.0010
Propane	mol%	0.0002	ND	0.0214	0.0022	0.0062	0.389	0.0587	0.0558	0.198	0.0013	0.0038	0.0208	0.0468
Propylene	mol%	ND	ND	ND	ND	ND	0.0006	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	ND	ND	0.0113	0.0015	0.0006	0.0312	0.0321	0.0260	0.0719	ND	0.0011	0.0077	0.0107
N-butane	mol%	ND	ND	0.0029	ND	ND	0.0893	0.123	0.0955	0.254	ND	0.0011	0.0073	0.0083
Iso-pentane	mol%	ND	ND	0.0008	ND	ND	0.0162	0.0643	0.0548	0.1150	ND	ND	0.0039	0.0024
N-pentane	mol%	ND	ND	ND	ND	ND	0.0193	0.0837	0.0752	0.1520	ND	ND	0.0023	0.0015
Hexanes +	mol%	0.0014	ND	ND	ND	0.0006	0.12	0.105	0.117	0.191	0.0114	0.0059	0.0081	0.0073
Stable Isotopes														
$\delta^{13}\text{C}$ (CH ₄)	‰	-56.2	-68.8	-47.6	-49.3	-64.1	-38.98	-34.64	-34.49	-34.15	-68.91	-35.32	-36.62	-38.18
δD (CH ₄)	‰	-192.1	NA	-186.2	-186.4	-202.2	-171.7	-144.9	-143.8	-140.8	-183	-131.6	-132.62	-148.0
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Bolded values detected in the sample.
 ND - Not Detected
 NA - Not Analyzed (insufficient volume)
 * - Gas sample (not dissolved gas)

Table 4
Gas Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample Location		SN 209459	SN 189416		SN 246792	BCKGRD ATM
Sample ID		Fee 1012	Fee 969		Fee 1026	
Sample Date		5/2/23*	5/25/23*	8/29/23*	5/25/23*	
Sampler		ERM	ERM	ERM	ERM	
Component	Units	Oil Wells				Background
Carbon Monoxide	mol%	ND	ND	ND	ND	ND
Helium	mol%	ND	0.0089	ND	ND	ND
Hydrogen	mol%	1.40	0.02	ND	3.37	ND
Argon	mol%	0.0086	0.0630	0.0400	0.0125	0.867
Oxygen	mol%	0.015	0.13	0.12	0.24	19.41
Nitrogen	mol%	0.38	9.27	3.71	0.83	79.64
Carbon Dioxide	mol%	1.34	ND	0.012	ND	0.062
Methane	mol%	88.34	89.63	93.74	89.59	0.0230
Ethane	mol%	3.11	0.592	1.4	4.39	0.0006
Ethylene	mol%	ND	0.001	0.0003	0.0002	ND
Propane	mol%	2.78	0.202	0.662	1.17	0.0003
Propylene	mol%	ND	ND	0.0002	ND	ND
Iso-butane	mol%	0.701	0.0326	0.118	0.117	0.0001
N-butane	mol%	0.905	0.0381	0.135	0.135	0.0002
Iso-pentane	mol%	2.7	0.0072	0.0214	0.0273	ND
N-pentane	mol%	0.191	0.0053	0.0138	0.0789	0.0001
Hexanes +	mol%	0.562	0.0069	0.0319	0.0948	0.0002
Stable Isotopes						
$\delta^{13}\text{C}$ (CH ₄)	‰	-45.41	-53.33	-53.17	-47.78	NA
δD (CH ₄)	‰	-168.6	-174.4	-177.8	-179.8	NA
$\delta^{13}\text{C}$ (CO ₂)	‰	NA	NA	NA	NA	NA

Notes:

Bolded values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

* - Gas sample (not dissolved gas)

Table 5
Oil Data Summary
Sulphur Dome
Calcasieu Parish, Louisiana

Sample ID Sample Date Location Sampler	Constituent Units	Cavern 7 Oil										Cavern 4 Oil
		Westlake 7B	Westlake 7B	Westlake 7B	Westlake 7B	Westlake 7B	7B Oil	Cavern 7B	7B Oil	7B Oil	Cavern 7 Oil	Cavern 4
		5/11/22	6/14/22	8/16/22	11/2/22	1/18/23	3/30/23	5/25/23	6/16/23	10/25/23	2/7/24	5/25/23
		Shore Tank @ Boardwalk Composite	Shore Tank @ Boardwalk Composite	Cavern 7	Cavern 7	Cavern 7	Cavern 7 frac tank	Cavern 7	Cavern 7	Cavern 7	Cavern 7	Cavern 4
		Intertek	Intertek	Intertek	Intertek	Intertek	ERM	ERM	ERM	ERM	ERM	ERM
Average API Gravity	°	30.3	32.8	34.1	32.8	34.0	33.6	33.52	33.98	33.85	34.09	31.21
Sulfur	Wt %	1.48	1.3788	1.36	1.38	1.4	1.37	1.401	1.350	1.362	1.336	1.548
Vanadium	mg/kg	20.6	4.035	2.85	22.8	22.8	100	23	25	21	25	42
Nickel	mg/kg	26.2	1.401	0.986	6.11	5.88	26	6	6	5	6	9
Iron	mg/kg	<0.1	2.304	0.014	0.002	0	12	<1	1	1	<1	4
Salt	lb/1000 bbl	<1.0	0.57	5	<1.0	2.1	18	5.0	10.6	23.2	20.0	10.4
Organic Chloride	mg/kg	5.1	4.5	6.9	4.8	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Chloride	mg/kg	5.5	5.19	10.5	5.5	9.7	NA	NA	NA	NA	NA	NA
Inorganic Chloride	mg/kg	0.4	0.69	3.7	0.7	7.2	NA	NA	NA	NA	NA	NA
Specific Gravity	°	NA	NA	NA	NA	NA	0.8571	0.8575	0.8551	0.8557	0.8545	0.8696
Density	g/ml	NA	NA	NA	NA	NA	0.8562	0.8566	0.8542	0.8549	0.8537	0.8688

Notes:

< Not detected at the reporting limit shown.

Bolded values detected in sample

NA - Not Analyzed

Table 5
Oil Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

		Produced Oil													
Sample ID		Yellowrock 969	209459			185997		210185	Tank Battery	252112	109963	235998	41842	189416	
Sample Date		11/2/22	5/2/23	6/16/23	5/2/23	6/16/23	5/25/23	5/25/23	6/16/23	6/16/23	8/17/23	8/17/23	8/29/23	8/29/23	
Location		SN 189416 Well Sample	SN 209459 Well Sample	SN 209459 Well Sample	SN 185997 Well Sample	SN 185997 Well Sample	SN 210185 Well Sample	Tank Battery	SN 252112 Well Sample	SN 109963 Well Sample	SN 235998 Well Sample	SN 41842 Well Sample	SN 189416 1,250'	SN 189416 170'	
Sampler		Intertek	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	
Constituent	Units														
Average API Gravity	°	26.0	22.81	21.56	21.53	22.96	22.79	26.95	29.72	24.05	16.88	26.55	20.65	20.8	
Sulfur	Wt %	0.302	0.435	0.433	0.407	0.411	0.476	0.327	0.295	0.431	0.747	0.403	0.450	0.447	
Vanadium	mg/kg	1.23	2	2	2	2	2	1	1	2	2.3	2	<0.1	<0.1	
Nickel	mg/kg	7.04	8	9	9	10	10	6	5	8	9.6	22.2	10.9	8.3	
Iron	mg/kg	6.57	13	6	6	7	59	15	11	17	11.7	16.3	204	179	
Salt	lb/1000 bbl	363.36	1,290	9.2	1,015	138.0	9.8	32.0	74.0	54.0	9,850.0	10.6	232.0	88.0	
Organic Chloride	mg/kg	89.0	<1	<1	<1	<1	<1.0	<1.0	<1	<1	<1	<1	9.0	6.2	
Total Chloride	mg/kg	146.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Inorganic Chloride	mg/kg	57.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Specific Gravity	°	NA	0.917	0.9245	0.9246	0.9161	0.9171	0.893	0.8887	0.9096	0.9536	0.8953	0.9300	0.9291	
Density	g/ml	NA	0.9161	0.9235	0.9237	0.9152	0.9162	0.8921	0.8878	0.9087	0.9527	0.8944	0.9291	0.9282	

Notes:
 < Not detected at the reporting limit shown.
Bolded values detected in sample
 NA - Not Analyzed

Table 5
Oil Data Summary
 Sulphur Dome
 Calcasieu Parish, Louisiana

		Stock Tank	
	Sample ID	Pad Oil	Pad Oil
	Sample Date	1/18/23	6/16/23
	Location	Pad Oil	Pad Oil
	Sampler	Pump Oil	Pump Oil
		Intertek	ERM
Constituent	Units		
Average API Gravity	°	29.1	29.27
Sulfur	Wt %	1.17	1.265
Vanadium	mg/kg	19	18
Nickel	mg/kg	4.94	5
Iron	mg/kg	24.5	29
Salt	lb/1000 bbl	46.7	258.0
Organic Chloride	mg/kg	63.7	2.1
Total Chloride	mg/kg	202.9	NA
Inorganic Chloride	mg/kg	139.2	NA
Specific Gravity	°	NA	0.8801
Density	g/ml	NA	0.8793

Notes:

< Not detected at the reporting limit shown.

Bolded values detected in sample

NA - Not Analyzed



ATTACHMENT 1: LABORATORY REPORTS



Certificate of Analysis

Number: 1030-23090306-001A

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

Sep. 21, 2023

Station Name: SN 189416 (1,250')

Method: ASTM D-86

Analyzed: 09/12/2023 00:00:00 by MG

Sampled By:

Sample Of: Liquid Spot

Sample Date: 08/29/2023 09:15

Sample Conditions:

ASTM D-86 Distillation

% Recovery	°F @ 762 mm Hg
Initial Boiling Point	392
5	481
10	NR
20	NR
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	500
Volume % Recovery	8.0
Volume % Residue	92.0
Volume % Loss	0.0

Comments: Temperatures are uncorrected for barometric pressure.

Visual color is Crude.

IBP to 400°F Naphtha Cut Mass Fraction = 0.0739

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: 1030-23090306-001A

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

Sep. 21, 2023

Station Name: SN 189416 (1,250')
Sample Conditions:

Sampled By:
Sample Of: Liquid Spot
Sample Date: 08/29/2023 09:15

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	232.0	lbs/1000 bbls		ES	09/13/2023
Sulfur Content by X-ray	ASTM D-4294	0.450	wt%		EC	09/13/2023
Organic Chloride	ASTM D-4929	9.0	ppmw		FSN	09/21/2023
API Gravity @ 60.01 °F	ASTM D-5002	20.65	°		DKK	09/13/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.9300	—		DKK	09/13/2023
Density @ 60.01 °F	ASTM D-5002	0.9291	g/ml		DKK	09/13/2023

Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.
Mass Fraction = 0.0739
Dilution Factor = 19.90

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

ERM
840 W. Sam Houston Parkway
North Suite 600
Houston TX, 77024
Attn: Scott Himes

Report Date: 9/15/2023
Laboratory ID: A230914037
Sample Type: Crude Oil
Sample Date 8/29/2023
Sample ID: SN 189416 (1,250')
23090306-001B

<u>Tests Requested</u>	<u>Result</u>	<u>Units</u>	<u>Test Method</u>
Iron	204	ppm	ASTM D5708A
Nickel	10.9	ppm	
Vanadium	<0.1	ppm	

Note: Vanadium result was below the detection limit

Report Prepared by,

Jaclyn Bazaldua, Lab Technician

Reviewed and Approved by,

Dillon Bagley, Lab Supervisor

1300 Corporate Drive E
Arlington, TX 76006
817-633-9119
817-633-9111 (fax)

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Certificate of Analysis

Number: 1030-23090306-002A

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

Sep. 21, 2023

Station Name: SN 189416 (170')

Method: ASTM D-86

Analyzed: 09/12/2023 00:00:00 by MG

Sampled By:

Sample Of: Liquid Spot

Sample Date: 08/29/2023 09:30

Sample Conditions:

ASTM D-86 Distillation

% Recovery	°F @ 762 mm Hg
Initial Boiling Point	390
5	495
10	NR
20	NR
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	500
Volume % Recovery	6.0
Volume % Residue	94.0
Volume % Loss	0.0

Comments: Temperatures are uncorrected for barometric pressure.

Visual color is Crude.

IBP to 400°F Naphtha Cut Mass Fraction = 0.0521

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: 1030-23090306-002A

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

Sep. 21, 2023

Station Name: SN 189416 (170')
Sample Conditions:

Sampled By:
Sample Of: Liquid Spot
Sample Date: 08/29/2023 09:30

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	88.0	lbs/1000 bbls		ES	09/13/2023
Sulfur Content by X-ray	ASTM D-4294	0.447	wt%		EC	09/13/2023
Organic Chloride	ASTM D-4929	6.2	ppmw		FSN	09/21/2023
API Gravity @ 60.01 °F	ASTM D-5002	20.80	°		DKK	09/13/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.9291	—		DKK	09/13/2023
Density @ 60.01 °F	ASTM D-5002	0.9282	g/ml		DKK	09/13/2023

Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.
Mass Fraction = 0.0521
Dilution Factor = 19.95

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

ERM
840 W. Sam Houston Parkway
North Suite 600
Houston TX, 77024
Attn: Scott Himes

Report Date: 9/15/2023
Laboratory ID: A230914038
Sample Type: Crude Oil
Sample Date 8/29/2023
Sample ID: SN 189416 (170')
23090306-002B

<u>Tests Requested</u>	<u>Result</u>	<u>Units</u>	<u>Test Method</u>
Iron	179	ppm	ASTM D5708A
Nickel	8.3	ppm	
Vanadium	<0.1	ppm	

Note: Vanadium result was below the detection limit

Report Prepared by,

Jaclyn Bazaldua, Lab Technician

Reviewed and Approved by,

Dillon Bagley, Lab Supervisor

1300 Corporate Drive E
Arlington, TX 76006
817-633-9119
817-633-9111 (fax)

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www.spl-inc.com

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Certificate of Analysis
Number: 1030-24020292-001A

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

Feb. 16, 2024

Station Name: Cavern 7 Oil
Method: ASTM D-86
Analyzed: 02/13/2024 00:00:00 by KAR

Sampled By:
Sample Of: Liquid Spot
Sample Date: 02/07/2024 08:00
Sample Conditions:

ASTM D-86 Distillation

% Recovery	°F @ 772 mm Hg
Initial Boiling Point	132
5	194
10	248
20	324
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: Temperatures are uncorrected for barometric pressure.
Visual color is Crude.
IBP to 400°F Naphtha Cut Mass Fraction = 0.2385

Michael Staley

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: 1030-24020292-001A

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

Feb. 16, 2024

Station Name: Cavern 7 Oil
Sample Conditions:

Sampled By:
Sample Of: Liquid Spot
Sample Date: 02/07/2024 08:00

Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	20.0	lbs/1000 bbls		CMN	02/09/2024
Sulfur Content by X-ray	ASTM D-4294	1.336	wt%		EC	02/15/2024
Organic Chloride	ASTM D-4929	<1.0	ppmw		MG	02/13/2024
API Gravity @ 60.001 °F	ASTM D-5002	34.09	°		EC	02/15/2024
Specific Gravity @ 60.001/60.001 °F	ASTM D-5002	0.8545	—		EC	02/15/2024
Density @ 60.001 °F	ASTM D-5002	0.8537	g/ml		EC	02/15/2024
Nickel	ASTM D-5708A	6	ppmw		CMN	02/10/2024
Vanadium	ASTM D-5708A	25	ppmw		CMN	02/10/2024
Iron	ASTM D-5708A	<1	ppmw		CMN	02/10/2024

Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.

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.

Analysis Request Chain of Custody Record

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.



10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

December 11, 2023

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

Work Order: **HS23111864**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 5 sample(s) on Nov 29, 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,

Generated By: DAYNA.FISHER

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23111864

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23111864-01	019-580	Water		28-Nov-2023 11:00	29-Nov-2023 09:40	☐
HS23111864-02	019-1055	Water		28-Nov-2023 11:00	29-Nov-2023 09:40	☐
HS23111864-03	019-582	Water		28-Nov-2023 11:00	29-Nov-2023 09:40	☐
HS23111864-04	019-995	Water		28-Nov-2023 11:00	29-Nov-2023 09:40	☐
HS23111864-05	Cottages	Water		28-Nov-2023 11:00	29-Nov-2023 09:40	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23111864

CASE NARRATIVE

Work Order Comments

- Login notes:
collection time differs for sample 019-995 chain list 1315 label list 1310

Work Order Comments

- The analyses for MA VPH were subcontracted to Pace Analytical in Rosa, LA. Final report attached.
- 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: 204144**

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

GCMS Volatiles by Method SW8260**Batch ID: R452930**

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

Metals by Method SW7470A**Batch ID: 204383**

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

Metals by Method SW6020A**Batch ID: 204205****Sample ID: HS23111907-02MS**

- MS and MSD are for an unrelated sample

WetChemistry by Method SM4500 S2-F**Batch ID: R453110**

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

WetChemistry by Method M2540C**Batch ID: R453161**

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

WetChemistry by Method E376.1**Batch ID: R453172**

- 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: HS23111864

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R453103

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

WetChemistry by Method SM4500H+ B

Batch ID: R453059

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

WetChemistry by Method SM2320B

Batch ID: R453058

- 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: 019-580
 Collection Date: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-01
 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	30-Nov-2023 14:03
Ethylbenzene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:03
m,p-Xylene	U		0.50	2.0	ug/L	1	30-Nov-2023 14:03
o-Xylene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:03
Toluene	U		0.20	1.0	ug/L	1	30-Nov-2023 14:03
Xylenes, Total	U		0.30	1.0	ug/L	1	30-Nov-2023 14:03
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>105</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:03</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.8</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:03</i>
<i>Surr: Dibromofluoromethane</i>	<i>100</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:03</i>
<i>Surr: Toluene-d8</i>	<i>101</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:03</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 30-Nov-2023	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 17:43
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	04-Dec-2023 17:43
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	04-Dec-2023 17:43
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 17:43
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	04-Dec-2023 17:43
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	04-Dec-2023 17:43
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	04-Dec-2023 17:43
<i>Surr: 1-Chlorooctadecane</i>	<i>59.1</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 17:43</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>83.5</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 17:43</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>85.1</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 17:43</i>
<i>Surr: o-Terphenyl</i>	<i>61.0</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 17:43</i>

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 01-Dec-2023		Analyst: MSC	
Arsenic	U		0.000400	0.00200	mg/L	1	05-Dec-2023 13:39
Barium	0.196		0.00190	0.00400	mg/L	1	05-Dec-2023 13:39
Cadmium	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:39
Calcium	21.9		0.0340	0.500	mg/L	1	05-Dec-2023 13:39
Chromium	U		0.000400	0.00400	mg/L	1	05-Dec-2023 13:39
Iron	3.53		0.0120	0.200	mg/L	1	05-Dec-2023 13:39
Lead	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:39
Magnesium	7.31		0.0100	0.200	mg/L	1	05-Dec-2023 13:39
Manganese	0.360		0.000700	0.00500	mg/L	1	05-Dec-2023 13:39
Nickel	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:39
Potassium	2.42		0.0180	0.200	mg/L	1	05-Dec-2023 13:39
Selenium	U		0.00110	0.00200	mg/L	1	05-Dec-2023 13:39
Silver	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:39
Sodium	24.3		0.0140	0.200	mg/L	1	05-Dec-2023 13:39
Strontium	0.191		0.000200	0.00500	mg/L	1	05-Dec-2023 13:39
Vanadium	0.00157	J	0.000600	0.00500	mg/L	1	05-Dec-2023 13:39
Zinc	0.00940		0.00200	0.00400	mg/L	1	05-Dec-2023 13:39
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 06-Dec-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	06-Dec-2023 12:44
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	02-Dec-2023 12:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	210		5.00	10.0	mg/L	1	01-Dec-2023 14:05
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	112		3.50	5.00	mg/L	1	01-Dec-2023 13:07
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	01-Dec-2023 13:07
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.70	2.00	mg/L	1	02-Dec-2023 13:01
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.16	H	0.100	0.100	pH Units	1	01-Dec-2023 13:07
Temp Deg C @pH	19.8	H	0	0	°C	1	01-Dec-2023 13:07
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	01-Dec-2023 07:50
Chloride	23.9		0.200	0.500	mg/L	1	01-Dec-2023 07:50
Sulfate	4.33		0.200	0.500	mg/L	1	01-Dec-2023 07:50
SUBCONTRACT ANALYSIS - MA VPH		Method:SUBCONTRACT				Analyst: PAN	
Subcontracted Analyses	See Attached		0		NA	1	11-Dec-2023 16:19

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-02
 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	30-Nov-2023 14:24
Ethylbenzene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:24
m,p-Xylene	U		0.50	2.0	ug/L	1	30-Nov-2023 14:24
o-Xylene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:24
Toluene	U		0.20	1.0	ug/L	1	30-Nov-2023 14:24
Xylenes, Total	U		0.30	1.0	ug/L	1	30-Nov-2023 14:24
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>105</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:24</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.8</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:24</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:24</i>
<i>Surr: Toluene-d8</i>	<i>101</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:24</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 30-Nov-2023	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 18:12
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	04-Dec-2023 18:12
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	04-Dec-2023 18:12
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 18:12
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	04-Dec-2023 18:12
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	04-Dec-2023 18:12
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	04-Dec-2023 18:12
<i>Surr: 1-Chlorooctadecane</i>	<i>54.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:12</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>95.7</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:12</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>96.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:12</i>
<i>Surr: o-Terphenyl</i>	<i>60.6</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:12</i>

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 01-Dec-2023		Analyst: MSC	
Arsenic	0.000616	J	0.000400	0.00200	mg/L	1	05-Dec-2023 13:44
Barium	0.241		0.00190	0.00400	mg/L	1	05-Dec-2023 13:44
Cadmium	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:44
Calcium	22.3		0.0340	0.500	mg/L	1	05-Dec-2023 13:44
Chromium	0.00113	J	0.000400	0.00400	mg/L	1	05-Dec-2023 13:44
Iron	7.61		0.0120	0.200	mg/L	1	05-Dec-2023 13:44
Lead	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:44
Magnesium	7.24		0.0100	0.200	mg/L	1	05-Dec-2023 13:44
Manganese	0.339		0.000700	0.00500	mg/L	1	05-Dec-2023 13:44
Nickel	0.00146	J	0.000600	0.00200	mg/L	1	05-Dec-2023 13:44
Potassium	2.31		0.0180	0.200	mg/L	1	05-Dec-2023 13:44
Selenium	U		0.00110	0.00200	mg/L	1	05-Dec-2023 13:44
Silver	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:44
Sodium	23.9		0.0140	0.200	mg/L	1	05-Dec-2023 13:44
Strontium	0.196		0.000200	0.00500	mg/L	1	05-Dec-2023 13:44
Vanadium	0.00209	J	0.000600	0.00500	mg/L	1	05-Dec-2023 13:44
Zinc	0.0275		0.00200	0.00400	mg/L	1	05-Dec-2023 13:44
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 06-Dec-2023		Analyst: JS	
Mercury	0.0000480	J	0.0000300	0.000200	mg/L	1	06-Dec-2023 12:49
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	02-Dec-2023 12:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	180		5.00	10.0	mg/L	1	01-Dec-2023 14:05
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	113		3.50	5.00	mg/L	1	01-Dec-2023 13:12
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	01-Dec-2023 13:12
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.70	2.00	mg/L	1	02-Dec-2023 13:01
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.16	H	0.100	0.100	pH Units	1	01-Dec-2023 13:12
Temp Deg C @pH	20.3	H	0	0	°C	1	01-Dec-2023 13:12
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0700	J	0.0300	0.100	mg/L	1	01-Dec-2023 08:32
Chloride	24.8		0.200	0.500	mg/L	1	01-Dec-2023 08:32
Sulfate	4.02		0.200	0.500	mg/L	1	01-Dec-2023 08:32
SUBCONTRACT ANALYSIS - MA VPH		Method:SUBCONTRACT				Analyst: PAN	
Subcontracted Analyses	See Attached		0		NA	1	11-Dec-2023 16:19

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-03
 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	30-Nov-2023 14:44
Ethylbenzene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:44
m,p-Xylene	U		0.50	2.0	ug/L	1	30-Nov-2023 14:44
o-Xylene	U		0.30	1.0	ug/L	1	30-Nov-2023 14:44
Toluene	U		0.20	1.0	ug/L	1	30-Nov-2023 14:44
Xylenes, Total	U		0.30	1.0	ug/L	1	30-Nov-2023 14:44
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>103</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:44</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>99.0</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:44</i>
<i>Surr: Dibromofluoromethane</i>	<i>100</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:44</i>
<i>Surr: Toluene-d8</i>	<i>102</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 14:44</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 30-Nov-2023	Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 18:41
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	04-Dec-2023 18:41
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	04-Dec-2023 18:41
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 18:41
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	04-Dec-2023 18:41
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	04-Dec-2023 18:41
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	04-Dec-2023 18:41
<i>Surr: 1-Chlorooctadecane</i>	<i>52.0</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:41</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>91.0</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:41</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>93.0</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:41</i>
<i>Surr: o-Terphenyl</i>	<i>62.6</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 18:41</i>

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 01-Dec-2023		Analyst: MSC	
Arsenic	U		0.000400	0.00200	mg/L	1	05-Dec-2023 13:46
Barium	0.188		0.00190	0.00400	mg/L	1	05-Dec-2023 13:46
Cadmium	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:46
Calcium	22.3		0.0340	0.500	mg/L	1	05-Dec-2023 13:46
Chromium	0.00105	J	0.000400	0.00400	mg/L	1	05-Dec-2023 13:46
Iron	2.55		0.0120	0.200	mg/L	1	05-Dec-2023 13:46
Lead	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:46
Magnesium	7.47		0.0100	0.200	mg/L	1	05-Dec-2023 13:46
Manganese	0.423		0.000700	0.00500	mg/L	1	05-Dec-2023 13:46
Nickel	0.000831	J	0.000600	0.00200	mg/L	1	05-Dec-2023 13:46
Potassium	2.60		0.0180	0.200	mg/L	1	05-Dec-2023 13:46
Selenium	U		0.00110	0.00200	mg/L	1	05-Dec-2023 13:46
Silver	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:46
Sodium	24.8		0.0140	0.200	mg/L	1	05-Dec-2023 13:46
Strontium	0.195		0.000200	0.00500	mg/L	1	05-Dec-2023 13:46
Vanadium	0.00222	J	0.000600	0.00500	mg/L	1	05-Dec-2023 13:46
Zinc	0.00754		0.00200	0.00400	mg/L	1	05-Dec-2023 13:46
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 06-Dec-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	06-Dec-2023 12:51
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	02-Dec-2023 12:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	184		5.00	10.0	mg/L	1	01-Dec-2023 14:05
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	112		3.50	5.00	mg/L	1	01-Dec-2023 13:18
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	01-Dec-2023 13:18
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.70	2.00	mg/L	1	02-Dec-2023 13:01
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.24	H	0.100	0.100	pH Units	1	01-Dec-2023 13:18
Temp Deg C @pH	19.7	H	0	0	°C	1	01-Dec-2023 13:18
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	01-Dec-2023 08:38
Chloride	23.8		0.200	0.500	mg/L	1	01-Dec-2023 08:38
Sulfate	4.18		0.200	0.500	mg/L	1	01-Dec-2023 08:38
SUBCONTRACT ANALYSIS - MA VPH		Method:SUBCONTRACT				Analyst: PAN	
Subcontracted Analyses	See Attached		0		NA	1	11-Dec-2023 16:19

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-04
 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	30-Nov-2023 15:05
Ethylbenzene	U		0.30	1.0	ug/L	1	30-Nov-2023 15:05
m,p-Xylene	U		0.50	2.0	ug/L	1	30-Nov-2023 15:05
o-Xylene	U		0.30	1.0	ug/L	1	30-Nov-2023 15:05
Toluene	U		0.20	1.0	ug/L	1	30-Nov-2023 15:05
Xylenes, Total	U		0.30	1.0	ug/L	1	30-Nov-2023 15:05
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>103</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:05</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.4</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:05</i>
<i>Surr: Dibromofluoromethane</i>	<i>101</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:05</i>
<i>Surr: Toluene-d8</i>	<i>100</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:05</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 30-Nov-2023	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 19:09
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	04-Dec-2023 19:09
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	04-Dec-2023 19:09
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 19:09
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	04-Dec-2023 19:09
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	04-Dec-2023 19:09
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	04-Dec-2023 19:09
<i>Surr: 1-Chlorooctadecane</i>	<i>54.7</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:09</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>92.2</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:09</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>89.3</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:09</i>
<i>Surr: o-Terphenyl</i>	<i>63.6</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:09</i>

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: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 01-Dec-2023		Analyst: MSC	
Arsenic	0.000555	J	0.000400	0.00200	mg/L	1	05-Dec-2023 13:49
Barium	0.197		0.00190	0.00400	mg/L	1	05-Dec-2023 13:49
Cadmium	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:49
Calcium	22.8		0.0340	0.500	mg/L	1	05-Dec-2023 13:49
Chromium	U		0.000400	0.00400	mg/L	1	05-Dec-2023 13:49
Iron	3.42		0.0120	0.200	mg/L	1	05-Dec-2023 13:49
Lead	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:49
Magnesium	7.46		0.0100	0.200	mg/L	1	05-Dec-2023 13:49
Manganese	0.350		0.000700	0.00500	mg/L	1	05-Dec-2023 13:49
Nickel	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:49
Potassium	2.36		0.0180	0.200	mg/L	1	05-Dec-2023 13:49
Selenium	U		0.00110	0.00200	mg/L	1	05-Dec-2023 13:49
Silver	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:49
Sodium	24.1		0.0140	0.200	mg/L	1	05-Dec-2023 13:49
Strontium	0.197		0.000200	0.00500	mg/L	1	05-Dec-2023 13:49
Vanadium	0.00228	J	0.000600	0.00500	mg/L	1	05-Dec-2023 13:49
Zinc	0.00385	J	0.00200	0.00400	mg/L	1	05-Dec-2023 13:49
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 06-Dec-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	06-Dec-2023 12:53
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	02-Dec-2023 12:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	182		5.00	10.0	mg/L	1	01-Dec-2023 14:05
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO3)	116		3.50	5.00	mg/L	1	01-Dec-2023 13:23
Alkalinity, Carbonate (As CaCO3)	U		3.50	5.00	mg/L	1	01-Dec-2023 13:23
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.70	2.00	mg/L	1	02-Dec-2023 13:01
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.18	H	0.100	0.100	pH Units	1	01-Dec-2023 13:23
Temp Deg C @pH	19.8	H	0	0	°C	1	01-Dec-2023 13:23
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	01-Dec-2023 08:44
Chloride	24.8		0.200	0.500	mg/L	1	01-Dec-2023 08:44
Sulfate	4.38		0.200	0.500	mg/L	1	01-Dec-2023 08:44
SUBCONTRACT ANALYSIS - MA VPH		Method:SUBCONTRACT				Analyst: PAN	
Subcontracted Analyses	See Attached		0		NA	1	11-Dec-2023 16:19

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-05
 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	30-Nov-2023 15:26
Ethylbenzene	U		0.30	1.0	ug/L	1	30-Nov-2023 15:26
m,p-Xylene	U		0.50	2.0	ug/L	1	30-Nov-2023 15:26
o-Xylene	U		0.30	1.0	ug/L	1	30-Nov-2023 15:26
Toluene	U		0.20	1.0	ug/L	1	30-Nov-2023 15:26
Xylenes, Total	U		0.30	1.0	ug/L	1	30-Nov-2023 15:26
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>104</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:26</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>97.7</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:26</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:26</i>
<i>Surr: Toluene-d8</i>	<i>100</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>30-Nov-2023 15:26</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 30-Nov-2023	Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 19:38
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	04-Dec-2023 19:38
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	04-Dec-2023 19:38
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	04-Dec-2023 19:38
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	04-Dec-2023 19:38
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	04-Dec-2023 19:38
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	04-Dec-2023 19:38
<i>Surr: 1-Chlorooctadecane</i>	<i>59.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:38</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>86.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:38</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>88.1</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:38</i>
<i>Surr: o-Terphenyl</i>	<i>64.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>04-Dec-2023 19:38</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 28-Nov-2023 11:00

ANALYTICAL REPORT

WorkOrder:HS23111864
 Lab ID:HS23111864-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 01-Dec-2023		Analyst: MSC	
Arsenic	U		0.000400	0.00200	mg/L	1	05-Dec-2023 13:51
Barium	0.177		0.00190	0.00400	mg/L	1	05-Dec-2023 13:51
Cadmium	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:51
Calcium	13.5		0.0340	0.500	mg/L	1	05-Dec-2023 13:51
Chromium	U		0.000400	0.00400	mg/L	1	05-Dec-2023 13:51
Iron	3.49		0.0120	0.200	mg/L	1	05-Dec-2023 13:51
Lead	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:51
Magnesium	3.98		0.0100	0.200	mg/L	1	05-Dec-2023 13:51
Manganese	0.185		0.000700	0.00500	mg/L	1	05-Dec-2023 13:51
Nickel	U		0.000600	0.00200	mg/L	1	05-Dec-2023 13:51
Potassium	2.11		0.0180	0.200	mg/L	1	05-Dec-2023 13:51
Selenium	U		0.00110	0.00200	mg/L	1	05-Dec-2023 13:51
Silver	U		0.000200	0.00200	mg/L	1	05-Dec-2023 13:51
Sodium	75.2		0.0140	0.200	mg/L	1	05-Dec-2023 13:51
Strontium	0.156		0.000200	0.00500	mg/L	1	05-Dec-2023 13:51
Vanadium	0.00204	J	0.000600	0.00500	mg/L	1	05-Dec-2023 13:51
Zinc	0.170		0.00200	0.00400	mg/L	1	05-Dec-2023 13:51
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 06-Dec-2023		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	06-Dec-2023 13:01
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	02-Dec-2023 12:33
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	268		5.00	10.0	mg/L	1	01-Dec-2023 14:05
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	142		3.50	5.00	mg/L	1	01-Dec-2023 13:29
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	01-Dec-2023 13:29
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.70	2.00	mg/L	1	02-Dec-2023 13:01
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.29	H	0.100	0.100	pH Units	1	01-Dec-2023 13:29
Temp Deg C @pH	20.0	H	0	0	°C	1	01-Dec-2023 13:29
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.126		0.0300	0.100	mg/L	1	01-Dec-2023 08:50
Chloride	57.4		0.200	0.500	mg/L	1	01-Dec-2023 08:50
Sulfate	0.297	J	0.200	0.500	mg/L	1	01-Dec-2023 08:50
SUBCONTRACT ANALYSIS - MA VPH		Method:SUBCONTRACT				Analyst: PAN	
Subcontracted Analyses	See Attached		0		NA	1	11-Dec-2023 16:19

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

Weight / Prep Log

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

Batch ID: 204144	Start Date: 30 Nov 2023 12:22	End Date: 30 Nov 2023 12:22
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23111864-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23111864-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23111864-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23111864-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23111864-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 204205	Start Date: 01 Dec 2023 09:30	End Date: 01 Dec 2023 09:30
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23111864-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 204383	Start Date: 06 Dec 2023 07:00	End Date: 06 Dec 2023 07:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23111864-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23111864-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 204144 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 17:43	1
HS23111864-01	019-580	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 17:43	1
HS23111864-02	019-1055	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 18:12	1
HS23111864-02	019-1055	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 18:12	1
HS23111864-03	019-582	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 18:41	1
HS23111864-03	019-582	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 18:41	1
HS23111864-04	019-995	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 19:09	1
HS23111864-04	019-995	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 19:09	1
HS23111864-05	Cottages	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 19:38	1
HS23111864-05	Cottages	28 Nov 2023 11:00		30 Nov 2023 12:22	04 Dec 2023 19:38	1
Batch ID: 204205 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00		01 Dec 2023 09:30	05 Dec 2023 13:39	1
HS23111864-02	019-1055	28 Nov 2023 11:00		01 Dec 2023 09:30	05 Dec 2023 13:44	1
HS23111864-03	019-582	28 Nov 2023 11:00		01 Dec 2023 09:30	05 Dec 2023 13:46	1
HS23111864-04	019-995	28 Nov 2023 11:00		01 Dec 2023 09:30	05 Dec 2023 13:49	1
HS23111864-05	Cottages	28 Nov 2023 11:00		01 Dec 2023 09:30	05 Dec 2023 13:51	1
Batch ID: 204383 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00		06 Dec 2023 07:00	06 Dec 2023 12:44	1
HS23111864-02	019-1055	28 Nov 2023 11:00		06 Dec 2023 07:00	06 Dec 2023 12:49	1
HS23111864-03	019-582	28 Nov 2023 11:00		06 Dec 2023 07:00	06 Dec 2023 12:51	1
HS23111864-04	019-995	28 Nov 2023 11:00		06 Dec 2023 07:00	06 Dec 2023 12:53	1
HS23111864-05	Cottages	28 Nov 2023 11:00		06 Dec 2023 07:00	06 Dec 2023 13:01	1
Batch ID: R452930 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			30 Nov 2023 14:03	1
HS23111864-02	019-1055	28 Nov 2023 11:00			30 Nov 2023 14:24	1
HS23111864-03	019-582	28 Nov 2023 11:00			30 Nov 2023 14:44	1
HS23111864-04	019-995	28 Nov 2023 11:00			30 Nov 2023 15:05	1
HS23111864-05	Cottages	28 Nov 2023 11:00			30 Nov 2023 15:26	1
Batch ID: R453058 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			01 Dec 2023 13:07	1
HS23111864-02	019-1055	28 Nov 2023 11:00			01 Dec 2023 13:12	1
HS23111864-03	019-582	28 Nov 2023 11:00			01 Dec 2023 13:18	1
HS23111864-04	019-995	28 Nov 2023 11:00			01 Dec 2023 13:23	1
HS23111864-05	Cottages	28 Nov 2023 11:00			01 Dec 2023 13:29	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R453059 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			01 Dec 2023 13:07	1
HS23111864-02	019-1055	28 Nov 2023 11:00			01 Dec 2023 13:12	1
HS23111864-03	019-582	28 Nov 2023 11:00			01 Dec 2023 13:18	1
HS23111864-04	019-995	28 Nov 2023 11:00			01 Dec 2023 13:23	1
HS23111864-05	Cottages	28 Nov 2023 11:00			01 Dec 2023 13:29	1
Batch ID: R453103 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			01 Dec 2023 07:50	1
HS23111864-02	019-1055	28 Nov 2023 11:00			01 Dec 2023 08:32	1
HS23111864-03	019-582	28 Nov 2023 11:00			01 Dec 2023 08:38	1
HS23111864-04	019-995	28 Nov 2023 11:00			01 Dec 2023 08:44	1
HS23111864-05	Cottages	28 Nov 2023 11:00			01 Dec 2023 08:50	1
Batch ID: R453110 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			02 Dec 2023 13:01	1
HS23111864-02	019-1055	28 Nov 2023 11:00			02 Dec 2023 13:01	1
HS23111864-03	019-582	28 Nov 2023 11:00			02 Dec 2023 13:01	1
HS23111864-04	019-995	28 Nov 2023 11:00			02 Dec 2023 13:01	1
HS23111864-05	Cottages	28 Nov 2023 11:00			02 Dec 2023 13:01	1
Batch ID: R453161 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			01 Dec 2023 14:05	1
HS23111864-02	019-1055	28 Nov 2023 11:00			01 Dec 2023 14:05	1
HS23111864-03	019-582	28 Nov 2023 11:00			01 Dec 2023 14:05	1
HS23111864-04	019-995	28 Nov 2023 11:00			01 Dec 2023 14:05	1
HS23111864-05	Cottages	28 Nov 2023 11:00			01 Dec 2023 14:05	1
Batch ID: R453172 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			02 Dec 2023 12:33	1
HS23111864-02	019-1055	28 Nov 2023 11:00			02 Dec 2023 12:33	1
HS23111864-03	019-582	28 Nov 2023 11:00			02 Dec 2023 12:33	1
HS23111864-04	019-995	28 Nov 2023 11:00			02 Dec 2023 12:33	1
HS23111864-05	Cottages	28 Nov 2023 11:00			02 Dec 2023 12:33	1
Batch ID: R453810 (0)		Test Name : SUBCONTRACT ANALYSIS - MA VPH			Matrix: Water	
HS23111864-01	019-580	28 Nov 2023 11:00			11 Dec 2023 16:19	1
HS23111864-02	019-1055	28 Nov 2023 11:00			11 Dec 2023 16:19	1
HS23111864-03	019-582	28 Nov 2023 11:00			11 Dec 2023 16:19	1
HS23111864-04	019-995	28 Nov 2023 11:00			11 Dec 2023 16:19	1
HS23111864-05	Cottages	28 Nov 2023 11:00			11 Dec 2023 16:19	1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204144 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-204144	Units: mg/L		Analysis Date: 04-Dec-2023 15:49					
Client ID:	Run ID: FID23_453266		SeqNo: 7707346		PrepDate: 30-Nov-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 0.02271 0 0.04 0 56.8 40 - 140

MBLK	Sample ID: MBLK-204144	Units: mg/L		Analysis Date: 04-Dec-2023 15:49					
Client ID:	Run ID: FID-22_453268		SeqNo: 7707378		PrepDate: 30-Nov-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 0.0371 0 0.04 0 92.8 40 - 140

Surr: 2-Fluorobiphenyl 0.03727 0 0.04 0 93.2 40 - 140

Surr: o-Terphenyl 0.02642 0 0.04 0 66.1 40 - 140

LCS	Sample ID: LCS-204144	Units: mg/L		Analysis Date: 04-Dec-2023 16:18					
Client ID:	Run ID: FID23_453266		SeqNo: 7707347		PrepDate: 30-Nov-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aliphatics >C10 - C12 0.04812 0.00100 0.05 0 96.2 40 - 140

Aliphatics >C12 - C16 0.1017 0.00200 0.1 0 102 40 - 140

Aliphatics >C16 - C35 0.4388 0.00800 0.4 0 110 40 - 140

Surr: 1-Chlorooctadecane 0.02484 0 0.04 0 62.1 40 - 140

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204144 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-204144	Units: mg/L		Analysis Date: 04-Dec-2023 16:18				
Client ID:		Run ID: FID-22_453268		SeqNo: 7707379	PrepDate: 30-Nov-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	0.05327	0.00100	0.05	0	107	40 - 140			
Aromatics >C12 - C16	0.1987	0.00400	0.2	0	99.3	40 - 140			
Aromatics >C16 - C21	0.1715	0.00300	0.15	0	114	40 - 140			
Aromatics >C21 - C35	0.4839	0.00900	0.45	0	108	40 - 140			
Surr: 2-Bromonaphthalene	0.04018	0	0.04	0	100	40 - 140			
Surr: 2-Fluorobiphenyl	0.04087	0	0.04	0	102	40 - 140			
Surr: o-Terphenyl	0.03079	0	0.04	0	77.0	40 - 140			

LCSD		Sample ID: LCSD-204144	Units: mg/L		Analysis Date: 04-Dec-2023 16:46				
Client ID:		Run ID: FID23_453266		SeqNo: 7707348	PrepDate: 30-Nov-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	0.04811	0.00100	0.05	0	96.2	40 - 140	0.04812	0.0266	50
Aliphatics >C12 - C16	0.1011	0.00200	0.1	0	101	40 - 140	0.1017	0.543	50
Aliphatics >C16 - C35	0.4384	0.00800	0.4	0	110	40 - 140	0.4388	0.089	50
Surr: 1-Chlorooctadecane	0.02487	0	0.04	0	62.2	40 - 140	0.02484	0.107	50

LCSD		Sample ID: LCSD-204144	Units: mg/L		Analysis Date: 04-Dec-2023 16:46				
Client ID:		Run ID: FID-22_453268		SeqNo: 7707380	PrepDate: 30-Nov-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	0.05235	0.00100	0.05	0	105	40 - 140	0.05327	1.74	50
Aromatics >C12 - C16	0.1994	0.00400	0.2	0	99.7	40 - 140	0.1987	0.377	50
Aromatics >C16 - C21	0.1724	0.00300	0.15	0	115	40 - 140	0.1715	0.511	50
Aromatics >C21 - C35	0.4865	0.00900	0.45	0	108	40 - 140	0.4839	0.537	50
Surr: 2-Bromonaphthalene	0.04028	0	0.04	0	101	40 - 140	0.04018	0.249	50
Surr: 2-Fluorobiphenyl	0.041	0	0.04	0	102	40 - 140	0.04087	0.304	50
Surr: o-Terphenyl	0.03085	0	0.04	0	77.1	40 - 140	0.03079	0.207	50

The following samples were analyzed in this batch:				HS23111864-01	HS23111864-02	HS23111864-03	HS23111864-04
				HS23111864-05			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204205 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-204205	Units: mg/L		Analysis Date: 04-Dec-2023 11:27					
Client ID:	Run ID: ICPMS07_453160		SeqNo: 7704945		PrepDate: 01-Dec-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							
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	0.0216	0.200							J
Strontium	U	0.00500							
Vanadium	0.000843	0.00500							J
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204205 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS		Sample ID: LCS-204205		Units: mg/L		Analysis Date: 04-Dec-2023 11:34			
Client ID:		Run ID: ICPMS07_453160		SeqNo: 7704948		PrepDate: 01-Dec-2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04978	0.00200	0.05	0	99.6	80 - 120			
Barium	0.0495	0.00400	0.05	0	99.0	80 - 120			
Cadmium	0.04951	0.00200	0.05	0	99.0	80 - 120			
Calcium	4.94	0.500	5	0	98.8	80 - 120			
Chromium	0.04798	0.00400	0.05	0	96.0	80 - 120			
Iron	4.859	0.200	5	0	97.2	80 - 120			
Lead	0.0486	0.00200	0.05	0	97.2	80 - 120			
Magnesium	5.009	0.200	5	0	100	80 - 120			
Manganese	0.0496	0.00500	0.05	0	99.2	80 - 120			
Nickel	0.04898	0.00200	0.05	0	98.0	80 - 120			
Potassium	5.028	0.200	5	0	101	80 - 120			
Selenium	0.04777	0.00200	0.05	0	95.5	80 - 120			
Silver	0.0484	0.00200	0.05	0	96.8	80 - 120			
Sodium	4.931	0.200	5	0	98.6	80 - 120			
Strontium	0.09802	0.00500	0.1	0	98.0	80 - 120			
Vanadium	0.04885	0.00500	0.05	0	97.7	80 - 120			
Zinc	0.05046	0.00400	0.05	0	101	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204205 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS23111907-02MS		Units: mg/L		Analysis Date: 05-Dec-2023 13:14			
Client ID:		Run ID: ICPMS07_453238		SeqNo: 7707685		PrepDate: 01-Dec-2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.04763	0.00200	0.05	0.000349	94.6	80 - 120			
Barium	1.847	0.00400	0.05	1.842	11.0	80 - 120			SEO
Cadmium	0.04689	0.00200	0.05	0.000061	93.7	80 - 120			
Calcium	222.5	0.500	5	228.1	-112	80 - 120			SEO
Chromium	0.04719	0.00400	0.05	0.000175	94.0	80 - 120			
Iron	6.285	0.200	5	1.655	92.6	80 - 120			
Lead	0.04641	0.00200	0.05	0.000057	92.7	80 - 120			
Magnesium	59.37	0.200	5	57.18	43.9	80 - 120			SO
Manganese	1.415	0.00500	0.05	1.441	-51.7	80 - 120			SO
Nickel	0.06122	0.00200	0.05	0.01628	89.9	80 - 120			
Potassium	6.529	0.200	5	1.613	98.3	80 - 120			
Selenium	0.04611	0.00200	0.05	-0.001453	95.1	80 - 120			
Silver	0.04324	0.00200	0.05	0.000005	86.5	80 - 120			
Sodium	120.4	0.200	5	120.2	3.95	80 - 120			SO
Strontium	1.107	0.00500	0.1	1.043	64.0	80 - 120			SO
Vanadium	0.04827	0.00500	0.05	0.000442	95.7	80 - 120			
Zinc	0.0521	0.00400	0.05	0.006098	92.0	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204205 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS23111907-02MSD		Units: mg/L		Analysis Date: 05-Dec-2023 13:16			
Client ID:		Run ID: ICPMS07_453238		SeqNo: 7707686		PrepDate: 01-Dec-2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.05004	0.00200	0.05	0.000349	99.4	80 - 120	0.04763	4.94	20
Barium	1.86	0.00400	0.05	1.842	37.2	80 - 120	1.847	0.705	20 SEO
Cadmium	0.04711	0.00200	0.05	0.000061	94.1	80 - 120	0.04689	0.457	20
Calcium	232.2	0.500	5	228.1	82.7	80 - 120	222.5	4.27	20 EO
Chromium	0.04968	0.00400	0.05	0.000175	99.0	80 - 120	0.04719	5.12	20
Iron	6.564	0.200	5	1.655	98.2	80 - 120	6.285	4.34	20
Lead	0.04276	0.00200	0.05	0.000057	85.4	80 - 120	0.04641	8.19	20
Magnesium	62.76	0.200	5	57.18	112	80 - 120	59.37	5.54	20 O
Manganese	1.513	0.00500	0.05	1.441	144	80 - 120	1.415	6.69	20 SO
Nickel	0.0639	0.00200	0.05	0.01628	95.2	80 - 120	0.06122	4.28	20
Potassium	6.807	0.200	5	1.613	104	80 - 120	6.529	4.16	20
Selenium	0.04723	0.00200	0.05	-0.001453	97.4	80 - 120	0.04611	2.42	20
Silver	0.04376	0.00200	0.05	0.000005	87.5	80 - 120	0.04324	1.18	20
Sodium	126.5	0.200	5	120.2	126	80 - 120	120.4	4.93	20 SO
Strontium	1.112	0.00500	0.1	1.043	68.9	80 - 120	1.107	0.444	20 SO
Vanadium	0.05109	0.00500	0.05	0.000442	101	80 - 120	0.04827	5.68	20
Zinc	0.05415	0.00400	0.05	0.006098	96.1	80 - 120	0.0521	3.86	20
PDS		Sample ID: HS23111907-02PDS		Units: mg/L		Analysis Date: 05-Dec-2023 13:18			
Client ID:		Run ID: ICPMS07_453238		SeqNo: 7707687		PrepDate: 01-Dec-2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.09582	0.00200	0.1	0.000349	95.5	75 - 125			
Cadmium	0.09153	0.00200	0.1	0.000061	91.5	75 - 125			
Chromium	0.09438	0.00400	0.1	0.000175	94.2	75 - 125			
Iron	11.12	0.200	10	1.655	94.6	75 - 125			
Lead	0.08865	0.00200	0.1	0.000057	88.6	75 - 125			
Magnesium	65.06	0.200	10	57.18	78.8	75 - 125			O
Nickel	0.109	0.00200	0.1	0.01628	92.7	75 - 125			
Potassium	11.29	0.200	10	1.613	96.8	75 - 125			
Selenium	0.092	0.00200	0.1	-0.001453	93.5	75 - 125			
Silver	0.08088	0.00200	0.1	0.000005	80.9	75 - 125			
Vanadium	0.09711	0.00500	0.1	0.000442	96.7	75 - 125			
Zinc	0.1001	0.00400	0.1	0.006098	94.0	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204205 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS	Sample ID: HS23111907-02PDS	Units: mg/L		Analysis Date: 05-Dec-2023 14:27					
Client ID:	Run ID: ICPMS07_453238	SeqNo: 7707861		PrepDate: 01-Dec-2023		DF: 20			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Barium	3.569	0.0800	2	1.689	94.0	75 - 125			
Calcium	413	10.0	200	222.2	95.4	75 - 125			
Manganese	3.354	0.100	2	1.426	96.4	75 - 125			
Sodium	328.1	4.00	200	127.9	100	75 - 125			
Strontium	2.97	0.100	2	0.9793	99.5	75 - 125			

SD	Sample ID: HS23111907-02SD	Units: mg/L		Analysis Date: 05-Dec-2023 14:20					
Client ID:	Run ID: ICPMS07_453238	SeqNo: 7707858		PrepDate: 01-Dec-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	0	10
Cadmium	U	0.0100					0	0	10
Chromium	U	0.0200					0	0	10
Iron	1.63	1.00					1.655	1.48	10
Lead	U	0.0100					0	0	10
Magnesium	58.45	1.00					57.18	2.23	10
Nickel	0.01622	0.0100					0.01628	0.375	10
Potassium	1.569	1.00					1.613	2.74	10
Selenium	U	0.0100					0	0	10
Silver	U	0.0100					0	0	10
Vanadium	U	0.0250					0	0	10
Zinc	U	0.0200					0.006098	0	10

SD	Sample ID: HS23111907-02SD	Units: mg/L		Analysis Date: 05-Dec-2023 14:24					
Client ID:	Run ID: ICPMS07_453238	SeqNo: 7707860		PrepDate: 01-Dec-2023		DF: 100			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual

Barium	1.715	0.400					1.689	1.52	10
Calcium	218.7	50.0					222.2	1.57	10
Manganese	1.387	0.500					1.426	2.74	10
Sodium	131.4	20.0					127.9	2.73	10
Strontium	0.9743	0.500					0.9793	0.506	10

The following samples were analyzed in this batch: HS23111864-01 HS23111864-02 HS23111864-03 HS23111864-04
HS23111864-05

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: 204383 (0)		Instrument: HG04		Method: MERCURY BY SW7470A					
MBLK	Sample ID: MBLK-204383	Units: mg/L			Analysis Date: 06-Dec-2023 12:04				
Client ID:	Run ID: HG04_453390		SeqNo: 7710424		PrepDate: 06-Dec-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	U	0.000200							
LCS	Sample ID: LCS-204383	Units: mg/L			Analysis Date: 06-Dec-2023 12:08				
Client ID:	Run ID: HG04_453390		SeqNo: 7710425		PrepDate: 06-Dec-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00502	0.000200	0.005	0	100	80 - 120			
MS	Sample ID: HS23111864-01MS	Units: mg/L			Analysis Date: 06-Dec-2023 12:46				
Client ID: 019-580	Run ID: HG04_453390		SeqNo: 7710445		PrepDate: 06-Dec-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00553	0.000200	0.005	0.000002	111	75 - 125			
MSD	Sample ID: HS23111864-01MSD	Units: mg/L			Analysis Date: 06-Dec-2023 12:48				
Client ID: 019-580	Run ID: HG04_453390		SeqNo: 7710446		PrepDate: 06-Dec-2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00553	0.000200	0.005	0.000002	111	75 - 125	0.00553	0	20
The following samples were analyzed in this batch:									
		HS23111864-01	HS23111864-02	HS23111864-03		HS23111864-04			
		HS23111864-05							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R452930 (0)		Instrument: VOA10		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-231130	Units: ug/L		Analysis Date: 30-Nov-2023 10:12					
Client ID:	Run ID: VOA10_452930	SeqNo: 7699573		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	3.0							
Surr: 1,2-Dichloroethane-d4	53.37	1.0	50	0	107	70 - 123			
Surr: 4-Bromofluorobenzene	49.43	1.0	50	0	98.9	77 - 113			
Surr: Dibromofluoromethane	49.6	1.0	50	0	99.2	73 - 126			
Surr: Toluene-d8	50.7	1.0	50	0	101	81 - 120			

LCS	Sample ID: VLCSW-231130	Units: ug/L		Analysis Date: 30-Nov-2023 09:30					
Client ID:	Run ID: VOA10_452930	SeqNo: 7699572		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.99	1.0	20	0	89.9	74 - 120			
Ethylbenzene	19.26	1.0	20	0	96.3	77 - 117			
m,p-Xylene	38.22	2.0	40	0	95.5	77 - 122			
o-Xylene	19.19	1.0	20	0	96.0	75 - 119			
Toluene	19.17	1.0	20	0	95.9	77 - 118			
Xylenes, Total	57.41	3.0	60	0	95.7	75 - 122			
Surr: 1,2-Dichloroethane-d4	52.94	1.0	50	0	106	70 - 123			
Surr: 4-Bromofluorobenzene	49.87	1.0	50	0	99.7	77 - 113			
Surr: Dibromofluoromethane	50.13	1.0	50	0	100	73 - 126			
Surr: Toluene-d8	50.66	1.0	50	0	101	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R452930 (0)		Instrument: VOA10		Method: LOW LEVEL VOLATILES BY SW8260C					
MS		Sample ID: HS23111849-02MS		Units: ug/L		Analysis Date: 30-Nov-2023 11:36			
Client ID:		Run ID: VOA10_452930		SeqNo: 7699750		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.54	1.0	20	0	92.7	70 - 127			
Ethylbenzene	18.26	1.0	20	0	91.3	70 - 124			
m,p-Xylene	36.61	2.0	40	0	91.5	70 - 130			
o-Xylene	17.99	1.0	20	0	89.9	70 - 124			
Toluene	18.98	1.0	20	0	94.9	70 - 123			
Xylenes, Total	54.59	3.0	60	0	91.0	70 - 130			
Surr: 1,2-Dichloroethane-d4	52.01	1.0	50	0	104	70 - 126			
Surr: 4-Bromofluorobenzene	50.08	1.0	50	0	100	77 - 113			
Surr: Dibromofluoromethane	50.42	1.0	50	0	101	77 - 123			
Surr: Toluene-d8	50.73	1.0	50	0	101	82 - 127			

MSD		Sample ID: HS23111849-02MSD		Units: ug/L		Analysis Date: 30-Nov-2023 11:57			
Client ID:		Run ID: VOA10_452930		SeqNo: 7699751		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.51	1.0	20	0	92.5	70 - 127	18.54	0.195	20
Ethylbenzene	18.47	1.0	20	0	92.4	70 - 124	18.26	1.16	20
m,p-Xylene	37.58	2.0	40	0	93.9	70 - 130	36.61	2.62	20
o-Xylene	18.65	1.0	20	0	93.3	70 - 124	17.99	3.64	20
Toluene	18.91	1.0	20	0	94.5	70 - 123	18.98	0.415	20
Xylenes, Total	56.23	3.0	60	0	93.7	70 - 130	54.59	2.96	20
Surr: 1,2-Dichloroethane-d4	51.85	1.0	50	0	104	70 - 126	52.01	0.296	20
Surr: 4-Bromofluorobenzene	49.78	1.0	50	0	99.6	77 - 113	50.08	0.599	20
Surr: Dibromofluoromethane	50.09	1.0	50	0	100	77 - 123	50.42	0.659	20
Surr: Toluene-d8	50.55	1.0	50	0	101	82 - 127	50.73	0.362	20

The following samples were analyzed in this batch:

HS23111864-01	HS23111864-02	HS23111864-03	HS23111864-04
HS23111864-05			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453058 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-12.01.2023	Units: mg/L		Analysis Date: 01-Dec-2023 11:34					
Client ID:	Run ID: Skalar 03_453058	SeqNo: 7702382		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-12.01.2023	Units: mg/L		Analysis Date: 01-Dec-2023 11:41					
Client ID:	Run ID: Skalar 03_453058	SeqNo: 7702383		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)	946	5.00	1000	0	94.6	85 - 115			
LCSD	Sample ID: LCSD-12.01.2023	Units: mg/L		Analysis Date: 01-Dec-2023 11:47					
Client ID:	Run ID: Skalar 03_453058	SeqNo: 7702384		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)	948.2	5.00	1000	0	94.8	85 - 115	946	0.232	20
DUP	Sample ID: HS23111704-01DUP	Units: mg/L		Analysis Date: 01-Dec-2023 12:02					
Client ID:	Run ID: Skalar 03_453058	SeqNo: 7702387		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)	180	5.00					183.5	1.93	20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0	20
The following samples were analyzed in this batch:									
HS23111864-01 HS23111864-02 HS23111864-03 HS23111864-04 HS23111864-05									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453059 (0)		Instrument: Skalar 03		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS23111704-01DUP	Units: pH Units		Analysis Date: 01-Dec-2023 12:02					
Client ID:	Run ID: Skalar 03_453059		SeqNo: 7702407		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.79	0.100					7.8	0.128	10
Temp Deg C @pH	16.7	0					17.1	2.37	10
The following samples were analyzed in this batch:									
HS23111864-01 HS23111864-02 HS23111864-03 HS23111864-04									
HS23111864-05									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453103 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 01-Dec-2023 06:51					
Client ID:	Run ID: ICS-Integrion_453103		SeqNo: 7703240		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: 01-Dec-2023 06:57					
Client ID:	Run ID: ICS-Integrion_453103		SeqNo: 7703241		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	4.292	0.100	4	0	107	80 - 120			
Chloride	20.7	0.500	20	0	103	80 - 120			
Sulfate	20.99	0.500	20	0	105	80 - 120			

MS	Sample ID: HS23111880-01MS	Units: mg/L		Analysis Date: 01-Dec-2023 08:20					
Client ID:	Run ID: ICS-Integrion_453103		SeqNo: 7703252		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	2.224	0.100	2	0	111	80 - 120			
Chloride	26.91	0.500	10	16.65	103	80 - 120			
Sulfate	18.44	0.500	10	8.079	104	80 - 120			

MSD	Sample ID: HS23111880-01MSD	Units: mg/L		Analysis Date: 01-Dec-2023 08:26					
Client ID:	Run ID: ICS-Integrion_453103		SeqNo: 7703253		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	2.248	0.100	2	0	112	80 - 120	2.224	1.06	20
Chloride	27.05	0.500	10	16.65	104	80 - 120	26.91	0.497	20
Sulfate	18.67	0.500	10	8.079	106	80 - 120	18.44	1.25	20

The following samples were analyzed in this batch:

HS23111864-01	HS23111864-02	HS23111864-03	HS23111864-04
HS23111864-05			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453110 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011						
MBLK	Sample ID: MBLK-R453110	Units: mg/L		Analysis Date: 02-Dec-2023 13:01						
Client ID:	Run ID: WetChem_HS_453110		SeqNo: 7703459		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-R453110	Units: mg/L		Analysis Date: 02-Dec-2023 13:01						
Client ID:	Run ID: WetChem_HS_453110		SeqNo: 7703458		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	22.12	2.00	25	0	88.5	85 - 115				
LCSD	Sample ID: LCSD-R453110	Units: mg/L		Analysis Date: 02-Dec-2023 13:01						
Client ID:	Run ID: WetChem_HS_453110		SeqNo: 7703457		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.92	2.00	25	0	87.7	85 - 115	22.12	0.908	20	
MS	Sample ID: HS23111875-01MS	Units: mg/L		Analysis Date: 02-Dec-2023 13:01						
Client ID:	Run ID: WetChem_HS_453110		SeqNo: 7703460		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.92	2.00	25	-1.28	92.8	80 - 120				
The following samples were analyzed in this batch:										
HS23111864-01 HS23111864-02 HS23111864-03 HS23111864-04 HS23111864-05										

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453161 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-12012023	Units: mg/L		Analysis Date: 01-Dec-2023 14:05					
Client ID:	Run ID: Balance1_453161	SeqNo: 7704871		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-120123	Units: mg/L		Analysis Date: 01-Dec-2023 14:05					
Client ID:	Run ID: Balance1_453161	SeqNo: 7704870		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1046	10.0	1000	0	105	85 - 115		
DUP	Sample ID: HS23111864-05DUP	Units: mg/L		Analysis Date: 01-Dec-2023 14:05					
Client ID: Cottages	Run ID: Balance1_453161	SeqNo: 7704868		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		270	10.0			268	0.743	20	
DUP	Sample ID: HS23111815-01DUP	Units: mg/L		Analysis Date: 01-Dec-2023 14:05					
Client ID:	Run ID: Balance1_453161	SeqNo: 7704855		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1480	10.0			1476	0.271	20	
The following samples were analyzed in this batch:				HS23111864-01	HS23111864-02	HS23111864-03	HS23111864-04		
				HS23111864-05					

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23111864

QC BATCH REPORT

Batch ID: R453172 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R453172	Units: mg/L		Analysis Date: 02-Dec-2023 12:33					
Client ID:	Run ID: WetChem_HS_453172		SeqNo: 7705079		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							
LCS	Sample ID: LCS-R453172	Units: mg/L		Analysis Date: 02-Dec-2023 12:33					
Client ID:	Run ID: WetChem_HS_453172		SeqNo: 7705078		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.5	1.00	26.56	0	88.5	80 - 120			
LCSD	Sample ID: LCSD-R453172	Units: mg/L		Analysis Date: 02-Dec-2023 12:33					
Client ID:	Run ID: WetChem_HS_453172		SeqNo: 7705077		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.29	1.00	26.56	0	87.7	80 - 120	23.5	0.908	20
The following samples were analyzed in this batch:									
HS23111864-01 HS23111864-02 HS23111864-03 HS23111864-04 HS23111864-05									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23111864

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624-2023	31-Dec-2023
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS23111864

Date/Time Received: 29-Nov-2023 09:40

Client Name: ERMSW-HOU

Received by: Corey Grandits

Completed By: /S/ Belinda Gomez	29-Nov-2023 18:22	Reviewed by: /S/ Bernadette A. Fini	30-Nov-2023 08:17
eSignature	Date/Time	eSignature	Date/Time

Matrices: WCarrier name: FedEx

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:305523
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):	2.0uc/1.9c,0.9uc/0.8c		
Cooler(s)/Kit(s):	49043,51052		
Date/Time sample(s) sent to storage:	11/29/23 1822		
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: collection time differs for sample 019-995 coc list 1315 label list 1310

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 ____

COC ID: 305522

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

Customer Information		Project Information		ALS Project Manager:													ALS Work Order #:
Parameter/Method Request for Analysis																	
Purchase Order	0101093	Project Name	Sulphur Dome	A 2260_LL_W (Low Level VOC (8260) BTEX)													
Work Order		Project Number		B MA EPH_W_Ls (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 SUBG_anions_W (CLSOA Br)													
Address	CityCentre Four 840 W. Sam Houston Pkwy. Suite 5	Address	CityCentre Four 840 W. Sam Houston Pkwy. Suite 5	E ALK_W/2320B (carb. bicarb.) pH													
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston, TX 77024	F H2S_W (H2S)													
Phone	(281) 800-1000	Phone	(281) 800-1000	G HG_W (Mercury)													
Fax	(281) 800-1001	Fax	(281) 800-1001	H ICP_W/As Ba Cd Cs Cl Fe Pb Mg Mn K S a. Ag Na Si Zn Ni V													
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERM@AccountsPayable.com	I Sulfur 450US F (Nanda)													
				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	019-580	11/28/23	11:00	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2	019-1055		11:50														
3	019-582		12:40														
4	019-995		13:15														
5	Cottages		14:15														
6																	
7																	
8																	
9																	
10																	

HS23111864

Environmental Resources Mgmt.
Sulphur Dome



Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)	
Taylor Brown <i>Taylor Brown</i>		FedEx		☒ 1-2 Business Days ☐ 3-5 Business Days	
Relinquished by:	Date:	Time:	Received by:	Notes:	
Taylor Brown	11/28/23	17:00		ERM Sulphur Dome	
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	
			Ch 11-24-23 0940	Cooler Temp.	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	QC Package: (Check One Box Below)	
				☒ 1-2 Business Days ☐ 3-5 Business Days	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-H ₂ SO ₄ 7-Other 8-4°C 9-50/55				49093 51052 1261	

- Notes: 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.

Copyright 2014 by ALS Environmental.

49043

NOV 29 2023

ORIGIN ID: LCHA (713) 444-4651
TAYLOR BROWN
ERP-SOUTHWEST INC
840 N SAN HOUSTON PKWY N
SUITE 600
HOUSTON, TX 77024
UNITED STATES US

SHIP DATE: 28NOV23
ACTWGT: 51.35 LB
CAD: 6994410/SSFE2460
DIMS: 23x13x13 IN
BILL: THIRD PARTY

Part 106287-136,0002A, 02/02/24

TO

ALS ENVIROMENTAL
10450 STANCLIFF RD
#210
HOUSTON TX 77099

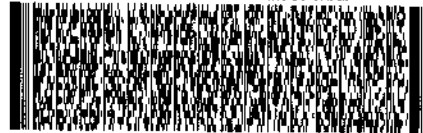
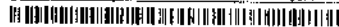
49043

(201) 630-6868

REF:

Doc:

DEPT:



FedEx
Express



1 of 2

TRK# 7871 3251 7454
0201
MASTER

WED - 29 NOV 12:00P
PRIORITY OVERNIGHT

XP SGRA

77099
TX-US IAH



NOV 29 2023

51052

5202 5 2 AOM

ORIGIN ID: LCHA (713) 444-4651
TAYLOR BROWNO
ERN-SOUTHWEST INC
840 W SAM HOUSTON PKWY N
SUITE 600
HOUSTON, TX 77024
UNITED STATES US

SHIP DATE: 28NOV23
ACTWT: 54.20 LB
CAD: 6994410/SSFE2460
DIMS: 23x19x13 IN
BILL THIRD PARTY

Put # 156037 54.20 LB 02/24

TO

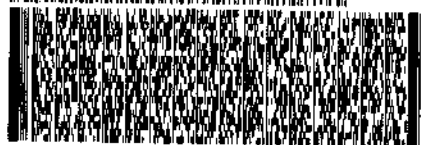
ALS ENVIROMENTAL
10450 STANCLIFF RD
#210
HOUSTON TX 77099

51052

(281) 530-6668
TXU
DPT

REF:

DEPT:



FedEx
EXPRESS



2 of 2

MPS# 7871 3251 7465
0263

Mstr# 7871 3251 7464

!0201

XP SGRA

WED - 29 NOV 12:00P
PRIORITY OVERNIGHT

77099

TX-US IAH





December 11, 2023

Bernadette Fini
ALS Houston
10450 Stancliff Road
Suite 210
Houston, TX 77099

RE: Project: HS23111864 / 23996
Pace Project No.: 20298960

Dear Bernadette Fini:

Enclosed are the analytical results for sample(s) received by the laboratory on December 01, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - New Orleans

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh
ruth.welsh@pacelabs.com
(225) 678-1833
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: HS23111864 / 23996

Pace Project No.: 20298960

Pace Analytical Services New Orleans

Florida Department of Health (NELAC): E87595

Illinois Environmental Protection Agency: 2000662023-7

Kansas Department of Health and Environment (NELAC):
E-10266

Louisiana Dept. of Environmental Quality (NELAC/LELAP):
02006

Texas Commission on Env. Quality (NELAC):

T104704405-23-18

U.S. Dept. of Agriculture Foreign Soil Import: 525-23-117-
89728

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: HS23111864 / 23996

Pace Project No.: 20298960

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20298960001	HS23111864-01	Water	11/28/23 11:00	12/01/23 13:20
20298960002	HS23111864-02	Water	11/28/23 11:00	12/01/23 13:20
20298960003	HS23111864-03	Water	11/28/23 11:00	12/01/23 13:20
20298960004	HS23111864-04	Water	11/28/23 11:00	12/01/23 13:20
20298960005	HS23111864-05	Water	11/28/23 11:00	12/01/23 13:20

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SAMPLE ANALYTE COUNT

Project: HS23111864 / 23996

Pace Project No.: 20298960

Lab ID	Sample ID	Method	Analysts	Analytes Reported
20298960001	HS23111864-01	MADEP VPH Mod	SLK	4
20298960002	HS23111864-02	MADEP VPH Mod	SLK	4
20298960003	HS23111864-03	MADEP VPH Mod	SLK	4
20298960004	HS23111864-04	MADEP VPH Mod	SLK	4
20298960005	HS23111864-05	MADEP VPH Mod	SLK	4

PASI-N = Pace Analytical Services - New Orleans

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PROJECT NARRATIVE

Project: HS23111864 / 23996

Pace Project No.: 20298960

Method: MADEP VPH Mod

Description: 8015/8021 GCV VPH

Client: ALS_HOUSTON, TX

Date: December 11, 2023

General Information:

5 samples were analyzed for MADEP VPH Mod by Pace Analytical Services New Orleans. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: HS23111864 / 23996

Pace Project No.: 20298960

Sample: HS23111864-01		Lab ID: 20298960001		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Aliphatic (C06-C08)	ND	mg/L	0.085	0.049	1		12/07/23 14:22		
Aliphatic (>C08-C10)	ND	mg/L	0.070	0.041	1		12/07/23 14:22		
Aromatic (>C08-C10)	ND	mg/L	0.070	0.035	1		12/07/23 14:22		
Surrogates									
4-Bromofluorobenzene (S)	94	%.	63-133		1		12/07/23 14:22	460-00-4	

Sample: HS23111864-02		Lab ID: 20298960002		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Aliphatic (C06-C08)	ND	mg/L	0.085	0.017	1		12/08/23 12:46		
Aliphatic (>C08-C10)	ND	mg/L	0.070	0.019	1		12/08/23 12:46		
Aromatic (>C08-C10)	ND	mg/L	0.070	0.012	1		12/08/23 12:46		
Surrogates									
4-Bromofluorobenzene (S)	102	%.	63-133		1		12/08/23 12:46	460-00-4	

Sample: HS23111864-03		Lab ID: 20298960003		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Aliphatic (C06-C08)	ND	mg/L	0.085	0.049	1		12/07/23 15:08		
Aliphatic (>C08-C10)	ND	mg/L	0.070	0.041	1		12/07/23 15:08		
Aromatic (>C08-C10)	ND	mg/L	0.070	0.035	1		12/07/23 15:08		
Surrogates									
4-Bromofluorobenzene (S)	90	%.	63-133		1		12/07/23 15:08	460-00-4	

Sample: HS23111864-04		Lab ID: 20298960004		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Aliphatic (C06-C08)	ND	mg/L	0.085	0.049	1		12/07/23 15:31		
Aliphatic (>C08-C10)	ND	mg/L	0.070	0.041	1		12/07/23 15:31		
Aromatic (>C08-C10)	ND	mg/L	0.070	0.035	1		12/07/23 15:31		

REPORT OF LABORATORY ANALYSIS

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Date: 12/11/2023 06:23 AM

Page 6 of 14

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ANALYTICAL RESULTS

Project: HS23111864 / 23996

Pace Project No.: 20298960

Sample: HS23111864-04		Lab ID: 20298960004		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015/8021 GCV VPH									
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Surrogates									
4-Bromofluorobenzene (S)	90	%.	63-133		1		12/07/23 15:31	460-00-4	

Sample: HS23111864-05		Lab ID: 20298960005		Collected: 11/28/23 11:00		Received: 12/01/23 13:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015/8021 GCV VPH									
Analytical Method: MADEP VPH Mod Pace Analytical Services - New Orleans									
Aliphatic (C06-C08)	ND	mg/L	0.085	0.049	1		12/07/23 15:54		
Aliphatic (>C08-C10)	ND	mg/L	0.070	0.041	1		12/07/23 15:54		
Aromatic (>C08-C10)	ND	mg/L	0.070	0.035	1		12/07/23 15:54		
Surrogates									
4-Bromofluorobenzene (S)	92	%.	63-133		1		12/07/23 15:54	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HS23111864 / 23996
Pace Project No.: 20298960

QC Batch: 310676 Analysis Method: MADEP VPH Mod
QC Batch Method: MADEP VPH Mod Analysis Description: 8015WM VPH
Laboratory: Pace Analytical Services - New Orleans
Associated Lab Samples: 20298960001, 20298960002, 20298960003, 20298960004, 20298960005

METHOD BLANK: 1487838 Matrix: Water
Associated Lab Samples: 20298960001, 20298960002, 20298960003, 20298960004, 20298960005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aliphatic (>C08-C10)	mg/L	ND	0.070	0.041	12/07/23 12:50	
Aliphatic (C06-C08)	mg/L	ND	0.085	0.049	12/07/23 12:50	
Aromatic (>C08-C10)	mg/L	ND	0.070	0.035	12/07/23 12:50	
4-Bromofluorobenzene (S)	%	94	63-133		12/07/23 12:50	

METHOD BLANK: 1488871 Matrix: Water
Associated Lab Samples: 20298960001, 20298960002, 20298960003, 20298960004, 20298960005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aliphatic (>C08-C10)	mg/L	ND	0.070	0.041	12/08/23 11:51	
Aliphatic (C06-C08)	mg/L	ND	0.085	0.049	12/08/23 11:51	
Aromatic (>C08-C10)	mg/L	ND	0.070	0.035	12/08/23 11:51	
4-Bromofluorobenzene (S)	%	103	63-133		12/08/23 11:51	

LABORATORY CONTROL SAMPLE: 1487839

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aliphatic (>C08-C10)	mg/L	0.28	0.28	100	72-127	
Aliphatic (C06-C08)	mg/L	0.28	0.28	101	77-144	
Aromatic (>C08-C10)	mg/L	0.28	0.29	102	78-134	
4-Bromofluorobenzene (S)	%			98	63-133	

LABORATORY CONTROL SAMPLE: 1488872

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aliphatic (>C08-C10)	mg/L	0.28	0.31	112	72-127	
Aliphatic (C06-C08)	mg/L	0.28	0.32	116	77-144	
Aromatic (>C08-C10)	mg/L	0.28	0.31	111	78-134	
4-Bromofluorobenzene (S)	%			109	63-133	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: HS23111864 / 23996

Pace Project No.: 20298960

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1487840 1487841												
Parameter	Units	20298960001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aliphatic (>C08-C10)	mg/L	ND	0.28	0.28	0.33	0.30	110	102	10-171	7	20	
Aliphatic (C06-C08)	mg/L	ND	0.28	0.28	0.32	0.31	113	109	10-160	4	20	
Aromatic (>C08-C10)	mg/L	ND	0.28	0.28	0.33	0.30	114	107	10-160	6	20	
4-Bromofluorobenzene (S)	%						94	96	63-133			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Date: 12/11/2023 06:23 AM

Page 9 of 14

RIGHT SOLUTIONS | RIGHT PARTNER



QUALIFIERS

Project: HS23111864 / 23996
Pace Project No.: 20298960

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The Nelac Institute

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HS23111864 / 23996

Pace Project No.: 20298960

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20298960001	HS23111864-01	MADEP VPH Mod	310676		
20298960002	HS23111864-02	MADEP VPH Mod	310676		
20298960003	HS23111864-03	MADEP VPH Mod	310676		
20298960004	HS23111864-04	MADEP VPH Mod	310676		
20298960005	HS23111864-05	MADEP VPH Mod	310676		

REPORT OF LABORATORY ANALYSIS

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WO#: 20298960



20298960

9042 L-1

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Louisiana

COC ID: 23996

SUBCONTRACT TO:

Pace Analytical
1000 Riverbend Dr, Ste F
Rosa, LA 70087

Phone: +1 504 305 3639

**CUSTOMER
INFORMATION:**

Company: ALS Houston
Contact: Bernadette A. Fini
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: Bernadette.fini@alsglobal.com
**Alternate
Contact:** Jumoke M. Lawal
Email: jumoke.lawal@alsglobal.com

**INVOICE
INFORMATION:**

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS23111864
TSR: Ron Martino

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	HS23111864-01	019-580	Water	28 Nov 2023 11:00
	MA VPH, Report units in mg/L, 4-file EQUIS EDD			08 Dec 2023
2.	HS23111864-02	019-1055	Water	28 Nov 2023 11:00
	MA VPH, Report units in mg/L, 4-file EQUIS EDD			08 Dec 2023
3.	HS23111864-03	019-582	Water	28 Nov 2023 11:00
	MA VPH, Report units in mg/L, 4-file EQUIS EDD			08 Dec 2023
4.	HS23111864-04	019-995	Water	28 Nov 2023 11:00
	MA VPH, Report units in mg/L, 4-file EQUIS EDD			08 Dec 2023
5.	HS23111864-05	Cottages	Water	28 Nov 2023 11:00
	MA VPH, Report units in mg/L, 4-file EQUIS EDD			08 Dec 2023

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: STD (Laboratory Standard QC: method blank and LCS required)



Subcontract Chain of Custody

SAMPLING STATE: Louisiana

COC ID: 23996

Relinquished By:

Date/Time:

Received By:

Date/Time:

Cooler ID(s):

Temperature(s):

cc
FedEx
[Signature]

11-30-23 1800
12/1/2023 1300
2.1



Sample Condition

WO#: 20298960

PM: RW

Due Date: 12/08/23

CLIENT: BR-ALS HOUST

1000 Riverbend Blvd, Suite F, St. Rose, LA 70087

Cooler Inspected by/date: limb / 12/2/2023

Means of receipt:		☐ Pace	☐ Client	☐ UPS	☒ FedEx	☐ Other:
☒ Yes	☐ No	☐ NA	Were custody seals present on the cooler?			
☒ Yes	☐ No	☐ NA	If custody seals were present, were they intact and unbroken?			
Method:		☐ Temperature Blank	☒ Against Bottles	IR Gun ID: <u>12</u>	IR Gun Correction Factor: <u>6</u> °C	
Cooler #1	Cooler Temp °C:	<u>2.1</u>	(Actual/True)	Samples on ice	pH Strip Lot #	
Cooler #2	Cooler Temp °C:		(Actual/True)	☐ Yes ☐ No		
Cooler #3	Cooler Temp °C:		(Actual/True)	Method of coolant:		
Cooler #4	Cooler Temp °C:		(Actual/True)	☒ Wet	☐ Ice Packs	☐ Dry Ice ☐ None
Tracking #: <u>6862 6799 6502</u>						
☐ Yes	☒ No	☐ NA	Is a temperature blank present?			
☐ Yes	☐ No	☐ NA	Was a chain of custody (COC) received?			
☐ Yes	☒ No	☐ NA	Was the line and profile number listed on the COC?			
☒ Yes	☐ No	☐ NA	Were all coolers received at or below 6.0°C? If no, notify Project Manager via email. Email Notification Date and Time:			
☒ Yes	☐ No	☐ NA	Were proper custody procedures (relinquished/received) followed?			
☐ Yes	☒ No	☐ NA	Is the sampler name and signature on the COC?			
☒ Yes	☐ No	☐ NA	Were sample IDs listed on the COC and all sample containers?			
☒ Yes	☐ No	☐ NA	Was collection date & time listed on the COC and all sample containers?			
☒ Yes	☐ No	☐ NA	Did all container label information (ID, date, time) agree with the COC?			
☒ Yes	☐ No	☐ NA	Were tests to be performed listed on the COC?			
☒ Yes	☐ No	☐ NA	Did all samples arrive in the proper containers for each test and in good condition (unbroken, lids on, etc.)?			
☒ Yes	☐ No	☐ NA	Was adequate sample volume available?			
☒ Yes	☐ No	☐ NA	Were all samples received within ½ the holding time or 48 hours, whichever comes first?			
☒ Yes	☐ No	☐ NA	Were all samples containers accounted for? (No missing/excess)			
☒ Yes	☐ No	☐ NA	Were VOA, 8015C (GRO/VPH), and RSK-175 samples free of bubbles > "pea size" (1/4" or 6mm in diameter) in any of the VOA vials?			
☐ Yes	☒ No	☐ NA	Was there a trip blank present?			
☐ Yes	☐ No	☒ NA	Filtered volume received for dissolved tests? If no, list affected sample(s) in comments below.			
☐ Yes	☐ No	☒ NA	Were all metals/nutrient samples received at a pH of < 2?		If No, was preservative added? ☐ Yes ☐ No If added, record lots. Dispenser/pipette lot #: _____	
☐ Yes	☐ No	☒ NA	Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?		HNO3 _____ H2SO4 _____ NaOH _____ Date: _____ Time: _____	
Comments:						



10450 Stancliff Rd. Suite 210
Houston, TX 77099
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F: +1 281 530 5887

January 12, 2024

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

Work Order: **HS23121834**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 1 sample(s) on Dec 29, 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,

Generated By: BERNADETTE.FINI

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23121834

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23121834-05	019-13434Z	Water		28-Dec-2023 16:20	29-Dec-2023 14:00	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23121834

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.

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: 205694

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

GC Volatiles by Method MA VPH

Batch ID: R455652,R455657

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

GCMS Volatiles by Method SW8260

Batch ID: R455661

Sample ID: HS23121482-01MS

- MS is for an unrelated sample

Metals by Method SW7470A

Batch ID: 205966

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

Metals by Method SW6020A

Batch ID: 205777

Sample ID: 019-1261 (HS23121834-04MS)

- Zinc failed for MS and/or MSD but passed on PDS
- 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. (Calcium,Sodium)
- Zinc failed for MS and/or MSD but passed on PDS. Magnesium and Manganese failed for MS but passed on MSD and PDS

Sample ID: 019-1261 (HS23121834-04MSD)

- Barium failed for MSD but passed on MS and PDS

Sample ID: 019-1261 (HS23121834-04PDS)

- The PDS recovery was outside method control limits, however the result in the parent sample is greater than 4x the spike amount. (Sodium)

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS23121834

CASE NARRATIVE

WetChemistry by Method M2540C

Batch ID: R455659

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

WetChemistry by Method SM2320B

Batch ID: R455835

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

WetChemistry by Method SM4500H+ B

Batch ID: R455836

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

WetChemistry by Method SW9056

Batch ID: R455647

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

WetChemistry by Method E376.1

Batch ID: R455513

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

WetChemistry by Method SM4500 S2-F

Batch ID: R455511

- 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: 019-13434Z
 Collection Date: 28-Dec-2023 16:20

ANALYTICAL REPORT

WorkOrder:HS23121834
 Lab ID:HS23121834-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260				Analyst: AKP	
Benzene	U		0.20	1.0	ug/L	1	02-Jan-2024 17:28
Ethylbenzene	U		0.30	1.0	ug/L	1	02-Jan-2024 17:28
m,p-Xylene	U		0.50	2.0	ug/L	1	02-Jan-2024 17:28
o-Xylene	U		0.30	1.0	ug/L	1	02-Jan-2024 17:28
Toluene	U		0.20	1.0	ug/L	1	02-Jan-2024 17:28
Xylenes, Total	U		0.30	3.0	ug/L	1	02-Jan-2024 17:28
Surr: 1,2-Dichloroethane-d4	95.8			70-126	%REC	1	02-Jan-2024 17:28
Surr: 4-Bromofluorobenzene	107			77-113	%REC	1	02-Jan-2024 17:28
Surr: Dibromofluoromethane	106			77-123	%REC	1	02-Jan-2024 17:28
Surr: Toluene-d8	87.6			82-127	%REC	1	02-Jan-2024 17:28
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH				Analyst: FT	
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	02-Jan-2024 21:47
Aliphatics >C8 - C10	0.0373		0.0100	0.0100	mg/L	1	02-Jan-2024 21:47
Aromatics >C8 - C10	0.0286		0.0100	0.0100	mg/L	1	02-Jan-2024 21:47
Surr: 2,5-Dibromotoluene (Aliphatic)	83.4			70-130	%REC	1	02-Jan-2024 21:47
Surr: 2,5-Dibromotoluene (Aromatic)	95.1			70-130	%REC	1	02-Jan-2024 21:47
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH				Prep:SW3510 / 05-Jan-2024	Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 14:53
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	09-Jan-2024 14:53
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	09-Jan-2024 14:53
Aromatics >C10 - C12	0.0181		0.00100	0.00100	mg/L	1	09-Jan-2024 13:27
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	09-Jan-2024 13:27
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	09-Jan-2024 13:27
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	09-Jan-2024 13:27
Surr: 1-Chlorooctadecane	55.8			40-140	%REC	1	09-Jan-2024 14:53
Surr: 2-Bromonaphthalene	88.6			40-140	%REC	1	09-Jan-2024 13:27
Surr: 2-Fluorobiphenyl	93.2			40-140	%REC	1	09-Jan-2024 13:27
Surr: o-Terphenyl	60.3			40-140	%REC	1	09-Jan-2024 13:27

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-13434Z
 Collection Date: 28-Dec-2023 16:20

ANALYTICAL REPORT

WorkOrder:HS23121834
 Lab ID:HS23121834-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 08-Jan-2024		Analyst: MSC	
Arsenic	0.0165		0.000400	0.00200	mg/L	1	10-Jan-2024 15:43
Barium	0.288		0.00190	0.00400	mg/L	1	10-Jan-2024 15:43
Cadmium	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:43
Calcium	21.1		0.0340	0.500	mg/L	1	10-Jan-2024 15:43
Chromium	0.00223	J	0.000400	0.00400	mg/L	1	10-Jan-2024 15:43
Iron	0.0804	J	0.0120	0.200	mg/L	1	10-Jan-2024 15:43
Lead	U		0.000600	0.00200	mg/L	1	10-Jan-2024 15:43
Magnesium	6.94		0.0100	0.200	mg/L	1	10-Jan-2024 15:43
Manganese	0.132		0.000700	0.00500	mg/L	1	10-Jan-2024 15:43
Nickel	U		0.000600	0.00200	mg/L	1	10-Jan-2024 15:43
Potassium	1.04		0.0180	0.200	mg/L	1	10-Jan-2024 15:43
Selenium	U		0.00110	0.00200	mg/L	1	10-Jan-2024 15:43
Silver	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:43
Sodium	68.9		0.0140	0.200	mg/L	1	10-Jan-2024 15:43
Strontium	0.228		0.000200	0.00500	mg/L	1	10-Jan-2024 15:43
Vanadium	0.00178	J	0.000600	0.00500	mg/L	1	10-Jan-2024 15:43
Zinc	0.0782		0.00200	0.00400	mg/L	1	10-Jan-2024 15:43
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 12-Jan-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	12-Jan-2024 13:30
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	30-Dec-2023 13:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	212		5.00	10.0	mg/L	1	02-Jan-2024 12:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	208		3.50	5.00	mg/L	1	04-Jan-2024 20:51
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	04-Jan-2024 20:51
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	30-Dec-2023 12:53
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.76	H	0.100	0.100	pH Units	1	04-Jan-2024 20:51
Temp Deg C @pH	16.9	H	0	0	°C	1	04-Jan-2024 20:51
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	02-Jan-2024 13:15
Chloride	19.1		0.200	0.500	mg/L	1	02-Jan-2024 13:15
Sulfate	0.468	J	0.200	0.500	mg/L	1	02-Jan-2024 13:15

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

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

Batch ID: 205694	Start Date: 05 Jan 2024 11:11	End Date: 05 Jan 2024 11:11
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23121834-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 205777	Start Date: 08 Jan 2024 14:00	End Date: 08 Jan 2024 14:00
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23121834-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 205966	Start Date: 12 Jan 2024 09:00	End Date: 12 Jan 2024 09:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23121834-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 205694 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20		05 Jan 2024 11:11	09 Jan 2024 14:53	1
HS23121834-05	019-13434Z	28 Dec 2023 16:20		05 Jan 2024 11:11	09 Jan 2024 13:27	1
Batch ID: 205777 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20		08 Jan 2024 14:00	10 Jan 2024 15:43	1
Batch ID: 205966 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20		12 Jan 2024 09:00	12 Jan 2024 13:30	1
Batch ID: R455511 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			30 Dec 2023 12:53	1
Batch ID: R455513 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			30 Dec 2023 13:05	1
Batch ID: R455647 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			02 Jan 2024 13:15	1
Batch ID: R455652 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			02 Jan 2024 21:47	1
Batch ID: R455657 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			02 Jan 2024 21:47	1
Batch ID: R455659 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			02 Jan 2024 12:30	1
Batch ID: R455661 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			02 Jan 2024 17:28	1
Batch ID: R455835 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			04 Jan 2024 20:51	1
Batch ID: R455836 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS23121834-05	019-13434Z	28 Dec 2023 16:20			04 Jan 2024 20:51	1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:32					
Client ID:	Run ID: FID23_456162		SeqNo: 7773506		PrepDate: 05-Jan-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02122</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>53.0</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:06					
Client ID:	Run ID: FID-22_456163		SeqNo: 7773516		PrepDate: 05-Jan-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.03842</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>96.0</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.03942</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>98.6</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.02505</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>62.6</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:01					
Client ID:	Run ID: FID23_456162		SeqNo: 7773507		PrepDate: 05-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04038	0.00100	0.05	0	80.8	40 - 140			
Aliphatics >C12 - C16	0.08384	0.00200	0.1	0	83.8	40 - 140			
Aliphatics >C16 - C35	0.3044	0.00800	0.4	0	76.1	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02061</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>51.5</i>	<i>40 - 140</i>			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:35				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773517		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04396	0.00100	0.05	0	87.9	40 - 140			
Aromatics >C12 - C16	0.16	0.00400	0.2	0	80.0	40 - 140			
Aromatics >C16 - C21	0.1321	0.00300	0.15	0	88.1	40 - 140			
Aromatics >C21 - C35	0.3222	0.00900	0.45	0	71.6	40 - 140			
Surr: 2-Bromonaphthalene	0.03751	0	0.04	0	93.8	40 - 140			
Surr: 2-Fluorobiphenyl	0.03772	0	0.04	0	94.3	40 - 140			
Surr: o-Terphenyl	0.02481	0	0.04	0	62.0	40 - 140			

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:29				
Client ID:		Run ID: FID23_456162		SeqNo: 7773508		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04402	0.00100	0.05	0	88.0	40 - 140	0.04038	8.62	50
Aliphatics >C12 - C16	0.08964	0.00200	0.1	0	89.6	40 - 140	0.08384	6.69	50
Aliphatics >C16 - C35	0.3391	0.00800	0.4	0	84.8	40 - 140	0.3044	10.8	50
Surr: 1-Chlorooctadecane	0.02098	0	0.04	0	52.4	40 - 140	0.02061	1.76	50

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:03				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773518		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04866	0.00100	0.05	0	97.3	40 - 140	0.04396	10.2	50
Aromatics >C12 - C16	0.1902	0.00400	0.2	0	95.1	40 - 140	0.16	17.3	50
Aromatics >C16 - C21	0.1572	0.00300	0.15	0	105	40 - 140	0.1321	17.3	50
Aromatics >C21 - C35	0.3791	0.00900	0.45	0	84.3	40 - 140	0.3222	16.2	50
Surr: 2-Bromonaphthalene	0.04119	0	0.04	0	103	40 - 140	0.03751	9.36	50
Surr: 2-Fluorobiphenyl	0.04152	0	0.04	0	104	40 - 140	0.03772	9.58	50
Surr: o-Terphenyl	0.02831	0	0.04	0	70.8	40 - 140	0.02481	13.2	50

The following samples were analyzed in this batch: HS23121834-05

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455652 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-14_455652	SeqNo: 7761806		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)	0.1827	0.0100	0.25	0	73.1	70 - 130			
LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-14_455652	SeqNo: 7761804		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02292	0.0100	0.025	0	91.7	70 - 130			
Aliphatics >C8 - C10	0.03046	0.0100	0.025	0	122	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1859	0.0100	0.25	0	74.4	70 - 130			
LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-14_455652	SeqNo: 7761805		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.0234	0.0100	0.025	0	93.6	70 - 130	0.02292	2.09	25
Aliphatics >C8 - C10	0.03059	0.0100	0.025	0	122	70 - 130	0.03046	0.442	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1818	0.0100	0.25	0	72.7	70 - 130	0.1859	2.22	25
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455657 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-15_455657	SeqNo: 7761861		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C8 - C10	U	0.0100							
Surr: 2,5-Dibromotoluene (Aromatic)	0.1934	0.0100	0.25	0	77.4	70 - 130			
LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-15_455657	SeqNo: 7761859		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C8 - C10	0.07166	0.0100	0.1	0	71.7	70 - 130			
Surr: 2,5-Dibromotoluene (Aromatic)	0.213	0.0100	0.25	0	85.2	70 - 130			
LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-15_455657	SeqNo: 7761860		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C8 - C10	0.07454	0.0100	0.1	0	74.5	70 - 130	0.07166	3.93	25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2121	0.0100	0.25	0	84.8	70 - 130	0.213	0.413	25
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-205777	Units: mg/L		Analysis Date: 09-Jan-2024 12:21					
Client ID:	Run ID: ICPMS07_456082		SeqNo: 7771477		PrepDate: 08-Jan-2024		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							
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	0.001256	0.00500							J
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS	Sample ID: LCS-205777	Units: mg/L			Analysis Date: 09-Jan-2024 12:38				
Client ID:	Run ID: ICPMS07_456082		SeqNo: 7771480		PrepDate: 08-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04998	0.00200	0.05	0	100.0	80 - 120			
Barium	0.05442	0.00400	0.05	0	109	80 - 120			
Cadmium	0.05427	0.00200	0.05	0	109	80 - 120			
Calcium	5.029	0.500	5	0	101	80 - 120			
Chromium	0.05041	0.00400	0.05	0	101	80 - 120			
Iron	5.002	0.200	5	0	100	80 - 120			
Lead	0.0491	0.00200	0.05	0	98.2	80 - 120			
Magnesium	5.299	0.200	5	0	106	80 - 120			
Manganese	0.0493	0.00500	0.05	0	98.6	80 - 120			
Nickel	0.05034	0.00200	0.05	0	101	80 - 120			
Potassium	5.138	0.200	5	0	103	80 - 120			
Selenium	0.04855	0.00200	0.05	0	97.1	80 - 120			
Silver	0.05072	0.00200	0.05	0	101	80 - 120			
Sodium	5.273	0.200	5	0	105	80 - 120			
Strontium	0.1096	0.00500	0.1	0	110	80 - 120			
Vanadium	0.05018	0.00500	0.05	0	100	80 - 120			
Zinc	0.05079	0.00400	0.05	0	102	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS23121834-04MS		Units: mg/L		Analysis Date: 10-Jan-2024 15:15			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774492		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04496	0.00200	0.05	0.001183	87.6	80 - 120			
Barium	0.2405	0.00400	0.05	0.1853	110	80 - 120			
Cadmium	0.047	0.00200	0.05	0	94.0	80 - 120			
Calcium	28.82	0.500	5	26.34	49.6	80 - 120			SO
Chromium	0.04542	0.00400	0.05	0.000708	89.4	80 - 120			
Iron	4.478	0.200	5	0.09264	87.7	80 - 120			
Lead	0.04368	0.00200	0.05	0.000814	85.7	80 - 120			
Magnesium	11.06	0.200	5	7.368	73.8	80 - 120			S
Manganese	0.1244	0.00500	0.05	0.08804	72.6	80 - 120			S
Nickel	0.04418	0.00200	0.05	0.000986	86.4	80 - 120			
Potassium	5.763	0.200	5	1.185	91.6	80 - 120			
Selenium	0.04507	0.00200	0.05	0	90.1	80 - 120			
Silver	0.04688	0.00200	0.05	0	93.8	80 - 120			
Sodium	58.24	0.200	5	59.34	-22.0	80 - 120			SO
Strontium	0.3081	0.00500	0.1	0.2186	89.4	80 - 120			
Vanadium	0.04604	0.00500	0.05	0.0006	90.9	80 - 120			
Zinc	0.08939	0.00400	0.05	0.05935	60.1	80 - 120			S

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS23121834-04MSD		Units: mg/L		Analysis Date: 10-Jan-2024 15:18			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774493		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04712	0.00200	0.05	0.001183	91.9	80 - 120	0.04956	5.03	20
Barium	0.247	0.00400	0.05	0.1853	123	80 - 120	0.246	0.422	20 S
Cadmium	0.04809	0.00200	0.05	0	96.2	80 - 120	0.04903	1.94	20
Calcium	29.96	0.500	5	26.34	72.4	80 - 120	30.61	2.16	20 SO
Chromium	0.04674	0.00400	0.05	0.000708	92.1	80 - 120	0.04882	4.36	20
Iron	4.7	0.200	5	0.09264	92.1	80 - 120	4.877	3.71	20
Lead	0.04536	0.00200	0.05	0.000814	89.1	80 - 120	0.04328	4.69	20
Magnesium	11.64	0.200	5	7.368	85.3	80 - 120	11.84	1.72	20
Manganese	0.1299	0.00500	0.05	0.08804	83.7	80 - 120	0.1335	2.73	20
Nickel	0.04726	0.00200	0.05	0.000986	92.6	80 - 120	0.04812	1.8	20
Potassium	6.061	0.200	5	1.185	97.5	80 - 120	6.17	1.78	20
Selenium	0.04715	0.00200	0.05	0	94.3	80 - 120	0.04801	1.81	20
Silver	0.04864	0.00200	0.05	0	97.3	80 - 120	0.04606	5.44	20
Sodium	61.57	0.200	5	59.34	44.7	80 - 120	62.86	2.07	20 SO
Strontium	0.3202	0.00500	0.1	0.2186	102	80 - 120	0.3278	2.35	20
Vanadium	0.04795	0.00500	0.05	0.0006	94.7	80 - 120	0.04908	2.33	20
Zinc	0.09394	0.00400	0.05	0.05935	69.2	80 - 120	0.09563	1.79	20 S

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS23121834-04PDS		Units: mg/L		Analysis Date: 10-Jan-2024 15:20			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774494		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.09329	0.00200	0.1	0.001183	92.1	75 - 125			
Barium	0.2881	0.00400	0.1	0.1853	103	75 - 125			
Cadmium	0.09447	0.00200	0.1	0	94.5	75 - 125			
Calcium	34.34	0.500	10	26.34	80.1	75 - 125			
Chromium	0.09702	0.00400	0.1	0.000708	96.3	75 - 125			
Iron	9.232	0.200	10	0.09264	91.4	75 - 125			
Lead	0.09414	0.00200	0.1	0.000814	93.3	75 - 125			
Magnesium	16.15	0.200	10	7.368	87.8	75 - 125			
Manganese	0.1753	0.00500	0.1	0.08804	87.3	75 - 125			
Nickel	0.09144	0.00200	0.1	0.000986	90.5	75 - 125			
Potassium	10.68	0.200	10	1.185	94.9	75 - 125			
Selenium	0.09408	0.00200	0.1	0	94.1	75 - 125			
Silver	0.0941	0.00200	0.1	0	94.1	75 - 125			
Sodium	65.79	0.200	10	59.34	64.5	75 - 125			SO
Strontium	0.3374	0.00500	0.1	0.2186	119	75 - 125			
Vanadium	0.09405	0.00500	0.1	0.0006	93.5	75 - 125			
Zinc	0.1393	0.00400	0.1	0.05935	79.9	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD	Sample ID: HS23121834-04SD	Units: mg/L		Analysis Date: 10-Jan-2024 15:13						
Client ID:	Run ID: ICPMS07_456210		SeqNo: 7774491		PrepDate: 08-Jan-2024		DF: 5			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	U	0.0100					0.001183	0	10	
Barium	0.2021	0.0200					0.1853	9.04	10	
Cadmium	U	0.0100					0	0	10	
Calcium	25.53	2.50					26.34	3.05	10	
Chromium	0.004681	0.0200					0.000708	0	10	J
Iron	0.1687	1.00					0.09264	0	10	J
Lead	U	0.0100					0.000814	0	10	
Magnesium	6.737	1.00					7.368	8.57	10	
Manganese	0.08634	0.0250					0.08804	1.93	10	
Nickel	U	0.0100					0.000986	0	10	
Potassium	1.189	1.00					1.185	0.324	10	
Selenium	U	0.0100					0	0	10	
Silver	U	0.0100					0	0	10	
Sodium	58.15	1.00					59.34	2	10	
Strontium	0.2225	0.0250					0.2186	1.78	10	
Vanadium	U	0.0250					0.0006	0	10	
Zinc	0.05717	0.0200					0.05935	3.67	10	

The following samples were analyzed in this batch: HS23121834-05

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: 205966 (0)		Instrument: HG04		Method: MERCURY BY SW7470A						
MBLK	Sample ID: MBLK-205966	Units: mg/L		Analysis Date: 12-Jan-2024 13:24						
Client ID:	Run ID: HG04_456396		SeqNo: 7778924		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	U	0.000200								
LCS	Sample ID: LCS-205966	Units: mg/L		Analysis Date: 12-Jan-2024 13:26						
Client ID:	Run ID: HG04_456396		SeqNo: 7778925		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	0	93.4	80 - 120				
MS	Sample ID: HS24010502-02MS	Units: mg/L		Analysis Date: 12-Jan-2024 13:49						
Client ID:	Run ID: HG04_456396		SeqNo: 7778937		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	-0.000001	93.4	75 - 125				
MSD	Sample ID: HS24010502-02MSD	Units: mg/L		Analysis Date: 12-Jan-2024 13:51						
Client ID:	Run ID: HG04_456396		SeqNo: 7778938		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	-0.000001	93.4	75 - 125	0.00467	0	20	
The following samples were analyzed in this batch: HS23121834-05										

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-240102	Units: ug/L		Analysis Date: 02-Jan-2024 13:27					
Client ID:	Run ID: VOA7_455661		SeqNo: 7761926		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	3.0							
Surr: 1,2-Dichloroethane-d4	47.45	1.0	50	0	94.9	70 - 123			
Surr: 4-Bromofluorobenzene	55.16	1.0	50	0	110	77 - 113			
Surr: Dibromofluoromethane	49.95	1.0	50	0	99.9	73 - 126			
Surr: Toluene-d8	43.89	1.0	50	0	87.8	81 - 120			

LCS	Sample ID: VLCSW-240102	Units: ug/L		Analysis Date: 02-Jan-2024 12:21					
Client ID:	Run ID: VOA7_455661		SeqNo: 7761926		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	21.42	1.0	20	0	107	74 - 120			
Ethylbenzene	20.28	1.0	20	0	101	77 - 117			
m,p-Xylene	40.46	2.0	40	0	101	77 - 122			
o-Xylene	20.35	1.0	20	0	102	75 - 119			
Toluene	19.09	1.0	20	0	95.5	77 - 118			
Xylenes, Total	60.81	3.0	60	0	101	75 - 122			
Surr: 1,2-Dichloroethane-d4	55.64	1.0	50	0	111	70 - 123			
Surr: 4-Bromofluorobenzene	52.21	1.0	50	0	104	77 - 113			
Surr: Dibromofluoromethane	59.36	1.0	50	0	119	73 - 126			
Surr: Toluene-d8	45.43	1.0	50	0	90.9	81 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCS DW-240102		Units: ug/L		Analysis Date: 02-Jan-2024 12:43			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761927		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	20.37	1.0	20	0	102	74 - 120	21.42	5.06	20
Ethylbenzene	19.17	1.0	20	0	95.9	77 - 117	20.28	5.61	20
m,p-Xylene	38.33	2.0	40	0	95.8	77 - 122	40.46	5.39	20
o-Xylene	19.54	1.0	20	0	97.7	75 - 119	20.35	4.07	20
Toluene	18.49	1.0	20	0	92.5	77 - 118	19.09	3.17	20
Xylenes, Total	57.87	3.0	60	0	96.5	75 - 122	60.81	4.95	20
Surr: 1,2-Dichloroethane-d4	53.47	1.0	50	0	107	70 - 123	55.64	3.98	20
Surr: 4-Bromofluorobenzene	52.2	1.0	50	0	104	77 - 113	52.21	0.018	20
Surr: Dibromofluoromethane	58.85	1.0	50	0	118	73 - 126	59.36	0.855	20
Surr: Toluene-d8	45.32	1.0	50	0	90.6	81 - 120	45.43	0.264	20

MS		Sample ID: HS23121482-01MS		Units: ug/L		Analysis Date: 02-Jan-2024 21:28			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761949		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	21.38	1.0	20	0	107	70 - 127			
Ethylbenzene	19.32	1.0	20	0	96.6	70 - 124			
m,p-Xylene	37.3	2.0	40	0	93.3	70 - 130			
o-Xylene	18.85	1.0	20	0	94.3	70 - 124			
Toluene	19.02	1.0	20	0	95.1	70 - 123			
Xylenes, Total	56.16	3.0	60	0	93.6	70 - 130			
Surr: 1,2-Dichloroethane-d4	57.18	1.0	50	0	114	70 - 126			
Surr: 4-Bromofluorobenzene	53.44	1.0	50	0	107	77 - 113			
Surr: Dibromofluoromethane	63.74	1.0	50	0	127	77 - 123			S
Surr: Toluene-d8	45.97	1.0	50	0	91.9	82 - 127			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MSD		Sample ID: HS23121482-01MSD		Units: ug/L		Analysis Date: 02-Jan-2024 21:50			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761950		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	20.77	1.0	20	0	104	70 - 127	21.38	2.86	20
Ethylbenzene	18.16	1.0	20	0	90.8	70 - 124	19.32	6.22	20
m,p-Xylene	35.47	2.0	40	0	88.7	70 - 130	37.3	5.03	20
o-Xylene	17.66	1.0	20	0	88.3	70 - 124	18.85	6.55	20
Toluene	17.37	1.0	20	0	86.9	70 - 123	19.02	9.06	20
Xylenes, Total	53.13	3.0	60	0	88.5	70 - 130	56.16	5.54	20
Surr: 1,2-Dichloroethane-d4	54.62	1.0	50	0	109	70 - 126	57.18	4.59	20
Surr: 4-Bromofluorobenzene	53.43	1.0	50	0	107	77 - 113	53.44	0.0246	20
Surr: Dibromofluoromethane	60.02	1.0	50	0	120	77 - 123	63.74	6.01	20
Surr: Toluene-d8	45	1.0	50	0	90.0	82 - 127	45.97	2.14	20
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455511 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011					
MBLK	Sample ID: MBLK-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758908		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	U	2.00							
LCS	Sample ID: LCS-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758907		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	22	2.00	25	0	88.0	85 - 115			
LCSD	Sample ID: LCSD-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758906		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	0	87.2	85 - 115	22	0.913	20
MS	Sample ID: HS24010338-01MS	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7777332		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	-1.2	92.0	80 - 120			
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455513 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758927		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							
LCS	Sample ID: LCS-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758926		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.38	1.00	26.56	0	88.0	80 - 120			
LCSD	Sample ID: LCSD-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758925		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.16	1.00	26.56	0	87.2	80 - 120	23.38	0.913	20
MS	Sample ID: HS24010338-01MS	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7777178		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	21.8	1.00	26.56	-1.275	86.9	80 - 120			
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455647 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 02-Jan-2024 11:35					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761684		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: 02-Jan-2024 11:41					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761685		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	4.205	0.100	4	0	105	80 - 120			
Chloride	20.22	0.500	20	0	101	80 - 120			
Sulfate	21.12	0.500	20	0	106	80 - 120			

MS	Sample ID: HS23121834-01MS	Units: mg/L		Analysis Date: 02-Jan-2024 11:59					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761687		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.382	0.100	2	0	119	80 - 120			
Chloride	33.95	0.500	10	24.12	98.3	80 - 120			
Sulfate	17.24	0.500	10	6.547	107	80 - 120			

MSD	Sample ID: HS23121834-01MSD	Units: mg/L		Analysis Date: 02-Jan-2024 12:05					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761688		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.338	0.100	2	0	117	80 - 120	2.382	1.87	20
Chloride	33.9	0.500	10	24.12	97.8	80 - 120	33.95	0.15	20
Sulfate	17.29	0.500	10	6.547	107	80 - 120	17.24	0.3	20

The following samples were analyzed in this batch: HS23121834-05

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455659 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761909		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: WLCS-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761908		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)		1024	10.0	1000	0	102	85 - 115			
DUP	Sample ID: HS23121830-03DUP	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761900		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)		1296	10.0				1296	0	20	
The following samples were analyzed in this batch:		HS23121834-05								

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455835 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:25					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766237		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	U	5.00							
Alkalinity, Carbonate (As CaCO3)	U	5.00							
LCS	Sample ID: LCS-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:31					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766238		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	941.6	5.00	1000	0	94.2	85 - 115			
LCSD	Sample ID: LCSD-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:37					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766239		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	945.4	5.00	1000	0	94.5	85 - 115	941.6	0.403	20
DUP	Sample ID: HS23121795-01DUP	Units: mg/L		Analysis Date: 04-Jan-2024 19:48					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766241		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	93	5.00					93.9	0.963	20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0	20
The following samples were analyzed in this batch: HS23121834-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS23121834

QC BATCH REPORT

Batch ID: R455836 (0)		Instrument: Skalar 03		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS23121795-01DUP	Units: pH Units		Analysis Date: 04-Jan-2024 19:48					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766271		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	6.73	0.100					6.71	0.298	10
Temp Deg C @pH	16.3	0					16.9	3.61	10

DUP	Sample ID: HS23121389-07DUP	Units: pH Units		Analysis Date: 04-Jan-2024 22:02					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766262		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.01	0.100					7.01	0	10
Temp Deg C @pH	19.2	0					19.3	0.519	10

The following samples were analyzed in this batch: HS23121834-05

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS23121834

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS23121834

Date/Time Received: 29-Dec-2023 14:00

Client Name: ERMSW-HOU

Received by: Paresh M. Giga

Completed By: /S/ Paresh M. Giga	29-Dec-2023 15:53	Reviewed by: /S/ Bernadette A. Fini	30-Dec-2023 07:37
eSignature	Date/Time	eSignature	Date/Time

Matrices: WaterCarrier 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 ☐	3 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC
	Yes ☒	No ☐	IDs:304135/304136/305161
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):	0.4C/0.3C; 0.5C/0.4C; 0.8C/0.7C U/c IR31		
Cooler(s)/Kit(s):	47946/50653/51135		
Date/Time sample(s) sent to storage:	12/29/23 16:15		
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:	MW-1-700 MA EPH 2nd Amber has 400ml only.		

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 3 of 3

COC ID: 305161

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

Customer Information		Project Information		ALS Project Manager: _____ ALS Work Order #: _____															
Purchase Order		Project Name		Parameter/Method Request for Analysis															
0701099	0712237	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.) pH															
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, Br, Zn, Ni, V															
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	I SULFD_4500S F (Sulfide)															
				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	019-13434Z	12/28/2	16:20	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

HS23121834

Environmental Resources Mgmt.
Sulphur Dome



Sampler(s) Please Print & Sign <i>Taylor Brown</i>		Shipment Method		Required Turnaround Time: (Check Box) ☒ STD. Turn Days ☐ 5 Wk Days ☐ 7 Wk Days ☐ 24 Hour				Results Due Date:	
Relinquished by: <i>Taylor Brown</i>	Date: 12/29/23	Time: 14:00	Received by:		Notes: ERM Sulphur Dome				
Relinquished by:	Date:	Time:	Received by (Laboratory): 12/29/23 14:00		Cooler ID				
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		Cooler Temp.				
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					QC Package: (Check One Box Below) ☒ Level II Solid OC ☐ Level II Solid OC (Date) ☐ TRAP Canister ☐ Level II Solid OC (Date) ☐ Level II Solid OC (Date) ☐ BSKP Canister ☐ None				

- 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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January 11, 2024

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

Work Order: **HS24010338**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 3 sample(s) on Dec 29, 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,

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010338

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24010338-01	MW-1-500	Water		27-Dec-2023 16:30	29-Dec-2023 14:00	☐
HS24010338-02	MW-1-200	Water		28-Dec-2023 11:45	29-Dec-2023 14:00	☐
HS24010338-03	MW-1-700	Water		28-Dec-2023 14:30	29-Dec-2023 14:00	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010338

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: 205694**

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

GC Volatiles by Method MA VPH**Batch ID: R456027,R456028**

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

GCMS Volatiles by Method SW8260**Batch ID: R455661****Sample ID: HS23121482-01MS**

- MS is for an unrelated sample

Metals by Method SW7470A**Batch ID: 205870**

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

Metals by Method SW6020A**Batch ID: 205777****Sample ID: HS23121834-04MS**

- MS and MSD are for an unrelated sample

Sample ID: HS23121834-04PDS

- PDS is for an unrelated sample (Sodium)

WetChemistry by Method M2540C**Batch ID: R455659**

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

WetChemistry by Method SM2320B**Batch ID: R455835**

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

WetChemistry by Method SM4500H+ B**Batch ID: R455836**

- 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: HS24010338

CASE NARRATIVE

WetChemistry by Method SM4500H+ B

WetChemistry by Method SW9056

Batch ID: R455647

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

WetChemistry by Method E376.1

Batch ID: R455513

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

WetChemistry by Method SM4500 S2-F

Batch ID: R455511

- 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: MW-1-500
 Collection Date: 27-Dec-2023 16:30

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C			Method:SW8260			Analyst: AKP	
Benzene	U		0.00020	0.0010	mg/L	1	02-Jan-2024 16:01
Ethylbenzene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:01
m,p-Xylene	U		0.00050	0.0020	mg/L	1	02-Jan-2024 16:01
o-Xylene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:01
Toluene	U		0.00020	0.0010	mg/L	1	02-Jan-2024 16:01
Xylenes, Total	U		0.00030	0.0030	mg/L	1	02-Jan-2024 16:01
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>107</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:01</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>110</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:01</i>
<i>Surr: Dibromofluoromethane</i>	<i>112</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:01</i>
<i>Surr: Toluene-d8</i>	<i>88.8</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:01</i>
MASSACHUSETTS VPH, FEB 2018, REV 2.1			Method:MA VPH			Analyst: TS	
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:12
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:12
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:12
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	<i>71.7</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 19:12</i>
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	<i>81.5</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 19:12</i>
MASSACHUSETTS EPH R2.1, DEC 2019			Method:MA EPH			Prep:SW3510 / 05-Jan-2024	Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 12:58
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	09-Jan-2024 12:58
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	09-Jan-2024 12:58
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 11:32
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	09-Jan-2024 11:32
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	09-Jan-2024 11:32
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	09-Jan-2024 11:32
<i>Surr: 1-Chlorooctadecane</i>	<i>77.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:58</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>97.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 11:32</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>101</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 11:32</i>
<i>Surr: o-Terphenyl</i>	<i>75.9</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 11:32</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-1-500
 Collection Date: 27-Dec-2023 16:30

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 08-Jan-2024		Analyst: MSC	
Arsenic	0.00629		0.000400	0.00200	mg/L	1	10-Jan-2024 15:27
Barium	0.251		0.00190	0.00400	mg/L	1	10-Jan-2024 15:27
Cadmium	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:27
Calcium	25.2		0.0340	0.500	mg/L	1	10-Jan-2024 15:27
Chromium	0.000690	J	0.000400	0.00400	mg/L	1	10-Jan-2024 15:27
Iron	8.52		0.0120	0.200	mg/L	1	10-Jan-2024 15:27
Lead	U		0.000600	0.00200	mg/L	1	10-Jan-2024 15:27
Magnesium	7.26		0.0100	0.200	mg/L	1	10-Jan-2024 15:27
Manganese	0.344		0.000700	0.00500	mg/L	1	10-Jan-2024 15:27
Nickel	0.00102	J	0.000600	0.00200	mg/L	1	10-Jan-2024 15:27
Potassium	2.27		0.0180	0.200	mg/L	1	10-Jan-2024 15:27
Selenium	U		0.00110	0.00200	mg/L	1	10-Jan-2024 15:27
Silver	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:27
Sodium	43.2		0.0140	0.200	mg/L	1	10-Jan-2024 15:27
Strontium	0.245		0.000200	0.00500	mg/L	1	10-Jan-2024 15:27
Vanadium	0.00164	J	0.000600	0.00500	mg/L	1	10-Jan-2024 15:27
Zinc	0.0221		0.00200	0.00400	mg/L	1	10-Jan-2024 15:27
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 10-Jan-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	10-Jan-2024 14:02
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	30-Dec-2023 13:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	184		5.00	10.0	mg/L	1	02-Jan-2024 12:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	170		3.50	5.00	mg/L	1	04-Jan-2024 20:29
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	04-Jan-2024 20:29
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	30-Dec-2023 12:53
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.80	H	0.100	0.100	pH Units	1	04-Jan-2024 20:29
Temp Deg C @pH	17.5	H	0	0	°C	1	04-Jan-2024 20:29
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	02-Jan-2024 11:06
Chloride	24.1		0.200	0.500	mg/L	1	02-Jan-2024 11:06
Sulfate	6.55		0.200	0.500	mg/L	1	02-Jan-2024 11:06

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-1-200
 Collection Date: 28-Dec-2023 11:45

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.00020	0.0010	mg/L	1	02-Jan-2024 16:23
Ethylbenzene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:23
m,p-Xylene	U		0.00050	0.0020	mg/L	1	02-Jan-2024 16:23
o-Xylene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:23
Toluene	U		0.00020	0.0010	mg/L	1	02-Jan-2024 16:23
Xylenes, Total	U		0.00030	0.0030	mg/L	1	02-Jan-2024 16:23
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>109</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:23</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>108</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:23</i>
<i>Surr: Dibromofluoromethane</i>	<i>114</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:23</i>
<i>Surr: Toluene-d8</i>	<i>89.3</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:23</i>
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:51
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:51
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 19:51
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	<i>72.2</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 19:51</i>
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	<i>82.3</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 19:51</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 05-Jan-2024		Analyst: SAM	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 13:27
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	09-Jan-2024 13:27
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	09-Jan-2024 13:27
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 12:01
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	09-Jan-2024 12:01
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	09-Jan-2024 12:01
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	09-Jan-2024 12:01
<i>Surr: 1-Chlorooctadecane</i>	<i>63.1</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 13:27</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>85.7</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:01</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>89.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:01</i>
<i>Surr: o-Terphenyl</i>	<i>61.0</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:01</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-1-200
 Collection Date: 28-Dec-2023 11:45

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 08-Jan-2024		Analyst: MSC	
Arsenic	0.00881		0.000400	0.00200	mg/L	1	10-Jan-2024 15:29
Barium	0.231		0.00190	0.00400	mg/L	1	10-Jan-2024 15:29
Cadmium	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:29
Calcium	22.6		0.0340	0.500	mg/L	1	10-Jan-2024 15:29
Chromium	0.00178	J	0.000400	0.00400	mg/L	1	10-Jan-2024 15:29
Iron	9.33		0.0120	0.200	mg/L	1	10-Jan-2024 15:29
Lead	0.00163	J	0.000600	0.00200	mg/L	1	10-Jan-2024 15:29
Magnesium	8.82		0.0100	0.200	mg/L	1	10-Jan-2024 15:29
Manganese	0.176		0.000700	0.00500	mg/L	1	10-Jan-2024 15:29
Nickel	0.00650		0.000600	0.00200	mg/L	1	10-Jan-2024 15:29
Potassium	2.33		0.0180	0.200	mg/L	1	10-Jan-2024 15:29
Selenium	U		0.00110	0.00200	mg/L	1	10-Jan-2024 15:29
Silver	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:29
Sodium	91.9		0.0140	0.200	mg/L	1	10-Jan-2024 15:29
Strontium	0.225		0.000200	0.00500	mg/L	1	10-Jan-2024 15:29
Vanadium	0.00335	J	0.000600	0.00500	mg/L	1	10-Jan-2024 15:29
Zinc	0.00801		0.00200	0.00400	mg/L	1	10-Jan-2024 15:29
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 10-Jan-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	10-Jan-2024 14:04
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	30-Dec-2023 13:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	272		5.00	10.0	mg/L	1	02-Jan-2024 12:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	268		3.50	5.00	mg/L	1	04-Jan-2024 20:34
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	04-Jan-2024 20:34
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	30-Dec-2023 12:53
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	8.29	H	0.100	0.100	pH Units	1	04-Jan-2024 20:34
Temp Deg C @pH	16.8	H	0	0	°C	1	04-Jan-2024 20:34
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	02-Jan-2024 11:06
Chloride	41.0		0.200	0.500	mg/L	1	02-Jan-2024 11:06
Sulfate	4.89		0.200	0.500	mg/L	1	02-Jan-2024 11:06

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-1-700
 Collection Date: 28-Dec-2023 14:30

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.00020	0.0010	mg/L	1	02-Jan-2024 16:45
Ethylbenzene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:45
m,p-Xylene	U		0.00050	0.0020	mg/L	1	02-Jan-2024 16:45
o-Xylene	U		0.00030	0.0010	mg/L	1	02-Jan-2024 16:45
Toluene	0.015		0.00020	0.0010	mg/L	1	02-Jan-2024 16:45
Xylenes, Total	U		0.00030	0.0030	mg/L	1	02-Jan-2024 16:45
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>92.0</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:45</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>109</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:45</i>
<i>Surr: Dibromofluoromethane</i>	<i>103</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:45</i>
<i>Surr: Toluene-d8</i>	<i>91.4</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 16:45</i>
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	02-Jan-2024 20:30
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 20:30
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 20:30
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	<i>79.3</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 20:30</i>
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	<i>90.4</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>02-Jan-2024 20:30</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 05-Jan-2024		Analyst: SAM	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 13:55
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	09-Jan-2024 13:55
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	09-Jan-2024 13:55
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 12:29
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	09-Jan-2024 12:29
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	09-Jan-2024 12:29
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	09-Jan-2024 12:29
<i>Surr: 1-Chlorooctadecane</i>	<i>56.5</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 13:55</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>89.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:29</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>94.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:29</i>
<i>Surr: o-Terphenyl</i>	<i>59.2</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>09-Jan-2024 12:29</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-1-700
 Collection Date: 28-Dec-2023 14:30

ANALYTICAL REPORT

WorkOrder:HS24010338
 Lab ID:HS24010338-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 08-Jan-2024		Analyst: MSC	
Arsenic	0.00571		0.000400	0.00200	mg/L	1	10-Jan-2024 15:41
Barium	0.318		0.00190	0.00400	mg/L	1	10-Jan-2024 15:41
Cadmium	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:41
Calcium	16.4		0.0340	0.500	mg/L	1	10-Jan-2024 15:41
Chromium	0.191		0.000400	0.00400	mg/L	1	10-Jan-2024 15:41
Iron	157		0.0120	0.200	mg/L	1	10-Jan-2024 15:41
Lead	0.00652		0.000600	0.00200	mg/L	1	10-Jan-2024 15:41
Magnesium	3.38		0.0100	0.200	mg/L	1	10-Jan-2024 15:41
Manganese	0.750		0.000700	0.00500	mg/L	1	10-Jan-2024 15:41
Nickel	0.147		0.000600	0.00200	mg/L	1	10-Jan-2024 15:41
Potassium	2.28		0.0180	0.200	mg/L	1	10-Jan-2024 15:41
Selenium	0.00329		0.00110	0.00200	mg/L	1	10-Jan-2024 15:41
Silver	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:41
Sodium	230		0.280	4.00	mg/L	20	10-Jan-2024 16:51
Strontium	0.195		0.000200	0.00500	mg/L	1	10-Jan-2024 15:41
Vanadium	0.0147		0.000600	0.00500	mg/L	1	10-Jan-2024 15:41
Zinc	0.0488		0.00200	0.00400	mg/L	1	10-Jan-2024 15:41
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 10-Jan-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	10-Jan-2024 14:06
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	30-Dec-2023 13:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	466		5.00	10.0	mg/L	1	02-Jan-2024 12:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	253		3.50	5.00	mg/L	1	04-Jan-2024 20:40
Alkalinity, Carbonate (As CaCO ₃)	46.2		3.50	5.00	mg/L	1	04-Jan-2024 20:40
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	30-Dec-2023 12:53
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	9.09	H	0.100	0.100	pH Units	1	04-Jan-2024 20:40
Temp Deg C @pH	16.4	H	0	0	°C	1	04-Jan-2024 20:40
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.212		0.0300	0.100	mg/L	1	02-Jan-2024 11:06
Chloride	124		1.00	2.50	mg/L	5	02-Jan-2024 11:06
Sulfate	0.245	J	0.200	0.500	mg/L	1	02-Jan-2024 11:06

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

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

Batch ID: 205694	Start Date: 05 Jan 2024 09:30	End Date: 05 Jan 2024 09:30
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010338-01		1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24010338-02		1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24010338-03		1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 205777	Start Date: 08 Jan 2024 14:00	End Date: 08 Jan 2024 14:00
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010338-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24010338-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24010338-03		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 205870	Start Date: 10 Jan 2024 08:00	End Date: 10 Jan 2024 08:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010338-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24010338-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24010338-03		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 205694 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30		05 Jan 2024 09:30	09 Jan 2024 12:58	1
HS24010338-01	MW-1-500	27 Dec 2023 16:30		05 Jan 2024 09:30	09 Jan 2024 11:32	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45		05 Jan 2024 09:30	09 Jan 2024 13:27	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45		05 Jan 2024 09:30	09 Jan 2024 12:01	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30		05 Jan 2024 09:30	09 Jan 2024 13:55	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30		05 Jan 2024 09:30	09 Jan 2024 12:29	1
Batch ID: 205777 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30		08 Jan 2024 14:00	10 Jan 2024 15:27	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45		08 Jan 2024 14:00	10 Jan 2024 15:29	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30		08 Jan 2024 14:00	10 Jan 2024 16:51	20
HS24010338-03	MW-1-700	28 Dec 2023 14:30		08 Jan 2024 14:00	10 Jan 2024 15:41	1
Batch ID: 205870 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30		10 Jan 2024 08:00	10 Jan 2024 14:02	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45		10 Jan 2024 08:00	10 Jan 2024 14:04	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30		10 Jan 2024 08:00	10 Jan 2024 14:06	1
Batch ID: R455511 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			30 Dec 2023 12:53	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			30 Dec 2023 12:53	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			30 Dec 2023 12:53	1
Batch ID: R455513 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			30 Dec 2023 13:05	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			30 Dec 2023 13:05	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			30 Dec 2023 13:05	1
Batch ID: R455647 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			02 Jan 2024 11:06	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			02 Jan 2024 11:06	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 11:06	5
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 11:06	1
Batch ID: R455659 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			02 Jan 2024 12:30	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			02 Jan 2024 12:30	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 12:30	1
Batch ID: R455661 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			02 Jan 2024 16:01	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			02 Jan 2024 16:23	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 16:45	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R455835 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			04 Jan 2024 20:29	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			04 Jan 2024 20:34	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			04 Jan 2024 20:40	1
Batch ID: R455836 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			04 Jan 2024 20:29	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			04 Jan 2024 20:34	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			04 Jan 2024 20:40	1
Batch ID: R456027 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			02 Jan 2024 19:12	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			02 Jan 2024 19:51	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 20:30	1
Batch ID: R456028 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24010338-01	MW-1-500	27 Dec 2023 16:30			02 Jan 2024 19:12	1
HS24010338-02	MW-1-200	28 Dec 2023 11:45			02 Jan 2024 19:51	1
HS24010338-03	MW-1-700	28 Dec 2023 14:30			02 Jan 2024 20:30	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:32					
Client ID:	Run ID: FID23_456162		SeqNo: 7773506		PrepDate: 05-Jan-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02122</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>53.0</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:06					
Client ID:	Run ID: FID-22_456163		SeqNo: 7773516		PrepDate: 05-Jan-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.03842</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>96.0</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.03942</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>98.6</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.02505</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>62.6</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:01					
Client ID:	Run ID: FID23_456162		SeqNo: 7773507		PrepDate: 05-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04038	0.00100	0.05	0	80.8	40 - 140			
Aliphatics >C12 - C16	0.08384	0.00200	0.1	0	83.8	40 - 140			
Aliphatics >C16 - C35	0.3044	0.00800	0.4	0	76.1	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02061</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>51.5</i>	<i>40 - 140</i>			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:35				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773517		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04396	0.00100	0.05	0	87.9	40 - 140			
Aromatics >C12 - C16	0.16	0.00400	0.2	0	80.0	40 - 140			
Aromatics >C16 - C21	0.1321	0.00300	0.15	0	88.1	40 - 140			
Aromatics >C21 - C35	0.3222	0.00900	0.45	0	71.6	40 - 140			
Surr: 2-Bromonaphthalene	0.03751	0	0.04	0	93.8	40 - 140			
Surr: 2-Fluorobiphenyl	0.03772	0	0.04	0	94.3	40 - 140			
Surr: o-Terphenyl	0.02481	0	0.04	0	62.0	40 - 140			

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:29				
Client ID:		Run ID: FID23_456162		SeqNo: 7773508		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04402	0.00100	0.05	0	88.0	40 - 140	0.04038	8.62	50
Aliphatics >C12 - C16	0.08964	0.00200	0.1	0	89.6	40 - 140	0.08384	6.69	50
Aliphatics >C16 - C35	0.3391	0.00800	0.4	0	84.8	40 - 140	0.3044	10.8	50
Surr: 1-Chlorooctadecane	0.02098	0	0.04	0	52.4	40 - 140	0.02061	1.76	50

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:03				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773518		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04866	0.00100	0.05	0	97.3	40 - 140	0.04396	10.2	50
Aromatics >C12 - C16	0.1902	0.00400	0.2	0	95.1	40 - 140	0.16	17.3	50
Aromatics >C16 - C21	0.1572	0.00300	0.15	0	105	40 - 140	0.1321	17.3	50
Aromatics >C21 - C35	0.3791	0.00900	0.45	0	84.3	40 - 140	0.3222	16.2	50
Surr: 2-Bromonaphthalene	0.04119	0	0.04	0	103	40 - 140	0.03751	9.36	50
Surr: 2-Fluorobiphenyl	0.04152	0	0.04	0	104	40 - 140	0.03772	9.58	50
Surr: o-Terphenyl	0.02831	0	0.04	0	70.8	40 - 140	0.02481	13.2	50

The following samples were analyzed in this batch: HS24010338-01 HS24010338-02 HS24010338-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R456027 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770288		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)	0.1827	0.0100	0.25	0	73.1	70 - 130			
LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770286		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02292	0.0100	0.025	0	91.7	70 - 130			
Aliphatics >C8 - C10	0.03046	0.0100	0.025	0	122	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1859	0.0100	0.25	0	74.4	70 - 130			
LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770287		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.0234	0.0100	0.025	0	93.6	70 - 130	0.02292	2.09	25
Aliphatics >C8 - C10	0.03059	0.0100	0.025	0	122	70 - 130	0.03046	0.442	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1818	0.0100	0.25	0	72.7	70 - 130	0.1859	2.22	25
The following samples were analyzed in this batch:									
HS24010338-01		HS24010338-02		HS24010338-03					

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R456028 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-15_456028	SeqNo: 7770315		PrepDate:		DF: 1			
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)	0.1934	0.0100	0.25	0	77.4	70 - 130			
LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-15_456028	SeqNo: 7770313		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.07166	0.0100	0.1	0	71.7	70 - 130			
Surr: 2,5-Dibromotoluene (Aromatic)	0.213	0.0100	0.25	0	85.2	70 - 130			
LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-15_456028	SeqNo: 7770314		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.07454	0.0100	0.1	0	74.5	70 - 130	0.07166	3.93	25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2121	0.0100	0.25	0	84.8	70 - 130	0.213	0.413	25
The following samples were analyzed in this batch:									
HS24010338-01 HS24010338-02 HS24010338-03									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-205777	Units: mg/L		Analysis Date: 09-Jan-2024 12:21					
Client ID:	Run ID: ICPMS07_456082		SeqNo: 7771477		PrepDate: 08-Jan-2024		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							
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	0.001256	0.00500							J
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS		Sample ID: LCS-205777		Units: mg/L		Analysis Date: 09-Jan-2024 12:38			
Client ID:		Run ID: ICPMS07_456082		SeqNo: 7771480		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04998	0.00200	0.05	0	100.0	80 - 120			
Barium	0.05442	0.00400	0.05	0	109	80 - 120			
Cadmium	0.05427	0.00200	0.05	0	109	80 - 120			
Calcium	5.029	0.500	5	0	101	80 - 120			
Chromium	0.05041	0.00400	0.05	0	101	80 - 120			
Iron	5.002	0.200	5	0	100	80 - 120			
Lead	0.0491	0.00200	0.05	0	98.2	80 - 120			
Magnesium	5.299	0.200	5	0	106	80 - 120			
Manganese	0.0493	0.00500	0.05	0	98.6	80 - 120			
Nickel	0.05034	0.00200	0.05	0	101	80 - 120			
Potassium	5.138	0.200	5	0	103	80 - 120			
Selenium	0.04855	0.00200	0.05	0	97.1	80 - 120			
Silver	0.05072	0.00200	0.05	0	101	80 - 120			
Sodium	5.273	0.200	5	0	105	80 - 120			
Strontium	0.1096	0.00500	0.1	0	110	80 - 120			
Vanadium	0.05018	0.00500	0.05	0	100	80 - 120			
Zinc	0.05079	0.00400	0.05	0	102	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS23121834-04MS		Units: mg/L		Analysis Date: 10-Jan-2024 15:15			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774492		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04496	0.00200	0.05	0.001183	87.6	80 - 120			
Barium	0.2405	0.00400	0.05	0.1853	110	80 - 120			
Cadmium	0.047	0.00200	0.05	0	94.0	80 - 120			
Calcium	28.82	0.500	5	26.34	49.6	80 - 120			SO
Chromium	0.04542	0.00400	0.05	0.000708	89.4	80 - 120			
Iron	4.478	0.200	5	0.09264	87.7	80 - 120			
Lead	0.04368	0.00200	0.05	0.000814	85.7	80 - 120			
Magnesium	11.06	0.200	5	7.368	73.8	80 - 120			S
Manganese	0.1244	0.00500	0.05	0.08804	72.6	80 - 120			S
Nickel	0.04418	0.00200	0.05	0.000986	86.4	80 - 120			
Potassium	5.763	0.200	5	1.185	91.6	80 - 120			
Selenium	0.04507	0.00200	0.05	0	90.1	80 - 120			
Silver	0.04688	0.00200	0.05	0	93.8	80 - 120			
Sodium	58.24	0.200	5	59.34	-22.0	80 - 120			SO
Strontium	0.3081	0.00500	0.1	0.2186	89.4	80 - 120			
Vanadium	0.04604	0.00500	0.05	0.0006	90.9	80 - 120			
Zinc	0.08939	0.00400	0.05	0.05935	60.1	80 - 120			S

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS23121834-04MSD		Units: mg/L		Analysis Date: 10-Jan-2024 15:18			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774493		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04712	0.00200	0.05	0.001183	91.9	80 - 120	0.04956	5.03	20
Barium	0.247	0.00400	0.05	0.1853	123	80 - 120	0.246	0.422	20 S
Cadmium	0.04809	0.00200	0.05	0	96.2	80 - 120	0.04903	1.94	20
Calcium	29.96	0.500	5	26.34	72.4	80 - 120	30.61	2.16	20 SO
Chromium	0.04674	0.00400	0.05	0.000708	92.1	80 - 120	0.04882	4.36	20
Iron	4.7	0.200	5	0.09264	92.1	80 - 120	4.877	3.71	20
Lead	0.04536	0.00200	0.05	0.000814	89.1	80 - 120	0.04328	4.69	20
Magnesium	11.64	0.200	5	7.368	85.3	80 - 120	11.84	1.72	20
Manganese	0.1299	0.00500	0.05	0.08804	83.7	80 - 120	0.1335	2.73	20
Nickel	0.04726	0.00200	0.05	0.000986	92.6	80 - 120	0.04812	1.8	20
Potassium	6.061	0.200	5	1.185	97.5	80 - 120	6.17	1.78	20
Selenium	0.04715	0.00200	0.05	0	94.3	80 - 120	0.04801	1.81	20
Silver	0.04864	0.00200	0.05	0	97.3	80 - 120	0.04606	5.44	20
Sodium	61.57	0.200	5	59.34	44.7	80 - 120	62.86	2.07	20 SO
Strontium	0.3202	0.00500	0.1	0.2186	102	80 - 120	0.3278	2.35	20
Vanadium	0.04795	0.00500	0.05	0.0006	94.7	80 - 120	0.04908	2.33	20
Zinc	0.09394	0.00400	0.05	0.05935	69.2	80 - 120	0.09563	1.79	20 S

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS23121834-04PDS		Units: mg/L		Analysis Date: 10-Jan-2024 15:20			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774494		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.09329	0.00200	0.1	0.001183	92.1	75 - 125			
Barium	0.2881	0.00400	0.1	0.1853	103	75 - 125			
Cadmium	0.09447	0.00200	0.1	0	94.5	75 - 125			
Calcium	34.34	0.500	10	26.34	80.1	75 - 125			
Chromium	0.09702	0.00400	0.1	0.000708	96.3	75 - 125			
Iron	9.232	0.200	10	0.09264	91.4	75 - 125			
Lead	0.09414	0.00200	0.1	0.000814	93.3	75 - 125			
Magnesium	16.15	0.200	10	7.368	87.8	75 - 125			
Manganese	0.1753	0.00500	0.1	0.08804	87.3	75 - 125			
Nickel	0.09144	0.00200	0.1	0.000986	90.5	75 - 125			
Potassium	10.68	0.200	10	1.185	94.9	75 - 125			
Selenium	0.09408	0.00200	0.1	0	94.1	75 - 125			
Silver	0.0941	0.00200	0.1	0	94.1	75 - 125			
Sodium	65.79	0.200	10	59.34	64.5	75 - 125			SO
Strontium	0.3374	0.00500	0.1	0.2186	119	75 - 125			
Vanadium	0.09405	0.00500	0.1	0.0006	93.5	75 - 125			
Zinc	0.1393	0.00400	0.1	0.05935	79.9	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD		Sample ID: HS23121834-04SD		Units: mg/L		Analysis Date: 10-Jan-2024 15:13				
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774491		PrepDate: 08-Jan-2024		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	U	0.0100					0.001183	0	10	
Barium	0.2021	0.0200					0.1853	9.04	10	
Cadmium	U	0.0100					0	0	10	
Calcium	25.53	2.50					26.34	3.05	10	
Chromium	0.004681	0.0200					0.000708	0	10	J
Iron	0.1687	1.00					0.09264	0	10	J
Lead	U	0.0100					0.000814	0	10	
Magnesium	6.737	1.00					7.368	8.57	10	
Manganese	0.08634	0.0250					0.08804	1.93	10	
Nickel	U	0.0100					0.000986	0	10	
Potassium	1.189	1.00					1.185	0.324	10	
Selenium	U	0.0100					0	0	10	
Silver	U	0.0100					0	0	10	
Sodium	58.15	1.00					59.34	2	10	
Strontium	0.2225	0.0250					0.2186	1.78	10	
Vanadium	U	0.0250					0.0006	0	10	
Zinc	0.05717	0.0200					0.05935	3.67	10	

The following samples were analyzed in this batch: HS24010338-01 HS24010338-02 HS24010338-03

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: 205870 (0)		Instrument: HG04		Method: MERCURY BY SW7470A					
MBLK	Sample ID: MBLK-205870	Units: mg/L		Analysis Date: 10-Jan-2024 13:38					
Client ID:	Run ID: HG04_456219		SeqNo: 7774317		PrepDate: 10-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	U	0.000200							
LCS	Sample ID: LCS-205870	Units: mg/L		Analysis Date: 10-Jan-2024 13:40					
Client ID:	Run ID: HG04_456219		SeqNo: 7774318		PrepDate: 10-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00505	0.000200	0.005	0	101	80 - 120			
MS	Sample ID: HS24010363-02MS	Units: mg/L		Analysis Date: 10-Jan-2024 14:09					
Client ID:	Run ID: HG04_456219		SeqNo: 7774329		PrepDate: 10-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00486	0.000200	0.005	-0.000003	97.3	75 - 125			
MSD	Sample ID: HS24010363-02MSD	Units: mg/L		Analysis Date: 10-Jan-2024 14:11					
Client ID:	Run ID: HG04_456219		SeqNo: 7774330		PrepDate: 10-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00491	0.000200	0.005	-0.000003	98.3	75 - 125	0.00486	1.02	20
The following samples were analyzed in this batch:									
		HS24010338-01		HS24010338-02		HS24010338-03			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-240102	Units: mg/L		Analysis Date: 02-Jan-2024 13:27					
Client ID:	Run ID: VOA7_455661		SeqNo: 7761926		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	0.0010							
Ethylbenzene	U	0.0010							
m,p-Xylene	U	0.0020							
o-Xylene	U	0.0010							
Toluene	U	0.0010							
Xylenes, Total	U	0.0030							
Surr: 1,2-Dichloroethane-d4	0.047	0.0010	0.05	0	94.9	70 - 123			
Surr: 4-Bromofluorobenzene	0.055	0.0010	0.05	0	110	77 - 113			
Surr: Dibromofluoromethane	0.050	0.0010	0.05	0	99.9	73 - 126			
Surr: Toluene-d8	0.044	0.0010	0.05	0	87.8	81 - 120			

LCS	Sample ID: VLCSW-240102	Units: mg/L		Analysis Date: 02-Jan-2024 12:21					
Client ID:	Run ID: VOA7_455661		SeqNo: 7761926		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	0.021	0.0010	0.02	0	107	74 - 120			
Ethylbenzene	0.020	0.0010	0.02	0	101	77 - 117			
m,p-Xylene	0.040	0.0020	0.04	0	101	77 - 122			
o-Xylene	0.020	0.0010	0.02	0	102	75 - 119			
Toluene	0.019	0.0010	0.02	0	95.5	77 - 118			
Xylenes, Total	0.061	0.0030	0.06	0	101	75 - 122			
Surr: 1,2-Dichloroethane-d4	0.056	0.0010	0.05	0	111	70 - 123			
Surr: 4-Bromofluorobenzene	0.052	0.0010	0.05	0	104	77 - 113			
Surr: Dibromofluoromethane	0.059	0.0010	0.05	0	119	73 - 126			
Surr: Toluene-d8	0.045	0.0010	0.05	0	90.9	81 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCS DW-240102		Units: mg/L		Analysis Date: 02-Jan-2024 12:43			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761927		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	0.020	0.0010	0.02	0	102	74 - 120	0.02142	5.06	20
Ethylbenzene	0.019	0.0010	0.02	0	95.9	77 - 117	0.02028	5.61	20
m,p-Xylene	0.038	0.0020	0.04	0	95.8	77 - 122	0.04046	5.39	20
o-Xylene	0.020	0.0010	0.02	0	97.7	75 - 119	0.02035	4.07	20
Toluene	0.018	0.0010	0.02	0	92.5	77 - 118	0.01909	3.17	20
Xylenes, Total	0.058	0.0030	0.06	0	96.5	75 - 122	0.06081	4.95	20
Surr: 1,2-Dichloroethane-d4	0.053	0.0010	0.05	0	107	70 - 123	0.05564	3.98	20
Surr: 4-Bromofluorobenzene	0.052	0.0010	0.05	0	104	77 - 113	0.05221	0.018	20
Surr: Dibromofluoromethane	0.059	0.0010	0.05	0	118	73 - 126	0.05936	0.855	20
Surr: Toluene-d8	0.045	0.0010	0.05	0	90.6	81 - 120	0.04543	0.264	20

MS		Sample ID: HS23121482-01MS		Units: mg/L		Analysis Date: 02-Jan-2024 21:28			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761949		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	0.021	0.0010	0.02	0	107	70 - 127			
Ethylbenzene	0.019	0.0010	0.02	0	96.6	70 - 124			
m,p-Xylene	0.037	0.0020	0.04	0	93.3	70 - 130			
o-Xylene	0.019	0.0010	0.02	0	94.3	70 - 124			
Toluene	0.019	0.0010	0.02	0	95.1	70 - 123			
Xylenes, Total	0.056	0.0030	0.06	0	93.6	70 - 130			
Surr: 1,2-Dichloroethane-d4	0.057	0.0010	0.05	0	114	70 - 126			
Surr: 4-Bromofluorobenzene	0.053	0.0010	0.05	0	107	77 - 113			
Surr: Dibromofluoromethane	0.064	0.0010	0.05	0	127	77 - 123			S
Surr: Toluene-d8	0.046	0.0010	0.05	0	91.9	82 - 127			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD		Sample ID: HS23121482-01MSD		Units: mg/L		Analysis Date: 02-Jan-2024 21:50				
Client ID:		Run ID: VOA7_455661		SeqNo: 7761950		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	0.021	0.0010	0.02	0	104	70 - 127	0.02138	2.86	20	
Ethylbenzene	0.018	0.0010	0.02	0	90.8	70 - 124	0.01932	6.22	20	
m,p-Xylene	0.035	0.0020	0.04	0	88.7	70 - 130	0.03730	5.03	20	
o-Xylene	0.018	0.0010	0.02	0	88.3	70 - 124	0.01885	6.55	20	
Toluene	0.017	0.0010	0.02	0	86.9	70 - 123	0.01902	9.06	20	
Xylenes, Total	0.053	0.0030	0.06	0	88.5	70 - 130	0.05616	5.54	20	
Surr: 1,2-Dichloroethane-d4	0.055	0.0010	0.05	0	109	70 - 126	0.05718	4.59	20	
Surr: 4-Bromofluorobenzene	0.053	0.0010	0.05	0	107	77 - 113	0.05344	0.0246	20	
Surr: Dibromofluoromethane	0.060	0.0010	0.05	0	120	77 - 123	0.06374	6.01	20	
Surr: Toluene-d8	0.045	0.0010	0.05	0	90.0	82 - 127	0.04597	2.14	20	
The following samples were analyzed in this batch:										
HS24010338-01		HS24010338-02		HS24010338-03						

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455511 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011					
MBLK	Sample ID: MBLK-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758908		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	U	2.00							
LCS	Sample ID: LCS-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758907		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	22	2.00	25	0	88.0	85 - 115			
LCSD	Sample ID: LCSD-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758906		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	0	87.2	85 - 115	22	0.913	20
MS	Sample ID: HS23121834-01MS	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758905		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	-1.2	92.0	80 - 120			
The following samples were analyzed in this batch:									
		HS24010338-01		HS24010338-02		HS24010338-03			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455513 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1						
MBLK	Sample ID: MBLK-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05						
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758927		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Hydrogen Sulfide	U	1.00								
LCS	Sample ID: LCS-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05						
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758926		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Hydrogen Sulfide	23.38	1.00	26.56	0	88.0	80 - 120				
LCSD	Sample ID: LCSD-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05						
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758925		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Hydrogen Sulfide	23.16	1.00	26.56	0	87.2	80 - 120	23.38	0.913	20	
The following samples were analyzed in this batch:										
HS24010338-01		HS24010338-02		HS24010338-03						

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455647 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 02-Jan-2024 11:35					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761684		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: 02-Jan-2024 11:41					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761685		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	4.205	0.100	4	0	105	80 - 120			
Chloride	20.22	0.500	20	0	101	80 - 120			
Sulfate	21.12	0.500	20	0	106	80 - 120			

MS	Sample ID: HS23121834-01MS	Units: mg/L		Analysis Date: 02-Jan-2024 11:59					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761687		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.382	0.100	2	0	119	80 - 120			
Chloride	33.95	0.500	10	24.12	98.3	80 - 120			
Sulfate	17.24	0.500	10	6.547	107	80 - 120			

MSD	Sample ID: HS23121834-01MSD	Units: mg/L		Analysis Date: 02-Jan-2024 12:05					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761688		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.338	0.100	2	0	117	80 - 120	2.382	1.87	20
Chloride	33.9	0.500	10	24.12	97.8	80 - 120	33.95	0.15	20
Sulfate	17.29	0.500	10	6.547	107	80 - 120	17.24	0.3	20

The following samples were analyzed in this batch:									
HS24010338-01		HS24010338-02		HS24010338-03					

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455659 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30					
Client ID:	Run ID: Balance1_455659	SeqNo: 7761909		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30					
Client ID:	Run ID: Balance1_455659	SeqNo: 7761908		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1024	10.0	1000	0	102	85 - 115		
DUP	Sample ID: HS23121830-03DUP	Units: mg/L		Analysis Date: 02-Jan-2024 12:30					
Client ID:	Run ID: Balance1_455659	SeqNo: 7761900		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1296	10.0			1296	0	20	
The following samples were analyzed in this batch:		HS24010338-01		HS24010338-02		HS24010338-03			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455835 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:25					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766237		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-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:31					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766238		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)	941.6	5.00	1000	0	94.2	85 - 115			
LCSD	Sample ID: LCSD-01042024	Units: mg/L		Analysis Date: 04-Jan-2024 19:37					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766239		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)	945.4	5.00	1000	0	94.5	85 - 115	941.6	0.403	20
DUP	Sample ID: HS23121795-01DUP	Units: mg/L		Analysis Date: 04-Jan-2024 19:48					
Client ID:	Run ID: Skalar 03_455835	SeqNo: 7766241		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)	93	5.00					93.9	0.963	20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0	20
The following samples were analyzed in this batch:									
HS24010338-01 HS24010338-02 HS24010338-03									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010338

QC BATCH REPORT

Batch ID: R455836 (0)		Instrument: Skalar 03		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS23121795-01DUP	Units: pH Units		Analysis Date: 04-Jan-2024 19:48					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766271		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	6.73	0.100					6.71	0.298	10
Temp Deg C @pH	16.3	0					16.9	3.61	10

DUP	Sample ID: HS23121389-07DUP	Units: pH Units		Analysis Date: 04-Jan-2024 22:02					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766262		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.01	0.100					7.01	0	10
Temp Deg C @pH	19.2	0					19.3	0.519	10

The following samples were analyzed in this batch:

HS24010338-01	HS24010338-02	HS24010338-03

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010338

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24010338

Date/Time Received: 29-Dec-2023 14:00

Client Name: ERMSW-HOU

Received by: Paresh M. Giga

Completed By: /S/ Paresh M. Giga	29-Dec-2023 15:53	Reviewed by: /S/ Bernadette A. Fini	09-Jan-2024 12:43
eSignature	Date/Time	eSignature	Date/Time

Matrices: WaterCarrier 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 ☐	3 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC
Samplers name present on COC?	Yes ☐	No ☒	IDs:304135/304136/305161
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):	0.4C/0.3C; 0.5C/0.4C; 0.8C/0.7C U/c IR31		
Cooler(s)/Kit(s):	47946/50653/51135		
Date/Time sample(s) sent to storage:	12/29/23 16:15		
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:	MW-1-700 MA EPH 2nd Amber has 400ml only.		

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH
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Chain of Custody Form

Page 1 of 3

COC ID: 304135

Houston, TX
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Salt Lake City, UT
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South Charleston, WV
+1 304 356 3168

York, PA
+1 717 505 5280

Customer Information		Project Information		ALS Project Manager:		ALS Work Order #:	
Parameter/Method Request for Analysis							
Purchase Order	0712237	Project Name	Sulphur Dome	A	S260_LL_W (Low Level VOC (S260) 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	S056_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) pH		
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, Si, Zn, Ni V		
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	I	SULFD_4c00S F (Sulfide)		
				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	MW-1-500	12/27/23	16:30	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2	MW-1-200	12/28/23	11:45	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
3	MW-1-700	12/28/23	14:30	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HS24010338
Environmental Resources Mgmt.
Sulphur Dome

Sampler(s) Please Print & Sign <i>Taylor Brown</i>		Shipment Method	Required Turnaround Time: (Check Box) ☒ STD 10-14 Days ☐ 5-7 Days ☐ 1-2 Days ☐ 24 Hours		Results Due Date:
Relinquished by: <i>Taylor Brown</i>	Date: 12/29/23	Time: 14:00	Received by:	Notes: ERM Sulphur Dome	
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	47941	0.45
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				50663	0.50
				51135	0.80

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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February 19, 2024

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

Work Order: **HS24010341**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 1 sample(s) on Dec 29, 2023 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: JUMOKE.LAWAL
Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010341

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24010341-01	019-1261	Water		28-Dec-2023 15:35	29-Dec-2023 14:00	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010341

CASE NARRATIVE

Work Order Comments

- This report was revised to import metals data for HS23121834-04 sample ID: 019-1261.

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.
- This report contains additional analyses. The sample was originally reported as ALS Workorder Number HS23121834.

GC Semivolatiles by Method MA EPH

Batch ID: 205694

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

GC Volatiles by Method MA VPH

Batch ID: R456027,R456028

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

GCMS Volatiles by Method SW8260

Batch ID: R455661

Sample ID: HS23121482-01MS

- MS is for an unrelated sample

Metals by Method SW7470A

Batch ID: 205966

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

Metals by Method SW6020A

Batch ID: 205777

Sample ID: HS23121834-04MS

- MS/MSD and DUPs are for an unrelated sample

WetChemistry by Method M2540C

Batch ID: R455659

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

WetChemistry by Method SM2320B

Batch ID: R455835

- 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: HS24010341

CASE NARRATIVE

WetChemistry by Method SM4500H+ B

Batch ID: R455836

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

WetChemistry by Method SW9056

Batch ID: R455647

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

WetChemistry by Method E376.1

Batch ID: R455513

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

WetChemistry by Method SM4500 S2-F

Batch ID: R455511

- 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: 019-1261
 Collection Date: 28-Dec-2023 15:35

ANALYTICAL REPORT

WorkOrder:HS24010341
 Lab ID:HS24010341-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	02-Jan-2024 17:07
Ethylbenzene	U		0.30	1.0	ug/L	1	02-Jan-2024 17:07
m,p-Xylene	U		0.50	2.0	ug/L	1	02-Jan-2024 17:07
o-Xylene	U		0.30	1.0	ug/L	1	02-Jan-2024 17:07
Toluene	U		0.20	1.0	ug/L	1	02-Jan-2024 17:07
Xylenes, Total	U		0.30	3.0	ug/L	1	02-Jan-2024 17:07
<i>Surr: 1,2-Dichloroethane-d4</i>	99.3			70-126	%REC	1	02-Jan-2024 17:07
<i>Surr: 4-Bromofluorobenzene</i>	108			77-113	%REC	1	02-Jan-2024 17:07
<i>Surr: Dibromofluoromethane</i>	97.5			77-123	%REC	1	02-Jan-2024 17:07
<i>Surr: Toluene-d8</i>	87.8			82-127	%REC	1	02-Jan-2024 17:07
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	02-Jan-2024 21:08
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 21:08
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	02-Jan-2024 21:08
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	71.9			70-130	%REC	1	02-Jan-2024 21:08
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	82.2			70-130	%REC	1	02-Jan-2024 21:08
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 05-Jan-2024		Analyst: SAM	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 14:24
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	09-Jan-2024 14:24
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	09-Jan-2024 14:24
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	09-Jan-2024 12:58
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	09-Jan-2024 12:58
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	09-Jan-2024 12:58
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	09-Jan-2024 12:58
<i>Surr: 1-Chlorooctadecane</i>	66.2			40-140	%REC	1	09-Jan-2024 14:24
<i>Surr: 2-Bromonaphthalene</i>	90.4			40-140	%REC	1	09-Jan-2024 12:58
<i>Surr: 2-Fluorobiphenyl</i>	93.6			40-140	%REC	1	09-Jan-2024 12:58
<i>Surr: o-Terphenyl</i>	66.7			40-140	%REC	1	09-Jan-2024 12:58

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-1261
 Collection Date: 28-Dec-2023 15:35

ANALYTICAL REPORT

WorkOrder:HS24010341
 Lab ID:HS24010341-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 08-Jan-2024		Analyst: MSC	
Arsenic	0.00115	J	0.000400	0.00200	mg/L	1	10-Jan-2024 15:11
Barium	0.203		0.00190	0.00400	mg/L	1	10-Jan-2024 15:11
Cadmium	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:11
Calcium	26.7		0.0340	0.500	mg/L	1	10-Jan-2024 15:11
Chromium	0.000654	J	0.000400	0.00400	mg/L	1	10-Jan-2024 15:11
Iron	0.0962	J	0.0120	0.200	mg/L	1	10-Jan-2024 15:11
Lead	0.000893	J	0.000600	0.00200	mg/L	1	10-Jan-2024 15:11
Magnesium	7.29		0.0100	0.200	mg/L	1	10-Jan-2024 15:11
Manganese	0.0887		0.000700	0.00500	mg/L	1	10-Jan-2024 15:11
Nickel	0.000964	J	0.000600	0.00200	mg/L	1	10-Jan-2024 15:11
Potassium	1.22		0.0180	0.200	mg/L	1	10-Jan-2024 15:11
Selenium	U		0.00110	0.00200	mg/L	1	10-Jan-2024 15:11
Silver	U		0.000200	0.00200	mg/L	1	10-Jan-2024 15:11
Sodium	59.7		0.0140	0.200	mg/L	1	10-Jan-2024 15:11
Strontium	0.230		0.000200	0.00500	mg/L	1	10-Jan-2024 15:11
Vanadium	0.00133	J	0.000600	0.00500	mg/L	1	10-Jan-2024 15:11
Zinc	0.0595		0.00200	0.00400	mg/L	1	10-Jan-2024 15:11
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 12-Jan-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	12-Jan-2024 13:28
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	30-Dec-2023 13:05
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: DC	
Total Dissolved Solids (Residue, Filterable)	226		5.00	10.0	mg/L	1	02-Jan-2024 12:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	214		3.50	5.00	mg/L	1	04-Jan-2024 20:45
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	04-Jan-2024 20:45
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	30-Dec-2023 12:53
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.67	H	0.100	0.100	pH Units	1	04-Jan-2024 20:45
Temp Deg C @pH	16.2	H	0	0	°C	1	04-Jan-2024 20:45
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0980	J	0.0300	0.100	mg/L	1	02-Jan-2024 11:06
Chloride	17.3		0.200	0.500	mg/L	1	02-Jan-2024 11:06
Sulfate	U		0.200	0.500	mg/L	1	02-Jan-2024 11:06

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

Revision: 1

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

Batch ID: 205694	Start Date: 05 Jan 2024 09:30	End Date: 05 Jan 2024 09:30
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010341-01		1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 205777	Start Date: 08 Jan 2024 14:00	End Date: 08 Jan 2024 14:00
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010341-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 205966	Start Date: 12 Jan 2024 09:00	End Date: 12 Jan 2024 09:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24010341-01		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 205694 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35		05 Jan 2024 09:30	09 Jan 2024 14:24	1
HS24010341-01	019-1261	28 Dec 2023 15:35		05 Jan 2024 09:30	09 Jan 2024 12:58	1
Batch ID: 205777 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35		08 Jan 2024 14:00	10 Jan 2024 15:11	1
Batch ID: 205966 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35		12 Jan 2024 09:00	12 Jan 2024 13:28	1
Batch ID: R455511 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			30 Dec 2023 12:53	1
Batch ID: R455513 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			30 Dec 2023 13:05	1
Batch ID: R455647 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			02 Jan 2024 11:06	1
Batch ID: R455659 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			02 Jan 2024 12:30	1
Batch ID: R455661 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			02 Jan 2024 17:07	1
Batch ID: R455835 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			04 Jan 2024 20:45	1
Batch ID: R455836 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			04 Jan 2024 20:45	1
Batch ID: R456027 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			02 Jan 2024 21:08	1
Batch ID: R456028 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24010341-01	019-1261	28 Dec 2023 15:35			02 Jan 2024 21:08	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:32					
Client ID:	Run ID: FID23_456162		SeqNo: 7773506		PrepDate: 05-Jan-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02122</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>53.0</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:06					
Client ID:	Run ID: FID-22_456163		SeqNo: 7773516		PrepDate: 05-Jan-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.03842</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>96.0</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.03942</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>98.6</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.02505</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>62.6</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:01					
Client ID:	Run ID: FID23_456162		SeqNo: 7773507		PrepDate: 05-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04038	0.00100	0.05	0	80.8	40 - 140			
Aliphatics >C12 - C16	0.08384	0.00200	0.1	0	83.8	40 - 140			
Aliphatics >C16 - C35	0.3044	0.00800	0.4	0	76.1	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02061</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>51.5</i>	<i>40 - 140</i>			

Revision: 1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205694 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-205694	Units: mg/L		Analysis Date: 09-Jan-2024 10:35				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773517		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04396	0.00100	0.05	0	87.9	40 - 140			
Aromatics >C12 - C16	0.16	0.00400	0.2	0	80.0	40 - 140			
Aromatics >C16 - C21	0.1321	0.00300	0.15	0	88.1	40 - 140			
Aromatics >C21 - C35	0.3222	0.00900	0.45	0	71.6	40 - 140			
Surr: 2-Bromonaphthalene	0.03751	0	0.04	0	93.8	40 - 140			
Surr: 2-Fluorobiphenyl	0.03772	0	0.04	0	94.3	40 - 140			
Surr: o-Terphenyl	0.02481	0	0.04	0	62.0	40 - 140			

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 12:29				
Client ID:		Run ID: FID23_456162		SeqNo: 7773508		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04402	0.00100	0.05	0	88.0	40 - 140	0.04038	8.62	50
Aliphatics >C12 - C16	0.08964	0.00200	0.1	0	89.6	40 - 140	0.08384	6.69	50
Aliphatics >C16 - C35	0.3391	0.00800	0.4	0	84.8	40 - 140	0.3044	10.8	50
Surr: 1-Chlorooctadecane	0.02098	0	0.04	0	52.4	40 - 140	0.02061	1.76	50

LCSD		Sample ID: LCSD-205694	Units: mg/L		Analysis Date: 09-Jan-2024 11:03				
Client ID:		Run ID: FID-22_456163		SeqNo: 7773518		PrepDate: 05-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04866	0.00100	0.05	0	97.3	40 - 140	0.04396	10.2	50
Aromatics >C12 - C16	0.1902	0.00400	0.2	0	95.1	40 - 140	0.16	17.3	50
Aromatics >C16 - C21	0.1572	0.00300	0.15	0	105	40 - 140	0.1321	17.3	50
Aromatics >C21 - C35	0.3791	0.00900	0.45	0	84.3	40 - 140	0.3222	16.2	50
Surr: 2-Bromonaphthalene	0.04119	0	0.04	0	103	40 - 140	0.03751	9.36	50
Surr: 2-Fluorobiphenyl	0.04152	0	0.04	0	104	40 - 140	0.03772	9.58	50
Surr: o-Terphenyl	0.02831	0	0.04	0	70.8	40 - 140	0.02481	13.2	50

The following samples were analyzed in this batch: HS24010341-01

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R456027 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770288		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)	0.1827	0.0100	0.25	0	73.1	70 - 130			
LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770286		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02292	0.0100	0.025	0	91.7	70 - 130			
Aliphatics >C8 - C10	0.03046	0.0100	0.025	0	122	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1859	0.0100	0.25	0	74.4	70 - 130			
LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-14_456027	SeqNo: 7770287		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.0234	0.0100	0.025	0	93.6	70 - 130	0.02292	2.09	25
Aliphatics >C8 - C10	0.03059	0.0100	0.025	0	122	70 - 130	0.03046	0.442	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1818	0.0100	0.25	0	72.7	70 - 130	0.1859	2.22	25
The following samples were analyzed in this batch: HS24010341-01									

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R456028 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240102	Units: mg/L		Analysis Date: 02-Jan-2024 18:33					
Client ID:	Run ID: FID-15_456028		SeqNo: 7770315		PrepDate:		DF: 1		
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) 0.1934 0.0100 0.25 0 77.4 70 - 130

LCS	Sample ID: LCS-240102	Units: mg/L		Analysis Date: 02-Jan-2024 16:37					
Client ID:	Run ID: FID-15_456028		SeqNo: 7770313		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aromatics >C8 - C10 0.07166 0.0100 0.1 0 71.7 70 - 130

Surr: 2,5-Dibromotoluene (Aromatic) 0.213 0.0100 0.25 0 85.2 70 - 130

LCSD	Sample ID: LCSD-240102	Units: mg/L		Analysis Date: 02-Jan-2024 17:16					
Client ID:	Run ID: FID-15_456028		SeqNo: 7770314		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aromatics >C8 - C10 0.07454 0.0100 0.1 0 74.5 70 - 130 0.07166 3.93 25

Surr: 2,5-Dibromotoluene (Aromatic) 0.2121 0.0100 0.25 0 84.8 70 - 130 0.213 0.413 25

The following samples were analyzed in this batch: HS24010341-01

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-205777	Units: mg/L		Analysis Date: 09-Jan-2024 12:21					
Client ID:	Run ID: ICPMS07_456082	SeqNo: 7771477		PrepDate: 08-Jan-2024		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							
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	0.001256	0.00500							J
Zinc	U	0.00400							

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS	Sample ID: LCS-205777	Units: mg/L			Analysis Date: 09-Jan-2024 12:38				
Client ID:	Run ID: ICPMS07_456082		SeqNo: 7771480		PrepDate: 08-Jan-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04998	0.00200	0.05	0	100.0	80 - 120			
Barium	0.05442	0.00400	0.05	0	109	80 - 120			
Cadmium	0.05427	0.00200	0.05	0	109	80 - 120			
Calcium	5.029	0.500	5	0	101	80 - 120			
Chromium	0.05041	0.00400	0.05	0	101	80 - 120			
Iron	5.002	0.200	5	0	100	80 - 120			
Lead	0.0491	0.00200	0.05	0	98.2	80 - 120			
Magnesium	5.299	0.200	5	0	106	80 - 120			
Manganese	0.0493	0.00500	0.05	0	98.6	80 - 120			
Nickel	0.05034	0.00200	0.05	0	101	80 - 120			
Potassium	5.138	0.200	5	0	103	80 - 120			
Selenium	0.04855	0.00200	0.05	0	97.1	80 - 120			
Silver	0.05072	0.00200	0.05	0	101	80 - 120			
Sodium	5.273	0.200	5	0	105	80 - 120			
Strontium	0.1096	0.00500	0.1	0	110	80 - 120			
Vanadium	0.05018	0.00500	0.05	0	100	80 - 120			
Zinc	0.05079	0.00400	0.05	0	102	80 - 120			

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS23121834-04MS		Units: mg/L		Analysis Date: 10-Jan-2024 15:15			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774492		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04496	0.00200	0.05	0.001183	87.6	80 - 120			
Barium	0.2405	0.00400	0.05	0.1853	110	80 - 120			
Cadmium	0.047	0.00200	0.05	0	94.0	80 - 120			
Calcium	28.82	0.500	5	26.34	49.6	80 - 120			SO
Chromium	0.04542	0.00400	0.05	0.000708	89.4	80 - 120			
Iron	4.478	0.200	5	0.09264	87.7	80 - 120			
Lead	0.04368	0.00200	0.05	0.000814	85.7	80 - 120			
Magnesium	11.06	0.200	5	7.368	73.8	80 - 120			S
Manganese	0.1244	0.00500	0.05	0.08804	72.6	80 - 120			S
Nickel	0.04418	0.00200	0.05	0.000986	86.4	80 - 120			
Potassium	5.763	0.200	5	1.185	91.6	80 - 120			
Selenium	0.04507	0.00200	0.05	0	90.1	80 - 120			
Silver	0.04688	0.00200	0.05	0	93.8	80 - 120			
Sodium	58.24	0.200	5	59.34	-22.0	80 - 120			SO
Strontium	0.3081	0.00500	0.1	0.2186	89.4	80 - 120			
Vanadium	0.04604	0.00500	0.05	0.0006	90.9	80 - 120			
Zinc	0.08939	0.00400	0.05	0.05935	60.1	80 - 120			S

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS23121834-04MSD		Units: mg/L		Analysis Date: 10-Jan-2024 15:18			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774493		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04712	0.00200	0.05	0.001183	91.9	80 - 120	0.04956	5.03	20
Barium	0.247	0.00400	0.05	0.1853	123	80 - 120	0.246	0.422	20 S
Cadmium	0.04809	0.00200	0.05	0	96.2	80 - 120	0.04903	1.94	20
Calcium	29.96	0.500	5	26.34	72.4	80 - 120	30.61	2.16	20 SO
Chromium	0.04674	0.00400	0.05	0.000708	92.1	80 - 120	0.04882	4.36	20
Iron	4.7	0.200	5	0.09264	92.1	80 - 120	4.877	3.71	20
Lead	0.04536	0.00200	0.05	0.000814	89.1	80 - 120	0.04328	4.69	20
Magnesium	11.64	0.200	5	7.368	85.3	80 - 120	11.84	1.72	20
Manganese	0.1299	0.00500	0.05	0.08804	83.7	80 - 120	0.1335	2.73	20
Nickel	0.04726	0.00200	0.05	0.000986	92.6	80 - 120	0.04812	1.8	20
Potassium	6.061	0.200	5	1.185	97.5	80 - 120	6.17	1.78	20
Selenium	0.04715	0.00200	0.05	0	94.3	80 - 120	0.04801	1.81	20
Silver	0.04864	0.00200	0.05	0	97.3	80 - 120	0.04606	5.44	20
Sodium	61.57	0.200	5	59.34	44.7	80 - 120	62.86	2.07	20 SO
Strontium	0.3202	0.00500	0.1	0.2186	102	80 - 120	0.3278	2.35	20
Vanadium	0.04795	0.00500	0.05	0.0006	94.7	80 - 120	0.04908	2.33	20
Zinc	0.09394	0.00400	0.05	0.05935	69.2	80 - 120	0.09563	1.79	20 S

Revision: 1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS23121834-04PDS		Units: mg/L		Analysis Date: 10-Jan-2024 15:20			
Client ID:		Run ID: ICPMS07_456210		SeqNo: 7774494		PrepDate: 08-Jan-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.09329	0.00200	0.1	0.001183	92.1	75 - 125			
Barium	0.2881	0.00400	0.1	0.1853	103	75 - 125			
Cadmium	0.09447	0.00200	0.1	0	94.5	75 - 125			
Calcium	34.34	0.500	10	26.34	80.1	75 - 125			
Chromium	0.09702	0.00400	0.1	0.000708	96.3	75 - 125			
Iron	9.232	0.200	10	0.09264	91.4	75 - 125			
Lead	0.09414	0.00200	0.1	0.000814	93.3	75 - 125			
Magnesium	16.15	0.200	10	7.368	87.8	75 - 125			
Manganese	0.1753	0.00500	0.1	0.08804	87.3	75 - 125			
Nickel	0.09144	0.00200	0.1	0.000986	90.5	75 - 125			
Potassium	10.68	0.200	10	1.185	94.9	75 - 125			
Selenium	0.09408	0.00200	0.1	0	94.1	75 - 125			
Silver	0.0941	0.00200	0.1	0	94.1	75 - 125			
Sodium	65.79	0.200	10	59.34	64.5	75 - 125			SO
Strontium	0.3374	0.00500	0.1	0.2186	119	75 - 125			
Vanadium	0.09405	0.00500	0.1	0.0006	93.5	75 - 125			
Zinc	0.1393	0.00400	0.1	0.05935	79.9	75 - 125			

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205777 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD	Sample ID: HS23121834-04SD	Units: mg/L		Analysis Date: 10-Jan-2024 15:13						
Client ID:	Run ID: ICPMS07_456210		SeqNo: 7774491		PrepDate: 08-Jan-2024		DF: 5			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	U	0.0100					0.001183	0	10	
Barium	0.2021	0.0200					0.1853	9.04	10	
Cadmium	U	0.0100					0	0	10	
Calcium	25.53	2.50					26.34	3.05	10	
Chromium	0.004681	0.0200					0.000708	0	10	J
Iron	0.1687	1.00					0.09264	0	10	J
Lead	U	0.0100					0.000814	0	10	
Magnesium	6.737	1.00					7.368	8.57	10	
Manganese	0.08634	0.0250					0.08804	1.93	10	
Nickel	U	0.0100					0.000986	0	10	
Potassium	1.189	1.00					1.185	0.324	10	
Selenium	U	0.0100					0	0	10	
Silver	U	0.0100					0	0	10	
Sodium	58.15	1.00					59.34	2	10	
Strontium	0.2225	0.0250					0.2186	1.78	10	
Vanadium	U	0.0250					0.0006	0	10	
Zinc	0.05717	0.0200					0.05935	3.67	10	

The following samples were analyzed in this batch: HS24010341-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: 205966 (0)		Instrument: HG04		Method: MERCURY BY SW7470A						
MBLK	Sample ID: MBLK-205966	Units: mg/L		Analysis Date: 12-Jan-2024 13:24						
Client ID:	Run ID: HG04_456396		SeqNo: 7778924		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	U	0.000200								
LCS	Sample ID: LCS-205966	Units: mg/L		Analysis Date: 12-Jan-2024 13:26						
Client ID:	Run ID: HG04_456396		SeqNo: 7778925		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	0	93.4	80 - 120				
MS	Sample ID: HS24010502-02MS	Units: mg/L		Analysis Date: 12-Jan-2024 13:49						
Client ID:	Run ID: HG04_456396		SeqNo: 7778937		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	-0.000001	93.4	75 - 125				
MSD	Sample ID: HS24010502-02MSD	Units: mg/L		Analysis Date: 12-Jan-2024 13:51						
Client ID:	Run ID: HG04_456396		SeqNo: 7778938		PrepDate: 12-Jan-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	RPD Qual
Mercury	0.00467	0.000200	0.005	-0.000001	93.4	75 - 125	0.00467	0	20	
The following samples were analyzed in this batch: HS24010341-01										

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK		Sample ID: VBLKW-240102		Units: ug/L		Analysis Date: 02-Jan-2024 13:27			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761928		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %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	3.0							
Surr: 1,2-Dichloroethane-d4	47.45	1.0	50	0	94.9	70 - 123			
Surr: 4-Bromofluorobenzene	55.16	1.0	50	0	110	77 - 113			
Surr: Dibromofluoromethane	49.95	1.0	50	0	99.9	73 - 126			
Surr: Toluene-d8	43.89	1.0	50	0	87.8	81 - 120			

LCS		Sample ID: VLCSW-240102		Units: ug/L		Analysis Date: 02-Jan-2024 12:21			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761926		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	21.42	1.0	20	0	107	74 - 120			
Ethylbenzene	20.28	1.0	20	0	101	77 - 117			
m,p-Xylene	40.46	2.0	40	0	101	77 - 122			
o-Xylene	20.35	1.0	20	0	102	75 - 119			
Toluene	19.09	1.0	20	0	95.5	77 - 118			
Xylenes, Total	60.81	3.0	60	0	101	75 - 122			
Surr: 1,2-Dichloroethane-d4	55.64	1.0	50	0	111	70 - 123			
Surr: 4-Bromofluorobenzene	52.21	1.0	50	0	104	77 - 113			
Surr: Dibromofluoromethane	59.36	1.0	50	0	119	73 - 126			
Surr: Toluene-d8	45.43	1.0	50	0	90.9	81 - 120			

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCSDW-240102		Units: ug/L		Analysis Date: 02-Jan-2024 12:43			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761927		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	20.37	1.0	20	0	102	74 - 120	21.42	5.06	20
Ethylbenzene	19.17	1.0	20	0	95.9	77 - 117	20.28	5.61	20
m,p-Xylene	38.33	2.0	40	0	95.8	77 - 122	40.46	5.39	20
o-Xylene	19.54	1.0	20	0	97.7	75 - 119	20.35	4.07	20
Toluene	18.49	1.0	20	0	92.5	77 - 118	19.09	3.17	20
Xylenes, Total	57.87	3.0	60	0	96.5	75 - 122	60.81	4.95	20
Surr: 1,2-Dichloroethane-d4	53.47	1.0	50	0	107	70 - 123	55.64	3.98	20
Surr: 4-Bromofluorobenzene	52.2	1.0	50	0	104	77 - 113	52.21	0.018	20
Surr: Dibromofluoromethane	58.85	1.0	50	0	118	73 - 126	59.36	0.855	20
Surr: Toluene-d8	45.32	1.0	50	0	90.6	81 - 120	45.43	0.264	20

MS		Sample ID: HS23121482-01MS		Units: ug/L		Analysis Date: 02-Jan-2024 21:28			
Client ID:		Run ID: VOA7_455661		SeqNo: 7761949		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	21.38	1.0	20	0	107	70 - 127			
Ethylbenzene	19.32	1.0	20	0	96.6	70 - 124			
m,p-Xylene	37.3	2.0	40	0	93.3	70 - 130			
o-Xylene	18.85	1.0	20	0	94.3	70 - 124			
Toluene	19.02	1.0	20	0	95.1	70 - 123			
Xylenes, Total	56.16	3.0	60	0	93.6	70 - 130			
Surr: 1,2-Dichloroethane-d4	57.18	1.0	50	0	114	70 - 126			
Surr: 4-Bromofluorobenzene	53.44	1.0	50	0	107	77 - 113			
Surr: Dibromofluoromethane	63.74	1.0	50	0	127	77 - 123			S
Surr: Toluene-d8	45.97	1.0	50	0	91.9	82 - 127			

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455661 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MSD	Sample ID: HS23121482-01MSD	Units: ug/L		Analysis Date: 02-Jan-2024 21:50					
Client ID:	Run ID: VOA7_455661		SeqNo: 7761950		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	20.77	1.0	20	0	104	70 - 127	21.38	2.86	20
Ethylbenzene	18.16	1.0	20	0	90.8	70 - 124	19.32	6.22	20
m,p-Xylene	35.47	2.0	40	0	88.7	70 - 130	37.3	5.03	20
o-Xylene	17.66	1.0	20	0	88.3	70 - 124	18.85	6.55	20
Toluene	17.37	1.0	20	0	86.9	70 - 123	19.02	9.06	20
Xylenes, Total	53.13	3.0	60	0	88.5	70 - 130	56.16	5.54	20
Surr: 1,2-Dichloroethane-d4	54.62	1.0	50	0	109	70 - 126	57.18	4.59	20
Surr: 4-Bromofluorobenzene	53.43	1.0	50	0	107	77 - 113	53.44	0.0246	20
Surr: Dibromofluoromethane	60.02	1.0	50	0	120	77 - 123	63.74	6.01	20
Surr: Toluene-d8	45	1.0	50	0	90.0	82 - 127	45.97	2.14	20
The following samples were analyzed in this batch: HS24010341-01									

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455511 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011					
MBLK	Sample ID: MBLK-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758908		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	U	2.00							
LCS	Sample ID: LCS-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758907		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	22	2.00	25	0	88.0	85 - 115			
LCSD	Sample ID: LCSD-R455511	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7758906		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	0	87.2	85 - 115	22	0.913	20
MS	Sample ID: HS24010338-01MS	Units: mg/L		Analysis Date: 30-Dec-2023 12:53					
Client ID:	Run ID: WetChem_HS_455511		SeqNo: 7777332		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	-1.2	92.0	80 - 120			
The following samples were analyzed in this batch: HS24010341-01									

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455513 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758927		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							
LCS	Sample ID: LCS-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758926		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.38	1.00	26.56	0	88.0	80 - 120			
LCSD	Sample ID: LCSD-R455513	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7758925		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.16	1.00	26.56	0	87.2	80 - 120	23.38	0.913	20
MS	Sample ID: HS24010338-01MS	Units: mg/L		Analysis Date: 30-Dec-2023 13:05					
Client ID:	Run ID: WetChem_HS_455513		SeqNo: 7777178		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	21.8	1.00	26.56	-1.275	86.9	80 - 120			
The following samples were analyzed in this batch: HS24010341-01									

Revision: 1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455647 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 02-Jan-2024 11:35					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761684		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: 02-Jan-2024 11:41					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761685		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	4.205	0.100	4	0	105	80 - 120			
Chloride	20.22	0.500	20	0	101	80 - 120			
Sulfate	21.12	0.500	20	0	106	80 - 120			

MS	Sample ID: HS23121834-01MS	Units: mg/L		Analysis Date: 02-Jan-2024 11:59					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761687		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.382	0.100	2	0	119	80 - 120			
Chloride	33.95	0.500	10	24.12	98.3	80 - 120			
Sulfate	17.24	0.500	10	6.547	107	80 - 120			

MSD	Sample ID: HS23121834-01MSD	Units: mg/L		Analysis Date: 02-Jan-2024 12:05					
Client ID:	Run ID: ICS-Integrion_455647		SeqNo: 7761688		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	2.338	0.100	2	0	117	80 - 120	2.382	1.87	20
Chloride	33.9	0.500	10	24.12	97.8	80 - 120	33.95	0.15	20
Sulfate	17.29	0.500	10	6.547	107	80 - 120	17.24	0.3	20

The following samples were analyzed in this batch: HS24010341-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455659 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761909		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: WLCS-01022024	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761908		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)		1024	10.0	1000	0	102	85 - 115			
DUP	Sample ID: HS23121830-03DUP	Units: mg/L		Analysis Date: 02-Jan-2024 12:30						
Client ID:	Run ID: Balance1_455659	SeqNo: 7761900		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)		1296	10.0				1296	0	20	
The following samples were analyzed in this batch:		HS24010341-01								

Revision: 1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455835 (0) **Instrument:** Skalar 03 **Method:** ALKALINITY BY -2011

MBLK Sample ID: **MBLK-01042024** Units: **mg/L** Analysis Date: **04-Jan-2024 19:25**
Client ID: Run ID: **Skalar 03_455835** SeqNo: **7766237** 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-01042024** Units: **mg/L** Analysis Date: **04-Jan-2024 19:31**
Client ID: Run ID: **Skalar 03_455835** SeqNo: **7766238** 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) 941.6 5.00 1000 0 94.2 85 - 115

LCSD Sample ID: **LCSD-01042024** Units: **mg/L** Analysis Date: **04-Jan-2024 19:37**
Client ID: Run ID: **Skalar 03_455835** SeqNo: **7766239** 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) 945.4 5.00 1000 0 94.5 85 - 115 941.6 0.403 20

DUP Sample ID: **HS23121795-01DUP** Units: **mg/L** Analysis Date: **04-Jan-2024 19:48**
Client ID: Run ID: **Skalar 03_455835** SeqNo: **7766241** 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) 93 5.00 93.9 0.963 20

Alkalinity, Carbonate (As CaCO3) U 5.00 0 0 20

The following samples were analyzed in this batch: HS24010341-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010341

QC BATCH REPORT

Batch ID: R455836 (0)		Instrument: Skalar 03		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS23121795-01DUP	Units: pH Units		Analysis Date: 04-Jan-2024 19:48					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766271		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	6.73	0.100					6.71	0.298	10
Temp Deg C @pH	16.3	0					16.9	3.61	10

DUP	Sample ID: HS23121389-07DUP	Units: pH Units		Analysis Date: 04-Jan-2024 22:02					
Client ID:	Run ID: Skalar 03_455836	SeqNo: 7766262		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.01	0.100					7.01	0	10
Temp Deg C @pH	19.2	0					19.3	0.519	10

The following samples were analyzed in this batch: HS24010341-01

Revision: 1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010341

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L22-90-R2	31-Mar-2024
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24010341
Client Name: ERMSW-HOU

Date/Time Received: **29-Dec-2023 14:00**
Received by: **Paresh M. Giga**

Completed By: <u>/S/ Paresh M. Giga</u>	29-Dec-2023 15:53	Reviewed by: <u>/S/ Bernadette A. Fini</u>	09-Jan-2024 12:44
eSignature	Date/Time	eSignature	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 ☐	3 Page(s)
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	COC
Samplers name present on COC?	Yes ☐	No ☒	IDs:304135/304136/305161
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):	0.4C/0.3C; 0.5C/0.4C; 0.8C/0.7C U/c IR31		
Cooler(s)/Kit(s):	47946/50653/51135		
Date/Time sample(s) sent to storage:	12/29/23 16:15		
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:	MW-1-700 MA EPH 2nd Amber has 400ml only.		

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

Fort Collins, CO
+1 970 490 1511

Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 2 of 3

COC ID: 304136

Houston, TX
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Middletown, PA
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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

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	0712237	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).pH												
				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,Ni,V												
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	019-1261	12/28/23	15:35	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HS24010341

Environmental Resources Mgmt.
Sulphur Dome

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)				Results Due Date:	
Taylor Brown				☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour					
Relinquished by:	Date:	Time:	Received by:	Notes: ERM Sulphur Dome					
Taylor Brown	12/29/23	14:00							
Relinquished by:	Date:	Time:	Received by (Laboratory):						
			12/29/23 14:00						
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):						
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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January 11, 2024

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

Work Order: **HS24010442**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 3 sample(s) on Jan 09, 2024 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,

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010442

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24010442-01	N0.2	Water		09-Jan-2024 11:00	09-Jan-2024 16:35	☐
HS24010442-02	BS12-TOP	Water		09-Jan-2024 11:30	09-Jan-2024 16:35	☐
HS24010442-03	BS12-BOTTOM	Water		09-Jan-2024 11:45	09-Jan-2024 16:35	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24010442

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.

WetChemistry by Method M2540C

Batch ID: R456281

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

WetChemistry by Method SW9056

Batch ID: R456239

- 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: N0.2
Collection Date: 09-Jan-2024 11:00

ANALYTICAL REPORT

WorkOrder:HS24010442
Lab ID:HS24010442-01
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C		Analyst: JAC			
Total Dissolved Solids (Residue, Filterable)	406		5.00	10.0	mg/L	1	10-Jan-2024 15:00
ANIONS BY SW9056A		Method:SW9056		Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	10-Jan-2024 09:41
Chloride	149		2.00	5.00	mg/L	10	10-Jan-2024 09:47
Sulfate	47.5		0.200	0.500	mg/L	1	10-Jan-2024 09:41

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

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Sample ID: BS12-TOP
Collection Date: 09-Jan-2024 11:30

ANALYTICAL REPORT

WorkOrder:HS24010442
Lab ID:HS24010442-02
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL DISSOLVED SOLIDS BY SM2540C		Method:M2540C		Analyst: JAC			
-2011							
Total Dissolved Solids (Residue, Filterable)	2,190		5.00	10.0	mg/L	1	10-Jan-2024 15:00
ANIONS BY SW9056A		Method:SW9056		Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	10-Jan-2024 10:05
Chloride	834		2.00	5.00	mg/L	10	10-Jan-2024 10:11
Sulfate	393		2.00	5.00	mg/L	10	10-Jan-2024 10:11

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

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Sample ID: BS12-BOTTOM
Collection Date: 09-Jan-2024 11:45

ANALYTICAL REPORT
WorkOrder:HS24010442
Lab ID:HS24010442-03
Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL DISSOLVED SOLIDS BY SM2540C-2011		Method:M2540C		Analyst: JAC			
Total Dissolved Solids (Residue, Filterable)	2,020		5.00	10.0	mg/L	1	10-Jan-2024 15:00
ANIONS BY SW9056A		Method:SW9056		Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	10-Jan-2024 10:16
Chloride	816		2.00	5.00	mg/L	10	10-Jan-2024 10:22
Sulfate	385		2.00	5.00	mg/L	10	10-Jan-2024 10:22

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

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010442

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R456239 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24010442-01	N0.2	09 Jan 2024 11:00			10 Jan 2024 09:47	10
HS24010442-01	N0.2	09 Jan 2024 11:00			10 Jan 2024 09:41	1
HS24010442-02	BS12-TOP	09 Jan 2024 11:30			10 Jan 2024 10:11	10
HS24010442-02	BS12-TOP	09 Jan 2024 11:30			10 Jan 2024 10:05	1
HS24010442-03	BS12-BOTTOM	09 Jan 2024 11:45			10 Jan 2024 10:22	10
HS24010442-03	BS12-BOTTOM	09 Jan 2024 11:45			10 Jan 2024 10:16	1
Batch ID: R456281 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24010442-01	N0.2	09 Jan 2024 11:00			10 Jan 2024 15:00	1
HS24010442-02	BS12-TOP	09 Jan 2024 11:30			10 Jan 2024 15:00	1
HS24010442-03	BS12-BOTTOM	09 Jan 2024 11:45			10 Jan 2024 15:00	1

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010442

QC BATCH REPORT

Batch ID: R456239 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 10-Jan-2024 09:14					
Client ID:	Run ID: ICS-Integrion_456239		SeqNo: 7774906		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: 10-Jan-2024 09:31					
Client ID:	Run ID: ICS-Integrion_456239		SeqNo: 7774907		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	3.917	0.100	4	0	97.9	80 - 120			
Chloride	19.5	0.500	20	0	97.5	80 - 120			
Sulfate	19.16	0.500	20	0	95.8	80 - 120			

MS	Sample ID: HS24010442-01MS	Units: mg/L		Analysis Date: 10-Jan-2024 09:53					
Client ID: N0.2	Run ID: ICS-Integrion_456239		SeqNo: 7774910		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	17.48	1.00	20	0	87.4	80 - 120			
Chloride	246.3	5.00	100	148.6	97.7	80 - 120			
Sulfate	140.7	5.00	100	47.36	93.3	80 - 120			

MSD	Sample ID: HS24010442-01MSD	Units: mg/L		Analysis Date: 10-Jan-2024 09:59					
Client ID: N0.2	Run ID: ICS-Integrion_456239		SeqNo: 7774911		PrepDate:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	18.08	1.00	20	0	90.4	80 - 120	17.48	3.41	20
Chloride	246.2	5.00	100	148.6	97.6	80 - 120	246.3	0.0447	20
Sulfate	143.4	5.00	100	47.36	96.0	80 - 120	140.7	1.91	20

The following samples were analyzed in this batch:									
HS24010442-01		HS24010442-02		HS24010442-03					

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24010442

QC BATCH REPORT

Batch ID: R456281 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-01092024	Units: mg/L		Analysis Date: 10-Jan-2024 15:00						
Client ID:	Run ID: Balance1_456281	SeqNo: 7775742		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: WLCS-01092024	Units: mg/L		Analysis Date: 10-Jan-2024 15:00						
Client ID:	Run ID: Balance1_456281	SeqNo: 7775741		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)		1076	10.0	1000	0	108	85 - 115			
DUP	Sample ID: HS24010144-01DUP	Units: mg/L		Analysis Date: 10-Jan-2024 15:00						
Client ID:	Run ID: Balance1_456281	SeqNo: 7775725		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)		344	10.0				334	2.95	20	
DUP	Sample ID: HS24010141-01DUP	Units: mg/L		Analysis Date: 10-Jan-2024 15:00						
Client ID:	Run ID: Balance1_456281	SeqNo: 7775720		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)		354	10.0				364	2.79	20	
The following samples were analyzed in this batch:		HS24010442-01		HS24010442-02		HS24010442-03				

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24010442

**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 Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24010442

Date/Time Received: 09-Jan-2024 16:35

Client Name: ERMSW-HOU

Received by: Malcolm Burleson

Completed By: /S/ Paresh M. Giga	10-Jan-2024 15:46	Reviewed by: /S/ Bernadette A. Fini	10-Jan-2024 16:16
eSignature	Date/Time	eSignature	Date/Time

Matrices: WaterCarrier 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:305524
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):	2.1C/2.0C U/c IR31		
Cooler(s)/Kit(s):	Bag		
Date/Time sample(s) sent to storage:	1/9/24 18:15		
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:



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Holland, MI
+1 616 399 6070

Chain of Custody Form

Page 1 of 1

COC ID: 305524

HS24010442

Environmental Resources Mgmt.
Sulphur Dome



ALS Project Manager:

Customer Information		Project Information	
Purchase Order	0712237	Project Name	Sulphur Dome
Work Order		Project Number	
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.
Send Report To	Scott Himes	Invoice Attn	Accounts Payable
Address	CityCentre Four 340 W. Sam Houston Pkwy. Suite 6	Address	CityCentre Four 340 W. Sam Houston Pkwy. Suite 6
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024
Phone	(281) 600-1000	Phone	(281) 600-1000
Fax	(281) 600-1001	Fax	(281) 600-1001
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERCMHNA@accounts.payable@erm.com

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	No. 2	1/9/24	11:00	W	8	1				X						X	
2	BS12-TOP		11:30														
3	BS12-BOTTOM		11:45														
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Taylor Brown <i>Taylor Brown</i>				☒ 24 Hrs ☐ 48 Hrs ☐ 72 Hrs ☐ 96 Hrs		48 hrs.	
Relinquished by:		Date:	Time:	Received by:		Notes:	
Taylor Brown <i>Taylor Brown</i>		1/9/24	16:35			ERM Sulphur Dome	
Relinquished by:		Date:	Time:	Received by (Laboratory):		QC Package: (Check One Box Below)	
				01-09-2024		☒ 1-100% ☐ 10-20% ☐ 1-4% ☐ Other	
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		Cooler ID	
						BERBAG	
Preservative Key:		1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₃ 7-Other 8-4°C 9-5035		Cooler Temp.		12.3	
				-0.1°C			

Notes: 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 09, 2024

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

Work Order: **HS24020201**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 10 sample(s) on Feb 01, 2024 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,

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24020201

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24020201-01	MW-2-700	Water		30-Jan-2024 16:00	01-Feb-2024 14:00	☐
HS24020201-02	BS-12	Water		31-Jan-2024 10:15	01-Feb-2024 14:00	☐
HS24020201-03	Cottages	Water		30-Jan-2024 11:20	01-Feb-2024 14:00	☐
HS24020201-04	019-1055	Water		30-Jan-2024 11:35	01-Feb-2024 14:00	☐
HS24020201-05	019-580	Water		30-Jan-2024 11:50	01-Feb-2024 14:00	☐
HS24020201-06	019-995	Water		30-Jan-2024 12:10	01-Feb-2024 14:00	☐
HS24020201-07	019-582	Water		30-Jan-2024 12:55	01-Feb-2024 14:00	☐
HS24020201-08	MW-2-500	Water		30-Jan-2024 13:30	01-Feb-2024 14:00	☐
HS24020201-09	019-1603	Water		30-Jan-2024 14:00	01-Feb-2024 14:00	☐
HS24020201-10	MW-2-200	Water		30-Jan-2024 15:15	01-Feb-2024 14:00	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24020201

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: 206995**

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

GC Volatiles by Method MA VPH**Batch ID: R458202,R458203**

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

GCMS Volatiles by Method SW8260**Batch ID: R458107**

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

Metals by Method SW7470A**Batch ID: 207033**

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

Metals by Method SW6020A**Batch ID: 206987****Sample ID: MW-2-700 (HS24020201-01MS)**

- The MS and/or MSD recovery is unavailable due to sample matrix interference. (Chromium)
- 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. (Barium,Potassium,Sodium,Strontium)

WetChemistry by Method E376.1**Batch ID: R458380**

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

WetChemistry by Method SM2320B**Batch ID: R458404**

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

WetChemistry by Method SM4500H+ B**Batch ID: R458406**

- 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: HS24020201

CASE NARRATIVE

WetChemistry by Method M2540C

Batch ID: R458284,R458286,R458362

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

WetChemistry by Method SM4500 S2-F

Batch ID: R458131

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

WetChemistry by Method SW9056

Batch ID: R458108

Sample ID: HS24020193-01MS

- MS and MSD are for an unrelated sample (Chloride)

Sample ID: MW-2-700 (HS24020201-01)

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-700
 Collection Date: 30-Jan-2024 16:00

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:05
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:05
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 13:05
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:05
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:05
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 13:05
Surr: 1,2-Dichloroethane-d4	98.3			70-126	%REC	1	06-Feb-2024 13:05
Surr: 4-Bromofluorobenzene	101			77-113	%REC	1	06-Feb-2024 13:05
Surr: Dibromofluoromethane	93.7			77-123	%REC	1	06-Feb-2024 13:05
Surr: Toluene-d8	94.7			82-127	%REC	1	06-Feb-2024 13:05
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Feb-2024 22:33
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Feb-2024 22:33
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Feb-2024 22:33
Surr: 2,5-Dibromotoluene (Aliphatic)	76.6			70-130	%REC	1	06-Feb-2024 22:33
Surr: 2,5-Dibromotoluene (Aromatic)	82.5			70-130	%REC	1	06-Feb-2024 22:33
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 17:56
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 17:56
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 17:56
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 14:12
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 14:12
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 14:12
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 14:12
Surr: 1-Chlorooctadecane	66.2			40-140	%REC	1	07-Feb-2024 17:56
Surr: 2-Bromonaphthalene	45.0			40-140	%REC	1	08-Feb-2024 14:12
Surr: 2-Fluorobiphenyl	48.6			40-140	%REC	1	08-Feb-2024 14:12
Surr: o-Terphenyl	70.3			40-140	%REC	1	08-Feb-2024 14:12

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-700
 Collection Date: 30-Jan-2024 16:00

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	U		0.00200	0.0100	mg/L	5	07-Feb-2024 22:02
Barium	0.249		0.00950	0.0200	mg/L	5	07-Feb-2024 22:02
Calcium	433		0.170	2.50	mg/L	5	07-Feb-2024 22:02
Chromium	0.00253	J	0.00200	0.0200	mg/L	5	07-Feb-2024 22:02
Iron	0.171	J	0.0600	1.00	mg/L	5	07-Feb-2024 22:02
Lead	U		0.00300	0.0100	mg/L	5	07-Feb-2024 22:02
Magnesium	U		0.0500	1.00	mg/L	5	07-Feb-2024 22:02
Manganese	U		0.00350	0.0250	mg/L	5	07-Feb-2024 22:02
Nickel	U		0.00300	0.0100	mg/L	5	07-Feb-2024 22:02
Potassium	510		0.0900	1.00	mg/L	5	07-Feb-2024 22:02
Sodium	762		0.0700	1.00	mg/L	5	07-Feb-2024 22:02
Strontium	12.0		0.0200	0.500	mg/L	100	08-Feb-2024 11:06
Vanadium	U		0.00300	0.0250	mg/L	5	07-Feb-2024 22:02
Zinc	0.0123	J	0.0100	0.0200	mg/L	5	07-Feb-2024 22:02
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 15:50
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	5,600		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO3)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:07
Alkalinity, Carbonate (As CaCO3)	103		3.50	5.00	mg/L	1	08-Feb-2024 14:07
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	12.3	H	0.100	0.100	pH Units	1	08-Feb-2024 14:07
Temp Deg C @pH	17.5	H	0	0	°C	1	08-Feb-2024 14:07
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.150	0.500	mg/L	5	06-Feb-2024 10:26
Chloride	1,680		10.0	25.0	mg/L	50	06-Feb-2024 10:31
Sulfate	835		10.0	25.0	mg/L	50	06-Feb-2024 10:31

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

Client:	Environmental Resources Mgmt.	ANALYTICAL REPORT
Project:	Sulphur Dome	WorkOrder:HS24020201
Sample ID:	BS-12	Lab ID:HS24020201-02
Collection Date:	31-Jan-2024 10:15	Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
TOTAL DISSOLVED SOLIDS BY SM2540C-2011		Method:M2540C		Analyst: JAC			
Total Dissolved Solids (Residue, Filterable)	960		5.00	10.0	mg/L	1	07-Feb-2024 14:00
ANIONS BY SW9056A		Method:SW9056		Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 10:37
Chloride	337		2.00	5.00	mg/L	10	06-Feb-2024 10:43
Sulfate	236		2.00	5.00	mg/L	10	06-Feb-2024 10:43

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 30-Jan-2024 11:20

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:27
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:27
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 13:27
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:27
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:27
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 13:27
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>87.4</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 13:27</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>98.6</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 13:27</i>
<i>Surr: Dibromofluoromethane</i>	<i>86.3</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 13:27</i>
<i>Surr: Toluene-d8</i>	<i>86.0</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 13:27</i>
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	06-Feb-2024 23:17
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Feb-2024 23:17
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	06-Feb-2024 23:17
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	<i>78.4</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 23:17</i>
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	<i>84.9</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>06-Feb-2024 23:17</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 18:25
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 18:25
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 18:25
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 14:43
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 14:43
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 14:43
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 14:43
<i>Surr: 1-Chlorooctadecane</i>	<i>64.5</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>07-Feb-2024 18:25</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>45.9</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 14:43</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>49.8</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 14:43</i>
<i>Surr: o-Terphenyl</i>	<i>74.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 14:43</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 30-Jan-2024 11:20

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000502	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:18
Barium	0.198		0.00190	0.00400	mg/L	1	07-Feb-2024 22:18
Calcium	14.4		0.0340	0.500	mg/L	1	07-Feb-2024 22:18
Chromium	0.00634		0.000400	0.00400	mg/L	1	07-Feb-2024 22:18
Iron	3.46		0.0120	0.200	mg/L	1	07-Feb-2024 22:18
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:18
Magnesium	3.96		0.0100	0.200	mg/L	1	07-Feb-2024 22:18
Manganese	0.192		0.000700	0.00500	mg/L	1	07-Feb-2024 22:18
Nickel	0.00221		0.000600	0.00200	mg/L	1	07-Feb-2024 22:18
Potassium	2.19		0.0180	0.200	mg/L	1	07-Feb-2024 22:18
Sodium	77.8		0.0140	0.200	mg/L	1	07-Feb-2024 22:18
Strontium	0.165		0.000200	0.00500	mg/L	1	07-Feb-2024 22:18
Vanadium	0.00312	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:18
Zinc	1.65		0.00200	0.00400	mg/L	1	07-Feb-2024 22:18
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 15:52
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	294		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	143		3.50	5.00	mg/L	1	08-Feb-2024 14:11
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:11
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.59	H	0.100	0.100	pH Units	1	08-Feb-2024 14:11
Temp Deg C @pH	17.1	H	0	0	°C	1	08-Feb-2024 14:11
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.215		0.0300	0.100	mg/L	1	06-Feb-2024 09:38
Chloride	56.7		0.200	0.500	mg/L	1	06-Feb-2024 09:38
Sulfate	0.317	J	0.200	0.500	mg/L	1	06-Feb-2024 09:38

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: 30-Jan-2024 11:35

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:50
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:50
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 13:50
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 13:50
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 13:50
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 13:50
Surr: 1,2-Dichloroethane-d4	99.4			70-126	%REC	1	06-Feb-2024 13:50
Surr: 4-Bromofluorobenzene	101			77-113	%REC	1	06-Feb-2024 13:50
Surr: Dibromofluoromethane	89.6			77-123	%REC	1	06-Feb-2024 13:50
Surr: Toluene-d8	95.0			82-127	%REC	1	06-Feb-2024 13:50
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:01
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:01
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:01
Surr: 2,5-Dibromotoluene (Aliphatic)	89.7			70-130	%REC	1	07-Feb-2024 00:01
Surr: 2,5-Dibromotoluene (Aromatic)	84.0			70-130	%REC	1	07-Feb-2024 00:01
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 18:54
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 18:54
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 18:54
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 18:54
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	07-Feb-2024 18:54
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	07-Feb-2024 18:54
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	07-Feb-2024 18:54
Surr: 1-Chlorooctadecane	63.2			40-140	%REC	1	07-Feb-2024 18:54
Surr: 2-Bromonaphthalene	40.1			40-140	%REC	1	07-Feb-2024 18:54
Surr: 2-Fluorobiphenyl	41.3			40-140	%REC	1	07-Feb-2024 18:54
Surr: o-Terphenyl	53.6			40-140	%REC	1	07-Feb-2024 18:54

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: 30-Jan-2024 11:35

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000731	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:20
Barium	0.269		0.00190	0.00400	mg/L	1	07-Feb-2024 22:20
Calcium	25.7		0.0340	0.500	mg/L	1	07-Feb-2024 22:20
Chromium	0.000638	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:20
Iron	3.58		0.0120	0.200	mg/L	1	07-Feb-2024 22:20
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:20
Magnesium	7.98		0.0100	0.200	mg/L	1	07-Feb-2024 22:20
Manganese	0.363		0.000700	0.00500	mg/L	1	07-Feb-2024 22:20
Nickel	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:20
Potassium	2.63		0.0180	0.200	mg/L	1	07-Feb-2024 22:20
Sodium	30.7		0.0140	0.200	mg/L	1	07-Feb-2024 22:20
Strontium	0.233		0.000200	0.00500	mg/L	1	07-Feb-2024 22:20
Vanadium	0.00246	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:20
Zinc	0.00892		0.00200	0.00400	mg/L	1	07-Feb-2024 22:20
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 15:54
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	266		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	120		3.50	5.00	mg/L	1	08-Feb-2024 14:17
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:17
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.47	H	0.100	0.100	pH Units	1	08-Feb-2024 14:17
Temp Deg C @pH	18.0	H	0	0	°C	1	08-Feb-2024 14:17
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0592	J	0.0300	0.100	mg/L	1	06-Feb-2024 09:44
Chloride	38.3		0.200	0.500	mg/L	1	06-Feb-2024 09:44
Sulfate	3.58		0.200	0.500	mg/L	1	06-Feb-2024 09:44

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: 30-Jan-2024 11:50

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:13
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:13
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 14:13
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:13
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:13
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 14:13
Surr: 1,2-Dichloroethane-d4	92.9			70-126	%REC	1	06-Feb-2024 14:13
Surr: 4-Bromofluorobenzene	103			77-113	%REC	1	06-Feb-2024 14:13
Surr: Dibromofluoromethane	90.0			77-123	%REC	1	06-Feb-2024 14:13
Surr: Toluene-d8	89.1			82-127	%REC	1	06-Feb-2024 14:13
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:45
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:45
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 00:45
Surr: 2,5-Dibromotoluene (Aliphatic)	79.0			70-130	%REC	1	07-Feb-2024 00:45
Surr: 2,5-Dibromotoluene (Aromatic)	92.4			70-130	%REC	1	07-Feb-2024 00:45
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 19:23
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 19:23
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 19:23
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 19:23
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	07-Feb-2024 19:23
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	07-Feb-2024 19:23
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	07-Feb-2024 19:23
Surr: 1-Chlorooctadecane	71.3			40-140	%REC	1	07-Feb-2024 19:23
Surr: 2-Bromonaphthalene	40.2			40-140	%REC	1	07-Feb-2024 19:23
Surr: 2-Fluorobiphenyl	44.7			40-140	%REC	1	07-Feb-2024 19:23
Surr: o-Terphenyl	63.9			40-140	%REC	1	07-Feb-2024 19:23

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: 30-Jan-2024 11:50

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000723	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:23
Barium	0.227		0.00190	0.00400	mg/L	1	07-Feb-2024 22:23
Calcium	21.9		0.0340	0.500	mg/L	1	07-Feb-2024 22:23
Chromium	0.000559	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:23
Iron	3.51		0.0120	0.200	mg/L	1	07-Feb-2024 22:23
Lead		U	0.000600	0.00200	mg/L	1	07-Feb-2024 22:23
Magnesium	7.00		0.0100	0.200	mg/L	1	07-Feb-2024 22:23
Manganese	0.353		0.000700	0.00500	mg/L	1	07-Feb-2024 22:23
Nickel		U	0.000600	0.00200	mg/L	1	07-Feb-2024 22:23
Potassium	2.44		0.0180	0.200	mg/L	1	07-Feb-2024 22:23
Sodium	23.4		0.0140	0.200	mg/L	1	07-Feb-2024 22:23
Strontium	0.203		0.000200	0.00500	mg/L	1	07-Feb-2024 22:23
Vanadium	0.00216	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:23
Zinc	0.0109		0.00200	0.00400	mg/L	1	07-Feb-2024 22:23
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury		U	0.0000300	0.000200	mg/L	1	07-Feb-2024 16:10
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide		U	0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	238		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	111		3.50	5.00	mg/L	1	08-Feb-2024 14:22
Alkalinity, Carbonate (As CaCO ₃)		U	3.50	5.00	mg/L	1	08-Feb-2024 14:22
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide		U	1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.79	H	0.100	0.100	pH Units	1	08-Feb-2024 14:22
Temp Deg C @pH	18.6	H	0	0	°C	1	08-Feb-2024 14:22
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide		U	0.0300	0.100	mg/L	1	06-Feb-2024 09:50
Chloride	23.1		0.200	0.500	mg/L	1	06-Feb-2024 09:50
Sulfate	4.10		0.200	0.500	mg/L	1	06-Feb-2024 09:50

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: 30-Jan-2024 12:10

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:36
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:36
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 14:36
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:36
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:36
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 14:36
<i>Surr: 1,2-Dichloroethane-d4</i>	98.7			70-126	%REC	1	06-Feb-2024 14:36
<i>Surr: 4-Bromofluorobenzene</i>	98.2			77-113	%REC	1	06-Feb-2024 14:36
<i>Surr: Dibromofluoromethane</i>	93.7			77-123	%REC	1	06-Feb-2024 14:36
<i>Surr: Toluene-d8</i>	95.3			82-127	%REC	1	06-Feb-2024 14:36
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 01:29
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 01:29
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 01:29
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	81.7			70-130	%REC	1	07-Feb-2024 01:29
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	93.7			70-130	%REC	1	07-Feb-2024 01:29
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 19:51
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 19:51
Aliphatics >C16 - C35	0.0746		0.00800	0.00800	mg/L	1	07-Feb-2024 19:51
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 15:14
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 15:14
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 15:14
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 15:14
<i>Surr: 1-Chlorooctadecane</i>	76.4			40-140	%REC	1	07-Feb-2024 19:51
<i>Surr: 2-Bromonaphthalene</i>	46.4			40-140	%REC	1	08-Feb-2024 15:14
<i>Surr: 2-Fluorobiphenyl</i>	50.2			40-140	%REC	1	08-Feb-2024 15:14
<i>Surr: o-Terphenyl</i>	76.6			40-140	%REC	1	08-Feb-2024 15:14

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: 30-Jan-2024 12:10

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-06
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000782	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:25
Barium	0.186		0.00190	0.00400	mg/L	1	07-Feb-2024 22:25
Calcium	20.4		0.0340	0.500	mg/L	1	07-Feb-2024 22:25
Chromium	0.000513	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:25
Iron	1.26		0.0120	0.200	mg/L	1	07-Feb-2024 22:25
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:25
Magnesium	6.41		0.0100	0.200	mg/L	1	07-Feb-2024 22:25
Manganese	0.328		0.000700	0.00500	mg/L	1	07-Feb-2024 22:25
Nickel	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:25
Potassium	2.22		0.0180	0.200	mg/L	1	07-Feb-2024 22:25
Sodium	22.3		0.0140	0.200	mg/L	1	07-Feb-2024 22:25
Strontium	0.184		0.000200	0.00500	mg/L	1	07-Feb-2024 22:25
Vanadium	0.00220	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:25
Zinc	0.00461		0.00200	0.00400	mg/L	1	07-Feb-2024 22:25
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 16:12
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	224		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	117		3.50	5.00	mg/L	1	08-Feb-2024 14:28
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:28
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.74	H	0.100	0.100	pH Units	1	08-Feb-2024 14:28
Temp Deg C @pH	18.1	H	0	0	°C	1	08-Feb-2024 14:28
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 10:49
Chloride	23.0		0.200	0.500	mg/L	1	06-Feb-2024 10:49
Sulfate	3.63		0.200	0.500	mg/L	1	06-Feb-2024 10:49

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: 30-Jan-2024 12:55

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:59
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:59
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 14:59
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 14:59
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 14:59
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 14:59
<i>Surr: 1,2-Dichloroethane-d4</i>	95.6			70-126	%REC	1	06-Feb-2024 14:59
<i>Surr: 4-Bromofluorobenzene</i>	100			77-113	%REC	1	06-Feb-2024 14:59
<i>Surr: Dibromofluoromethane</i>	89.4			77-123	%REC	1	06-Feb-2024 14:59
<i>Surr: Toluene-d8</i>	94.2			82-127	%REC	1	06-Feb-2024 14:59
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 03:40
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 03:40
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 03:40
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	76.3			70-130	%REC	1	07-Feb-2024 03:40
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	86.7			70-130	%REC	1	07-Feb-2024 03:40
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 21:18
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 21:18
Aliphatics >C16 - C35	0.0204		0.00800	0.00800	mg/L	1	07-Feb-2024 21:18
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 15:45
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 15:45
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 15:45
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 15:45
<i>Surr: 1-Chlorooctadecane</i>	69.4			40-140	%REC	1	07-Feb-2024 21:18
<i>Surr: 2-Bromonaphthalene</i>	45.6			40-140	%REC	1	08-Feb-2024 15:45
<i>Surr: 2-Fluorobiphenyl</i>	49.5			40-140	%REC	1	08-Feb-2024 15:45
<i>Surr: o-Terphenyl</i>	73.3			40-140	%REC	1	08-Feb-2024 15:45

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: 30-Jan-2024 12:55

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-07
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000697	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:28
Barium	0.215		0.00190	0.00400	mg/L	1	07-Feb-2024 22:28
Calcium	21.7		0.0340	0.500	mg/L	1	07-Feb-2024 22:28
Chromium	0.000631	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:28
Iron	4.04		0.0120	0.200	mg/L	1	07-Feb-2024 22:28
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:28
Magnesium	6.91		0.0100	0.200	mg/L	1	07-Feb-2024 22:28
Manganese	0.362		0.000700	0.00500	mg/L	1	07-Feb-2024 22:28
Nickel	0.000704	J	0.000600	0.00200	mg/L	1	07-Feb-2024 22:28
Potassium	2.40		0.0180	0.200	mg/L	1	07-Feb-2024 22:28
Sodium	23.4		0.0140	0.200	mg/L	1	07-Feb-2024 22:28
Strontium	0.197		0.000200	0.00500	mg/L	1	07-Feb-2024 22:28
Vanadium	0.00200	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:28
Zinc	0.00897		0.00200	0.00400	mg/L	1	07-Feb-2024 22:28
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 16:14
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	228		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	113		3.50	5.00	mg/L	1	08-Feb-2024 14:33
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:33
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.54	H	0.100	0.100	pH Units	1	08-Feb-2024 14:33
Temp Deg C @pH	18.2	H	0	0	°C	1	08-Feb-2024 14:33
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 10:55
Chloride	23.1		0.200	0.500	mg/L	1	06-Feb-2024 10:55
Sulfate	3.93		0.200	0.500	mg/L	1	06-Feb-2024 10:55

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-500
 Collection Date: 30-Jan-2024 13:30

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 15:21
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 15:21
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 15:21
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 15:21
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 15:21
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 15:21
Surr: 1,2-Dichloroethane-d4	97.5			70-126	%REC	1	06-Feb-2024 15:21
Surr: 4-Bromofluorobenzene	101			77-113	%REC	1	06-Feb-2024 15:21
Surr: Dibromofluoromethane	92.2			77-123	%REC	1	06-Feb-2024 15:21
Surr: Toluene-d8	93.6			82-127	%REC	1	06-Feb-2024 15:21
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 04:24
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 04:24
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 04:24
Surr: 2,5-Dibromotoluene (Aliphatic)	78.9			70-130	%REC	1	07-Feb-2024 04:24
Surr: 2,5-Dibromotoluene (Aromatic)	86.6			70-130	%REC	1	07-Feb-2024 04:24
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 21:47
Aliphatics >C12 - C16	0.0216		0.00200	0.00200	mg/L	1	07-Feb-2024 21:47
Aliphatics >C16 - C35	0.0310		0.00800	0.00800	mg/L	1	07-Feb-2024 21:47
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 21:47
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	07-Feb-2024 21:47
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	07-Feb-2024 21:47
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	07-Feb-2024 21:47
Surr: 1-Chlorooctadecane	74.6			40-140	%REC	1	07-Feb-2024 21:47
Surr: 2-Bromonaphthalene	42.0			40-140	%REC	1	07-Feb-2024 21:47
Surr: 2-Fluorobiphenyl	47.6			40-140	%REC	1	07-Feb-2024 21:47
Surr: o-Terphenyl	69.1			40-140	%REC	1	07-Feb-2024 21:47

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-500
 Collection Date: 30-Jan-2024 13:30

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-08
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000871	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:30
Barium	0.0727		0.00190	0.00400	mg/L	1	07-Feb-2024 22:30
Calcium	3.61		0.0340	0.500	mg/L	1	07-Feb-2024 22:30
Chromium	0.000870	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:30
Iron	0.0149	J	0.0120	0.200	mg/L	1	07-Feb-2024 22:30
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:30
Magnesium	3.37		0.0100	0.200	mg/L	1	07-Feb-2024 22:30
Manganese	0.00120	J	0.000700	0.00500	mg/L	1	07-Feb-2024 22:30
Nickel	0.00123	J	0.000600	0.00200	mg/L	1	07-Feb-2024 22:30
Potassium	26.7		0.0180	0.200	mg/L	1	07-Feb-2024 22:30
Sodium	74.5		0.0140	0.200	mg/L	1	07-Feb-2024 22:30
Strontium	0.358		0.000200	0.00500	mg/L	1	07-Feb-2024 22:30
Vanadium	0.00162	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:30
Zinc	0.00280	J	0.00200	0.00400	mg/L	1	07-Feb-2024 22:30
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 16:15
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	320		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	40.4		3.50	5.00	mg/L	1	08-Feb-2024 14:38
Alkalinity, Carbonate (As CaCO ₃)	108		3.50	5.00	mg/L	1	08-Feb-2024 14:38
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	10.1	H	0.100	0.100	pH Units	1	08-Feb-2024 14:38
Temp Deg C @pH	18.8	H	0	0	°C	1	08-Feb-2024 14:38
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 11:01
Chloride	35.9		0.200	0.500	mg/L	1	06-Feb-2024 11:01
Sulfate	64.1		0.200	0.500	mg/L	1	06-Feb-2024 11:01

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-1603
 Collection Date: 30-Jan-2024 14:00

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-09
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 15:44
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 15:44
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 15:44
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 15:44
Toluene	U		0.20	1.0	ug/L	1	06-Feb-2024 15:44
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 15:44
<i>Surr: 1,2-Dichloroethane-d4</i>	97.9			70-126	%REC	1	06-Feb-2024 15:44
<i>Surr: 4-Bromofluorobenzene</i>	102			77-113	%REC	1	06-Feb-2024 15:44
<i>Surr: Dibromofluoromethane</i>	94.3			77-123	%REC	1	06-Feb-2024 15:44
<i>Surr: Toluene-d8</i>	95.6			82-127	%REC	1	06-Feb-2024 15:44
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:07
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:07
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:07
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	95.5			70-130	%REC	1	07-Feb-2024 05:07
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	89.6			70-130	%REC	1	07-Feb-2024 05:07
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 22:15
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 22:15
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 22:15
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 16:17
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 16:17
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 16:17
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 16:17
<i>Surr: 1-Chlorooctadecane</i>	64.2			40-140	%REC	1	07-Feb-2024 22:15
<i>Surr: 2-Bromonaphthalene</i>	49.9			40-140	%REC	1	08-Feb-2024 16:17
<i>Surr: 2-Fluorobiphenyl</i>	54.5			40-140	%REC	1	08-Feb-2024 16:17
<i>Surr: o-Terphenyl</i>	83.0			40-140	%REC	1	08-Feb-2024 16:17

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-1603
 Collection Date: 30-Jan-2024 14:00

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-09
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000561	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:32
Barium	0.193		0.00190	0.00400	mg/L	1	07-Feb-2024 22:32
Calcium	20.4		0.0340	0.500	mg/L	1	07-Feb-2024 22:32
Chromium	0.000496	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:32
Iron	1.69		0.0120	0.200	mg/L	1	07-Feb-2024 22:32
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:32
Magnesium	6.48		0.0100	0.200	mg/L	1	07-Feb-2024 22:32
Manganese	0.330		0.000700	0.00500	mg/L	1	07-Feb-2024 22:32
Nickel	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:32
Potassium	2.35		0.0180	0.200	mg/L	1	07-Feb-2024 22:32
Sodium	23.2		0.0140	0.200	mg/L	1	07-Feb-2024 22:32
Strontium	0.181		0.000200	0.00500	mg/L	1	07-Feb-2024 22:32
Vanadium	0.00202	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:32
Zinc	0.0343		0.00200	0.00400	mg/L	1	07-Feb-2024 22:32
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 16:17
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	226		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	112		3.50	5.00	mg/L	1	08-Feb-2024 14:53
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:53
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.93	H	0.100	0.100	pH Units	1	08-Feb-2024 14:53
Temp Deg C @pH	18.1	H	0	0	°C	1	08-Feb-2024 14:53
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 11:07
Chloride	23.3		0.200	0.500	mg/L	1	06-Feb-2024 11:07
Sulfate	3.78		0.200	0.500	mg/L	1	06-Feb-2024 11:07

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-200
 Collection Date: 30-Jan-2024 15:15

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-10
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	06-Feb-2024 16:07
Ethylbenzene	U		0.30	1.0	ug/L	1	06-Feb-2024 16:07
m,p-Xylene	U		0.50	2.0	ug/L	1	06-Feb-2024 16:07
o-Xylene	U		0.30	1.0	ug/L	1	06-Feb-2024 16:07
Toluene	0.63	J	0.20	1.0	ug/L	1	06-Feb-2024 16:07
Xylenes, Total	U		0.30	3.0	ug/L	1	06-Feb-2024 16:07
<i>Surr: 1,2-Dichloroethane-d4</i>	89.8			70-126	%REC	1	06-Feb-2024 16:07
<i>Surr: 4-Bromofluorobenzene</i>	99.6			77-113	%REC	1	06-Feb-2024 16:07
<i>Surr: Dibromofluoromethane</i>	89.2			77-123	%REC	1	06-Feb-2024 16:07
<i>Surr: Toluene-d8</i>	93.5			82-127	%REC	1	06-Feb-2024 16:07
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:51
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:51
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	07-Feb-2024 05:51
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	76.3			70-130	%REC	1	07-Feb-2024 05:51
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	85.2			70-130	%REC	1	07-Feb-2024 05:51
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	07-Feb-2024 22:44
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	07-Feb-2024 22:44
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	07-Feb-2024 22:44
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	08-Feb-2024 16:47
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	08-Feb-2024 16:47
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	08-Feb-2024 16:47
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	08-Feb-2024 16:47
<i>Surr: 1-Chlorooctadecane</i>	67.2			40-140	%REC	1	07-Feb-2024 22:44
<i>Surr: 2-Bromonaphthalene</i>	45.5			40-140	%REC	1	08-Feb-2024 16:47
<i>Surr: 2-Fluorobiphenyl</i>	49.6			40-140	%REC	1	08-Feb-2024 16:47
<i>Surr: o-Terphenyl</i>	72.5			40-140	%REC	1	08-Feb-2024 16:47

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: MW-2-200
 Collection Date: 30-Jan-2024 15:15

ANALYTICAL REPORT

WorkOrder:HS24020201
 Lab ID:HS24020201-10
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.000423	J	0.000400	0.00200	mg/L	1	07-Feb-2024 22:39
Barium	0.0759		0.00190	0.00400	mg/L	1	07-Feb-2024 22:39
Calcium	14.0		0.0340	0.500	mg/L	1	07-Feb-2024 22:39
Chromium	0.000546	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:39
Iron	0.0782	J	0.0120	0.200	mg/L	1	07-Feb-2024 22:39
Lead	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:39
Magnesium	0.549		0.0100	0.200	mg/L	1	07-Feb-2024 22:39
Manganese	0.00714		0.000700	0.00500	mg/L	1	07-Feb-2024 22:39
Nickel	0.000895	J	0.000600	0.00200	mg/L	1	07-Feb-2024 22:39
Potassium	6.58		0.0180	0.200	mg/L	1	07-Feb-2024 22:39
Sodium	67.9		0.0140	0.200	mg/L	1	07-Feb-2024 22:39
Strontium	0.250		0.000200	0.00500	mg/L	1	07-Feb-2024 22:39
Vanadium	0.000751	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:39
Zinc	0.00578		0.00200	0.00400	mg/L	1	07-Feb-2024 22:39
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 07-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	07-Feb-2024 16:20
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	274		5.00	10.0	mg/L	1	06-Feb-2024 13:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: DW	
Alkalinity, Bicarbonate (As CaCO ₃)	39.0		3.50	5.00	mg/L	1	08-Feb-2024 14:58
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	08-Feb-2024 14:58
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: DW	
pH	7.99	H	0.100	0.100	pH Units	1	08-Feb-2024 14:58
Temp Deg C @pH	17.8	H	0	0	°C	1	08-Feb-2024 14:58
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	U		0.0300	0.100	mg/L	1	06-Feb-2024 11:13
Chloride	36.5		0.200	0.500	mg/L	1	06-Feb-2024 11:13
Sulfate	127		0.400	1.00	mg/L	2	06-Feb-2024 11:55

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

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

Batch ID: 206987	Start Date: 06 Feb 2024 09:00	End Date: 06 Feb 2024 09:00
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24020201-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-10		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 206995	Start Date: 07 Feb 2024 07:04	End Date: 07 Feb 2024 07:04
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24020201-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-07	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-08	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-09	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24020201-10	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 207033	Start Date: 07 Feb 2024 09:00	End Date: 07 Feb 2024 09:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24020201-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24020201-10		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 206987 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00		06 Feb 2024 09:00	08 Feb 2024 11:06	100
HS24020201-01	MW-2-700	30 Jan 2024 16:00		06 Feb 2024 09:00	07 Feb 2024 22:02	5
HS24020201-03	Cottages	30 Jan 2024 11:20		06 Feb 2024 09:00	07 Feb 2024 22:18	1
HS24020201-04	019-1055	30 Jan 2024 11:35		06 Feb 2024 09:00	07 Feb 2024 22:20	1
HS24020201-05	019-580	30 Jan 2024 11:50		06 Feb 2024 09:00	07 Feb 2024 22:23	1
HS24020201-06	019-995	30 Jan 2024 12:10		06 Feb 2024 09:00	07 Feb 2024 22:25	1
HS24020201-07	019-582	30 Jan 2024 12:55		06 Feb 2024 09:00	07 Feb 2024 22:28	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30		06 Feb 2024 09:00	07 Feb 2024 22:30	1
HS24020201-09	019-1603	30 Jan 2024 14:00		06 Feb 2024 09:00	07 Feb 2024 22:32	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15		06 Feb 2024 09:00	07 Feb 2024 22:39	1
Batch ID: 206995 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00		07 Feb 2024 07:04	08 Feb 2024 14:12	1
HS24020201-01	MW-2-700	30 Jan 2024 16:00		07 Feb 2024 07:04	07 Feb 2024 17:56	1
HS24020201-03	Cottages	30 Jan 2024 11:20		07 Feb 2024 07:04	08 Feb 2024 14:43	1
HS24020201-03	Cottages	30 Jan 2024 11:20		07 Feb 2024 07:04	07 Feb 2024 18:25	1
HS24020201-04	019-1055	30 Jan 2024 11:35		07 Feb 2024 07:04	07 Feb 2024 18:54	1
HS24020201-04	019-1055	30 Jan 2024 11:35		07 Feb 2024 07:04	07 Feb 2024 18:54	1
HS24020201-05	019-580	30 Jan 2024 11:50		07 Feb 2024 07:04	07 Feb 2024 19:23	1
HS24020201-05	019-580	30 Jan 2024 11:50		07 Feb 2024 07:04	07 Feb 2024 19:23	1
HS24020201-06	019-995	30 Jan 2024 12:10		07 Feb 2024 07:04	08 Feb 2024 15:14	1
HS24020201-06	019-995	30 Jan 2024 12:10		07 Feb 2024 07:04	07 Feb 2024 19:51	1
HS24020201-07	019-582	30 Jan 2024 12:55		07 Feb 2024 07:04	08 Feb 2024 15:45	1
HS24020201-07	019-582	30 Jan 2024 12:55		07 Feb 2024 07:04	07 Feb 2024 21:18	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30		07 Feb 2024 07:04	07 Feb 2024 21:47	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30		07 Feb 2024 07:04	07 Feb 2024 21:47	1
HS24020201-09	019-1603	30 Jan 2024 14:00		07 Feb 2024 07:04	08 Feb 2024 16:17	1
HS24020201-09	019-1603	30 Jan 2024 14:00		07 Feb 2024 07:04	07 Feb 2024 22:15	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15		07 Feb 2024 07:04	08 Feb 2024 16:47	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15		07 Feb 2024 07:04	07 Feb 2024 22:44	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 207033 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00		07 Feb 2024 09:00	07 Feb 2024 15:50	1
HS24020201-03	Cottages	30 Jan 2024 11:20		07 Feb 2024 09:00	07 Feb 2024 15:52	1
HS24020201-04	019-1055	30 Jan 2024 11:35		07 Feb 2024 09:00	07 Feb 2024 15:54	1
HS24020201-05	019-580	30 Jan 2024 11:50		07 Feb 2024 09:00	07 Feb 2024 16:10	1
HS24020201-06	019-995	30 Jan 2024 12:10		07 Feb 2024 09:00	07 Feb 2024 16:12	1
HS24020201-07	019-582	30 Jan 2024 12:55		07 Feb 2024 09:00	07 Feb 2024 16:14	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30		07 Feb 2024 09:00	07 Feb 2024 16:15	1
HS24020201-09	019-1603	30 Jan 2024 14:00		07 Feb 2024 09:00	07 Feb 2024 16:17	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15		07 Feb 2024 09:00	07 Feb 2024 16:20	1
Batch ID: R458107 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 13:05	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 13:27	1
HS24020201-04	019-1055	30 Jan 2024 11:35			06 Feb 2024 13:50	1
HS24020201-05	019-580	30 Jan 2024 11:50			06 Feb 2024 14:13	1
HS24020201-06	019-995	30 Jan 2024 12:10			06 Feb 2024 14:36	1
HS24020201-07	019-582	30 Jan 2024 12:55			06 Feb 2024 14:59	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			06 Feb 2024 15:21	1
HS24020201-09	019-1603	30 Jan 2024 14:00			06 Feb 2024 15:44	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 16:07	1
Batch ID: R458108 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 10:31	50
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 10:26	5
HS24020201-02	BS-12	31 Jan 2024 10:15			06 Feb 2024 10:43	10
HS24020201-02	BS-12	31 Jan 2024 10:15			06 Feb 2024 10:37	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 09:38	1
HS24020201-04	019-1055	30 Jan 2024 11:35			06 Feb 2024 09:44	1
HS24020201-05	019-580	30 Jan 2024 11:50			06 Feb 2024 09:50	1
HS24020201-06	019-995	30 Jan 2024 12:10			06 Feb 2024 10:49	1
HS24020201-07	019-582	30 Jan 2024 12:55			06 Feb 2024 10:55	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			06 Feb 2024 11:01	1
HS24020201-09	019-1603	30 Jan 2024 14:00			06 Feb 2024 11:07	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 11:55	2
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 11:13	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R458131 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 15:16	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 15:16	1
HS24020201-04	019-1055	30 Jan 2024 11:35			06 Feb 2024 15:16	1
HS24020201-05	019-580	30 Jan 2024 11:50			06 Feb 2024 15:16	1
HS24020201-06	019-995	30 Jan 2024 12:10			06 Feb 2024 15:16	1
HS24020201-07	019-582	30 Jan 2024 12:55			06 Feb 2024 15:16	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			06 Feb 2024 15:16	1
HS24020201-09	019-1603	30 Jan 2024 14:00			06 Feb 2024 15:16	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 15:16	1
Batch ID: R458202 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 22:33	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 23:17	1
HS24020201-04	019-1055	30 Jan 2024 11:35			07 Feb 2024 00:01	1
HS24020201-05	019-580	30 Jan 2024 11:50			07 Feb 2024 00:45	1
HS24020201-06	019-995	30 Jan 2024 12:10			07 Feb 2024 01:29	1
HS24020201-07	019-582	30 Jan 2024 12:55			07 Feb 2024 03:40	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			07 Feb 2024 04:24	1
HS24020201-09	019-1603	30 Jan 2024 14:00			07 Feb 2024 05:07	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			07 Feb 2024 05:51	1
Batch ID: R458203 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 22:33	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 23:17	1
HS24020201-04	019-1055	30 Jan 2024 11:35			07 Feb 2024 00:01	1
HS24020201-05	019-580	30 Jan 2024 11:50			07 Feb 2024 00:45	1
HS24020201-06	019-995	30 Jan 2024 12:10			07 Feb 2024 01:29	1
HS24020201-07	019-582	30 Jan 2024 12:55			07 Feb 2024 03:40	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			07 Feb 2024 04:24	1
HS24020201-09	019-1603	30 Jan 2024 14:00			07 Feb 2024 05:07	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			07 Feb 2024 05:51	1
Batch ID: R458284 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 13:00	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 13:00	1
HS24020201-04	019-1055	30 Jan 2024 11:35			06 Feb 2024 13:00	1
HS24020201-05	019-580	30 Jan 2024 11:50			06 Feb 2024 13:00	1
HS24020201-06	019-995	30 Jan 2024 12:10			06 Feb 2024 13:00	1
HS24020201-07	019-582	30 Jan 2024 12:55			06 Feb 2024 13:00	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			06 Feb 2024 13:00	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R458286 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24020201-09	019-1603	30 Jan 2024 14:00			06 Feb 2024 13:00	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 13:00	1
Batch ID: R458362 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24020201-02	BS-12	31 Jan 2024 10:15			07 Feb 2024 14:00	1
Batch ID: R458380 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			06 Feb 2024 15:00	1
HS24020201-03	Cottages	30 Jan 2024 11:20			06 Feb 2024 15:00	1
HS24020201-04	019-1055	30 Jan 2024 11:35			06 Feb 2024 15:00	1
HS24020201-05	019-580	30 Jan 2024 11:50			06 Feb 2024 15:00	1
HS24020201-06	019-995	30 Jan 2024 12:10			06 Feb 2024 15:00	1
HS24020201-07	019-582	30 Jan 2024 12:55			06 Feb 2024 15:00	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			06 Feb 2024 15:00	1
HS24020201-09	019-1603	30 Jan 2024 14:00			06 Feb 2024 15:00	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			06 Feb 2024 15:00	1
Batch ID: R458404 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			08 Feb 2024 14:07	1
HS24020201-03	Cottages	30 Jan 2024 11:20			08 Feb 2024 14:11	1
HS24020201-04	019-1055	30 Jan 2024 11:35			08 Feb 2024 14:17	1
HS24020201-05	019-580	30 Jan 2024 11:50			08 Feb 2024 14:22	1
HS24020201-06	019-995	30 Jan 2024 12:10			08 Feb 2024 14:28	1
HS24020201-07	019-582	30 Jan 2024 12:55			08 Feb 2024 14:33	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			08 Feb 2024 14:38	1
HS24020201-09	019-1603	30 Jan 2024 14:00			08 Feb 2024 14:53	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			08 Feb 2024 14:58	1
Batch ID: R458406 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS24020201-01	MW-2-700	30 Jan 2024 16:00			08 Feb 2024 14:07	1
HS24020201-03	Cottages	30 Jan 2024 11:20			08 Feb 2024 14:11	1
HS24020201-04	019-1055	30 Jan 2024 11:35			08 Feb 2024 14:17	1
HS24020201-05	019-580	30 Jan 2024 11:50			08 Feb 2024 14:22	1
HS24020201-06	019-995	30 Jan 2024 12:10			08 Feb 2024 14:28	1
HS24020201-07	019-582	30 Jan 2024 12:55			08 Feb 2024 14:33	1
HS24020201-08	MW-2-500	30 Jan 2024 13:30			08 Feb 2024 14:38	1
HS24020201-09	019-1603	30 Jan 2024 14:00			08 Feb 2024 14:53	1
HS24020201-10	MW-2-200	30 Jan 2024 15:15			08 Feb 2024 14:58	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206995 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-206995	Units: mg/L		Analysis Date: 07-Feb-2024 15:29					
Client ID:	Run ID: FID23_458410		SeqNo: 7822286		PrepDate: 07-Feb-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02542</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>63.5</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-206995	Units: mg/L		Analysis Date: 07-Feb-2024 15:29					
Client ID:	Run ID: FID-22_458422		SeqNo: 7823050		PrepDate: 07-Feb-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.01603</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>40.1</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.01768</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>44.2</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.02616</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>65.4</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-206995	Units: mg/L		Analysis Date: 07-Feb-2024 15:58					
Client ID:	Run ID: FID23_458410		SeqNo: 7822287		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04465	0.00100	0.05	0	89.3	40 - 140			
Aliphatics >C12 - C16	0.09128	0.00200	0.1	0	91.3	40 - 140			
Aliphatics >C16 - C35	0.3303	0.00800	0.4	0	82.6	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02907</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>72.7</i>	<i>40 - 140</i>			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206995 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-206995		Units: mg/L		Analysis Date: 08-Feb-2024 13:41			
Client ID:		Run ID: FID-22_458422		SeqNo: 7822980		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04895	0.00100	0.05	0	97.9	40 - 140			
Aromatics >C12 - C16	0.1921	0.00400	0.2	0	96.0	40 - 140			
Aromatics >C16 - C21	0.165	0.00300	0.15	0	110	40 - 140			
Aromatics >C21 - C35	0.4274	0.00900	0.45	0	95.0	40 - 140			
Surr: 2-Bromonaphthalene	0.0201	0	0.04	0	50.3	40 - 140			
Surr: 2-Fluorobiphenyl	0.02179	0	0.04	0	54.5	40 - 140			
Surr: o-Terphenyl	0.03377	0	0.04	0	84.4	40 - 140			

MS		Sample ID: HS24020205-11MS		Units: mg/L		Analysis Date: 07-Feb-2024 16:56			
Client ID:		Run ID: FID23_458410		SeqNo: 7822289		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04692	0.00100	0.05	0	93.8	40 - 140			
Aliphatics >C12 - C16	0.09898	0.00200	0.1	0	99.0	40 - 140			
Aliphatics >C16 - C35	0.3554	0.00800	0.4	0	88.8	40 - 140			
Surr: 1-Chlorooctadecane	0.03102	0	0.04	0	77.6	40 - 140			

MS		Sample ID: HS24020205-11MS		Units: mg/L		Analysis Date: 07-Feb-2024 16:56			
Client ID:		Run ID: FID-22_458422		SeqNo: 7823051		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.03562	0.00100	0.05	0	71.2	40 - 140			
Aromatics >C12 - C16	0.1435	0.00400	0.2	0	71.7	40 - 140			
Aromatics >C16 - C21	0.1194	0.00300	0.15	0	79.6	40 - 140			
Aromatics >C21 - C35	0.3743	0.00900	0.45	0	83.2	40 - 140			
Surr: 2-Bromonaphthalene	0.0164	0	0.04	0	41.0	40 - 140			
Surr: 2-Fluorobiphenyl	0.01683	0	0.04	0	42.1	40 - 140			
Surr: o-Terphenyl	0.02466	0	0.04	0	61.6	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206995 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MSD		Sample ID: HS24020205-11MSD		Units: mg/L		Analysis Date: 07-Feb-2024 17:28			
Client ID:		Run ID: FID23_458410		SeqNo: 7822290		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04759	0.00100	0.05	0	95.2	40 - 140	0.04692	1.41	50
Aliphatics >C12 - C16	0.1009	0.00200	0.1	0	101	40 - 140	0.09898	1.94	50
Aliphatics >C16 - C35	0.3665	0.00800	0.4	0	91.6	40 - 140	0.3554	3.09	50
Surr: 1-Chlorooctadecane	0.02649	0	0.04	0	66.2	40 - 140	0.03102	15.8	50

MSD		Sample ID: HS24020205-11MSD		Units: mg/L		Analysis Date: 07-Feb-2024 17:28			
Client ID:		Run ID: FID-22_458422		SeqNo: 7823052		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C10 - C12	0.03809	0.00100	0.05	0	76.2	40 - 140	0.03562	6.71	50
Aromatics >C12 - C16	0.1536	0.00400	0.2	0	76.8	40 - 140	0.1435	6.84	50
Aromatics >C16 - C21	0.1335	0.00300	0.15	0	89.0	40 - 140	0.1194	11.1	50
Aromatics >C21 - C35	0.4217	0.00900	0.45	0	93.7	40 - 140	0.3743	11.9	50
Surr: 2-Bromonaphthalene	0.01602	0	0.04	0	40.0	40 - 140	0.0164	2.38	50
Surr: 2-Fluorobiphenyl	0.01721	0	0.04	0	43.0	40 - 140	0.01683	2.26	50
Surr: o-Terphenyl	0.02529	0	0.04	0	63.2	40 - 140	0.02466	2.53	50

The following samples were analyzed in this batch:	HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05
	HS24020201-06	HS24020201-07	HS24020201-08	HS24020201-09
	HS24020201-10			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458202 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240206	Units: mg/L			Analysis Date: 06-Feb-2024 20:22				
Client ID:	Run ID: FID-14_458202	SeqNo: 7818013		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	U	0.0100							
Aliphatics >C8 - C10	U	0.0100							
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1984	0.0100	0.25	0	79.4	70 - 130			
LCS	Sample ID: LCS-240206	Units: mg/L			Analysis Date: 06-Feb-2024 18:55				
Client ID:	Run ID: FID-14_458202	SeqNo: 7818011		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	0.0209	0.0100	0.025	0	83.6	70 - 130			
Aliphatics >C8 - C10	0.02498	0.0100	0.025	0	99.9	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2142	0.0100	0.25	0	85.7	70 - 130			
LCSD	Sample ID: LCSD-240206	Units: mg/L			Analysis Date: 06-Feb-2024 19:39				
Client ID:	Run ID: FID-14_458202	SeqNo: 7818012		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	0.02009	0.0100	0.025	0	80.4	70 - 130	0.0209	3.91	25
Aliphatics >C8 - C10	0.02492	0.0100	0.025	0	99.7	70 - 130	0.02498	0.216	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2199	0.0100	0.25	0	87.9	70 - 130	0.2142	2.62	25
The following samples were analyzed in this batch:									
HS24020201-01		HS24020201-03		HS24020201-04		HS24020201-05			
HS24020201-06		HS24020201-07		HS24020201-08		HS24020201-09			
HS24020201-10									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458203 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240206	Units: mg/L			Analysis Date: 06-Feb-2024 20:22				
Client ID:	Run ID: FID-15_458203		SeqNo: 7818032		PrepDate:		DF: 1		
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)	0.2215	0.0100	0.25	0	88.6	70 - 130			
LCS	Sample ID: LCS-240206	Units: mg/L			Analysis Date: 06-Feb-2024 18:55				
Client ID:	Run ID: FID-15_458203		SeqNo: 7818030		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.08977	0.0100	0.1	0	89.8	70 - 130			
Surr: 2,5-Dibromotoluene (Aromatic)	0.214	0.0100	0.25	0	85.6	70 - 130			
LCSD	Sample ID: LCSD-240206	Units: mg/L			Analysis Date: 06-Feb-2024 19:39				
Client ID:	Run ID: FID-15_458203		SeqNo: 7818031		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.09516	0.0100	0.1	0	95.2	70 - 130	0.08977	5.82	25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2161	0.0100	0.25	0	86.4	70 - 130	0.214	0.961	25
The following samples were analyzed in this batch:									
HS24020201-01		HS24020201-03		HS24020201-04		HS24020201-05			
HS24020201-06		HS24020201-07		HS24020201-08		HS24020201-09			
HS24020201-10									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-F1-206987	Units: mg/L		Analysis Date: 07-Feb-2024 14:06					
Client ID:	Run ID: ICPMS07_458244	SeqNo: 7818941		PrepDate: 06-Feb-2024		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							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	0.02114	0.200							J
Manganese	0.001779	0.00500							J
Nickel	U	0.00200							
Potassium	U	0.200							
Sodium	0.04319	0.200							J
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	0.002992	0.00400							J

MBLK	Sample ID: MBLK-206987	Units: mg/L		Analysis Date: 07-Feb-2024 14:03					
Client ID:	Run ID: ICPMS07_458244	SeqNo: 7818940		PrepDate: 06-Feb-2024		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							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	U	0.200							
Manganese	U	0.00500							
Nickel	U	0.00200							
Potassium	U	0.200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS		Sample ID: LCS-206987		Units: mg/L		Analysis Date: 07-Feb-2024 14:17			
Client ID:		Run ID: ICPMS07_458244		SeqNo: 7818942		PrepDate: 06-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04908	0.00200	0.05	0	98.2	80 - 120			
Barium	0.04497	0.00400	0.05	0	89.9	80 - 120			
Calcium	4.65	0.500	5	0	93.0	80 - 120			
Chromium	0.04636	0.00400	0.05	0	92.7	80 - 120			
Iron	4.962	0.200	5	0	99.2	80 - 120			
Lead	0.04671	0.00200	0.05	0	93.4	80 - 120			
Magnesium	5.062	0.200	5	0	101	80 - 120			
Manganese	0.04741	0.00500	0.05	0	94.8	80 - 120			
Nickel	0.04952	0.00200	0.05	0	99.0	80 - 120			
Potassium	4.91	0.200	5	0	98.2	80 - 120			
Sodium	5.08	0.200	5	0	102	80 - 120			
Strontium	0.09718	0.00500	0.1	0	97.2	80 - 120			
Vanadium	0.0457	0.00500	0.05	0	91.4	80 - 120			
Zinc	0.05062	0.00400	0.05	0	101	80 - 120			

MS		Sample ID: HS24020201-01MS		Units: mg/L		Analysis Date: 07-Feb-2024 21:52			
Client ID: MW-2-700		Run ID: ICPMS07_458244		SeqNo: 7820138		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04704	0.0100	0.05	0	94.1	80 - 120			
Barium	0.2837	0.0200	0.05	0.2491	69.2	80 - 120			SO
Calcium	438.3	2.50	5	432.6	115	80 - 120			O
Chromium	0.1122	0.0200	0.05	0.002527	219	80 - 120			S
Iron	5.379	1.00	5	0.1709	104	80 - 120			
Lead	0.04198	0.0100	0.05	0	84.0	80 - 120			
Magnesium	4.544	1.00	5	0	90.9	80 - 120			
Manganese	0.04417	0.0250	0.05	0	88.3	80 - 120			
Nickel	0.04744	0.0100	0.05	0	94.9	80 - 120			
Potassium	512.4	1.00	5	509.8	52.8	80 - 120			SO
Sodium	765.3	1.00	5	762	66.1	80 - 120			SO
Strontium	11.36	0.0250	0.1	11.81	-451	80 - 120			SEO
Vanadium	0.04289	0.0250	0.05	0	85.8	80 - 120			
Zinc	0.05325	0.0200	0.05	0.01234	81.8	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS24020201-01MSD		Units: mg/L		Analysis Date: 07-Feb-2024 21:54			
Client ID: MW-2-700		Run ID: ICPMS07_458244		SeqNo: 7820139		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.04539	0.0100	0.05	0	90.8	80 - 120	0.04704	3.58	20
Barium	0.2813	0.0200	0.05	0.2491	64.4	80 - 120	0.2837	0.856	20 SO
Calcium	429.9	2.50	5	432.6	-54.2	80 - 120	438.3	1.95	20 SO
Iron	4.562	1.00	5	0.1709	87.8	80 - 120	5.379	16.4	20
Lead	0.04238	0.0100	0.05	0	84.8	80 - 120	0.04198	0.944	20
Magnesium	4.377	1.00	5	0	87.5	80 - 120	4.544	3.74	20
Manganese	0.0436	0.0250	0.05	0	87.2	80 - 120	0.04417	1.29	20
Nickel	0.04597	0.0100	0.05	0	91.9	80 - 120	0.04744	3.15	20
Potassium	500.3	1.00	5	509.8	-189	80 - 120	512.4	2.38	20 SO
Sodium	745.7	1.00	5	762	-326	80 - 120	765.3	2.59	20 SO
Strontium	11.24	0.0250	0.1	11.81	-567	80 - 120	11.36	1.03	20 SEO
Vanadium	0.04147	0.0250	0.05	0	82.9	80 - 120	0.04289	3.37	20
Zinc	0.05383	0.0200	0.05	0.01234	83.0	80 - 120	0.05325	1.09	20
MSD		Sample ID: HS24020201-01MSD		Units: mg/L		Analysis Date: 08-Feb-2024 11:04			
Client ID: MW-2-700		Run ID: ICPMS07_458329		SeqNo: 7820876		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chromium	0.09495	0.0200	0.05	0.002527	185	80 - 120	0.1122	16.7	20 S

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS24020201-01PDS		Units: mg/L		Analysis Date: 07-Feb-2024 21:57			
Client ID: MW-2-700		Run ID: ICPMS07_458244		SeqNo: 7820140		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.9276	0.0100	1	0	92.8	75 - 125			
Barium	1.239	0.0200	1	0.2491	98.9	75 - 125			
Calcium	525.3	2.50	100	432.6	92.7	75 - 125			O
Chromium	0.9027	0.0200	1	0.002527	90.0	75 - 125			
Iron	90.49	1.00	100	0.1709	90.3	75 - 125			
Lead	0.9339	0.0100	1	0	93.4	75 - 125			
Magnesium	91.11	1.00	100	0	91.1	75 - 125			
Manganese	0.9117	0.0250	1	0	91.2	75 - 125			
Nickel	0.8912	0.0100	1	0	89.1	75 - 125			
Potassium	591.4	1.00	100	509.8	81.6	75 - 125			O
Sodium	845.2	1.00	100	762	83.2	75 - 125			O
Vanadium	0.9287	0.0250	1	0	92.9	75 - 125			
Zinc	0.9357	0.0200	1	0.01234	92.3	75 - 125			
PDS		Sample ID: HS24020201-01PDS		Units: mg/L		Analysis Date: 08-Feb-2024 11:11			
Client ID: MW-2-700		Run ID: ICPMS07_458329		SeqNo: 7820879		PrepDate: 06-Feb-2024		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Strontium	24.45	0.500	10	11.96	125	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
SD		Sample ID: HS24020201-01SD		Units: mg/L		Analysis Date: 07-Feb-2024 21:49			
Client ID: MW-2-700		Run ID: ICPMS07_458244		SeqNo: 7820137		PrepDate: 06-Feb-2024		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	U	0.0500					0.001329	0	10
Barium	0.2418	0.100					0.2491	2.93	10
Calcium	456.4	12.5					432.6	5.5	10
Chromium	0.1017	0.100					0.002527	0	10
Iron	1.309	5.00					0.1709	0	10 J
Lead	U	0.0500					0.000088	0	10
Magnesium	U	5.00					0.0429	0	10
Manganese	U	0.125					0.001954	0	10
Nickel	U	0.0500					0.002398	0	10
Potassium	517.5	5.00					509.8	1.53	10
Sodium	771.6	5.00					762	1.26	10
Strontium	11.42	0.125					11.81	3.25	10
Vanadium	U	0.125					-0.000029	0	10
Zinc	U	0.100					0.01234	0	10

SD		Sample ID: HS24020201-01SD		Units: mg/L		Analysis Date: 08-Feb-2024 11:09			
Client ID: MW-2-700		Run ID: ICPMS07_458329		SeqNo: 7820878		PrepDate: 06-Feb-2024		DF: 500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Strontium	12.45	2.50					11.96	4.04	10

The following samples were analyzed in this batch:				HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05
				HS24020201-06	HS24020201-07	HS24020201-08	HS24020201-09
				HS24020201-10			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: 207033 (0)		Instrument: HG04		Method: MERCURY BY SW7470A					
MBLK	Sample ID: MBLK-207033	Units: mg/L			Analysis Date: 07-Feb-2024 15:45				
Client ID:		Run ID: HG04_458266	SeqNo: 7819568		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	U	0.000200							
LCS	Sample ID: LCS-207033	Units: mg/L			Analysis Date: 07-Feb-2024 15:49				
Client ID:		Run ID: HG04_458266	SeqNo: 7819569		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00442	0.000200	0.005	0	88.4	80 - 120			
MS	Sample ID: HS24020201-04MS	Units: mg/L			Analysis Date: 07-Feb-2024 16:00				
Client ID: 019-1055		Run ID: HG04_458266	SeqNo: 7819573		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00455	0.000200	0.005	0.000005	90.9	75 - 125			
MSD	Sample ID: HS24020201-04MSD	Units: mg/L			Analysis Date: 07-Feb-2024 16:09				
Client ID: 019-1055		Run ID: HG04_458266	SeqNo: 7819576		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00472	0.000200	0.005	0.000005	94.3	75 - 125	0.00455	3.67	20
The following samples were analyzed in this batch:									
		HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05				
		HS24020201-06	HS24020201-07	HS24020201-08	HS24020201-09				
		HS24020201-10							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458107 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK		Sample ID: VBLKW-240206		Units: ug/L		Analysis Date: 06-Feb-2024 10:39			
Client ID:		Run ID: VOA4_458107		SeqNo: 7815869		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	3.0							
Surr: 1,2-Dichloroethane-d4	47.75	1.0	50	0	95.5	70 - 123			
Surr: 4-Bromofluorobenzene	49.14	1.0	50	0	98.3	77 - 113			
Surr: Dibromofluoromethane	44.04	1.0	50	0	88.1	73 - 126			
Surr: Toluene-d8	47.19	1.0	50	0	94.4	81 - 120			

LCS		Sample ID: VLCSW-240206		Units: ug/L		Analysis Date: 06-Feb-2024 09:30			
Client ID:		Run ID: VOA4_458107		SeqNo: 7815867		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	19.1	1.0	20	0	95.5	74 - 120			
Ethylbenzene	19.31	1.0	20	0	96.6	77 - 117			
m,p-Xylene	38.89	2.0	40	0	97.2	77 - 122			
o-Xylene	19.41	1.0	20	0	97.0	75 - 119			
Toluene	19.13	1.0	20	0	95.7	77 - 118			
Xylenes, Total	58.3	3.0	60	0	97.2	75 - 122			
Surr: 1,2-Dichloroethane-d4	46.58	1.0	50	0	93.2	70 - 123			
Surr: 4-Bromofluorobenzene	52.48	1.0	50	0	105	77 - 113			
Surr: Dibromofluoromethane	43.47	1.0	50	0	86.9	73 - 126			
Surr: Toluene-d8	47.64	1.0	50	0	95.3	81 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458107 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCS DW-240206		Units: ug/L		Analysis Date: 06-Feb-2024 09:53			
Client ID:		Run ID: VOA4_458107		SeqNo: 7815868		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.05	1.0	20	0	85.3	74 - 120	19.1	11.3	20
Ethylbenzene	16.74	1.0	20	0	83.7	77 - 117	19.31	14.2	20
m,p-Xylene	34.77	2.0	40	0	86.9	77 - 122	38.89	11.2	20
o-Xylene	17.6	1.0	20	0	88.0	75 - 119	19.41	9.79	20
Toluene	17.06	1.0	20	0	85.3	77 - 118	19.13	11.5	20
Xylenes, Total	52.37	3.0	60	0	87.3	75 - 122	58.3	10.7	20
Surr: 1,2-Dichloroethane-d4	46.77	1.0	50	0	93.5	70 - 123	46.58	0.417	20
Surr: 4-Bromofluorobenzene	52.57	1.0	50	0	105	77 - 113	52.48	0.16	20
Surr: Dibromofluoromethane	43.15	1.0	50	0	86.3	73 - 126	43.47	0.737	20
Surr: Toluene-d8	47.96	1.0	50	0	95.9	81 - 120	47.64	0.677	20

MS		Sample ID: HS24020201-03MS		Units: ug/L		Analysis Date: 06-Feb-2024 18:49			
Client ID: Cottages		Run ID: VOA4_458107		SeqNo: 7817717		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	70 - 127			
Ethylbenzene	17.92	1.0	20	0	89.6	70 - 124			
m,p-Xylene	36.44	2.0	40	0	91.1	70 - 130			
o-Xylene	18.4	1.0	20	0	92.0	70 - 124			
Toluene	17.36	1.0	20	0	86.8	70 - 123			
Xylenes, Total	54.83	3.0	60	0	91.4	70 - 130			
Surr: 1,2-Dichloroethane-d4	45.12	1.0	50	0	90.2	70 - 126			
Surr: 4-Bromofluorobenzene	51.22	1.0	50	0	102	77 - 113			
Surr: Dibromofluoromethane	42.23	1.0	50	0	84.5	77 - 123			
Surr: Toluene-d8	47.01	1.0	50	0	94.0	82 - 127			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458107 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MSD	Sample ID: HS24020201-03MSD	Units: ug/L			Analysis Date: 06-Feb-2024 19:11				
Client ID: Cottages	Run ID: VOA4_458107	SeqNo: 7817718			PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	15.84	1.0	20	0	79.2	70 - 127	17.71	11.1	20
Ethylbenzene	16.84	1.0	20	0	84.2	70 - 124	17.92	6.23	20
m,p-Xylene	33.9	2.0	40	0	84.7	70 - 130	36.44	7.22	20
o-Xylene	16.97	1.0	20	0	84.9	70 - 124	18.4	8.06	20
Toluene	16.61	1.0	20	0	83.0	70 - 123	17.36	4.41	20
Xylenes, Total	50.87	3.0	60	0	84.8	70 - 130	54.83	7.5	20
Surr: 1,2-Dichloroethane-d4	46.48	1.0	50	0	93.0	70 - 126	45.12	2.96	20
Surr: 4-Bromofluorobenzene	51.55	1.0	50	0	103	77 - 113	51.22	0.65	20
Surr: Dibromofluoromethane	42.99	1.0	50	0	86.0	77 - 123	42.23	1.77	20
Surr: Toluene-d8	47.49	1.0	50	0	95.0	82 - 127	47.01	1.03	20
The following samples were analyzed in this batch:		HS24020201-01		HS24020201-03		HS24020201-04		HS24020201-05	
		HS24020201-06		HS24020201-07		HS24020201-08		HS24020201-09	
		HS24020201-10							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458108 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 06-Feb-2024 08:50					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815875		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: 06-Feb-2024 09:02					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815876		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide 4.182 0.100 4 0 105 80 - 120

Chloride 19.5 0.500 20 0 97.5 80 - 120

Sulfate 20.12 0.500 20 0 101 80 - 120

MS	Sample ID: HS24020193-01MS	Units: mg/L		Analysis Date: 06-Feb-2024 09:14					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815878		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide 1.661 0.100 2 0 83.1 80 - 120

Chloride 112.7 0.500 10 105.5 71.9 80 - 120 SEO

Sulfate 33.57 0.500 10 25.31 82.6 80 - 120

MSD	Sample ID: HS24020193-01MSD	Units: mg/L		Analysis Date: 06-Feb-2024 09:20					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815879		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide 1.76 0.100 2 0 88.0 80 - 120 1.661 5.78 20

Chloride 113 0.500 10 105.5 74.6 80 - 120 112.7 0.236 20 SEO

Sulfate 33.73 0.500 10 25.31 84.2 80 - 120 33.57 0.478 20

The following samples were analyzed in this batch:

HS24020201-01	HS24020201-02	HS24020201-03	HS24020201-04
HS24020201-05	HS24020201-06	HS24020201-07	HS24020201-08
HS24020201-09	HS24020201-10		

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458131 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011					
MBLK	Sample ID: MBLK-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16					
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816420		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	U	2.00							
LCS	Sample ID: LCS-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16					
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816419		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.76	2.00	25	0	87.0	85 - 115			
LCSD	Sample ID: LCSD-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16					
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816418		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.96	2.00	25	0	87.8	85 - 115	21.76	0.915	20
MS	Sample ID: HS24020201-04MS	Units: mg/L		Analysis Date: 06-Feb-2024 15:16					
Client ID: 019-1055	Run ID: WetChem_HS_458131		SeqNo: 7816421		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.96	2.00	25	-1.04	92.0	80 - 120			
The following samples were analyzed in this batch:									
HS24020201-01		HS24020201-03		HS24020201-04		HS24020201-05			
HS24020201-06		HS24020201-07		HS24020201-08		HS24020201-09			
HS24020201-10									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458284 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-02062024	Units: mg/L		Analysis Date: 06-Feb-2024 13:00					
Client ID:	Run ID: Balance1_458284	SeqNo: 7819543		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-02062024	Units: mg/L		Analysis Date: 06-Feb-2024 13:00					
Client ID:	Run ID: Balance1_458284	SeqNo: 7819542		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		990	10.0	1000	0	99.0	85 - 115		
DUP	Sample ID: HS24020201-08DUP	Units: mg/L		Analysis Date: 06-Feb-2024 13:00					
Client ID: MW-2-500	Run ID: Balance1_458284	SeqNo: 7819541		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		310	10.0				320	3.17	20
DUP	Sample ID: HS24020201-07DUP	Units: mg/L		Analysis Date: 06-Feb-2024 13:00					
Client ID: 019-582	Run ID: Balance1_458284	SeqNo: 7819539		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		218	10.0				228	4.48	20
The following samples were analyzed in this batch:		HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05				
		HS24020201-06	HS24020201-07	HS24020201-08					

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458286 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011						
MBLK	Sample ID: WMBLK-02062024	Units: mg/L		Analysis Date: 06-Feb-2024 13:00						
Client ID:	Run ID: Balance1_458286	SeqNo: 7819560		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: WLCS-02062024	Units: mg/L		Analysis Date: 06-Feb-2024 13:00						
Client ID:	Run ID: Balance1_458286	SeqNo: 7819559		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)		976	10.0	1000	0	97.6	85 - 115			
DUP	Sample ID: HS24020201-10DUP	Units: mg/L		Analysis Date: 06-Feb-2024 13:00						
Client ID: MW-2-200	Run ID: Balance1_458286	SeqNo: 7819558		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)		274	10.0				274	0	20	
The following samples were analyzed in this batch:		HS24020201-09		HS24020201-10						

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458362 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-02072024	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821404		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-02072024	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821403		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1024	10.0	1000	0	102	85 - 115		
DUP	Sample ID: HS24020199-08DUP	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821399		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		2370	10.0			2350	0.847	20	
DUP	Sample ID: HS24020199-07DUP	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821397		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1328	10.0			1304	1.82	20	
The following samples were analyzed in this batch:		HS24020201-02							

Client:

Project:

WorkOrder:

Environmental Resources Mgmt.
Sulphur Dome
HS24020201

QC BATCH REPORT

Batch ID: R458380 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821627		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							

LCS	Sample ID: LCS-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821626		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.12	1.00	26.56	0	87.0	80 - 120			

LCSD	Sample ID: LCSD-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821625		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.33	1.00	26.56	0	87.8	80 - 120	23.12	0.915	20

The following samples were analyzed in this batch:

HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05
HS24020201-06	HS24020201-07	HS24020201-08	HS24020201-09
HS24020201-10			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

QC BATCH REPORT

Batch ID: R458404 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-02082024	Units: mg/L		Analysis Date: 08-Feb-2024 12:44					
Client ID:	Run ID: Skalar 03_458404	SeqNo: 7822126		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-02082024	Units: mg/L		Analysis Date: 08-Feb-2024 12:50					
Client ID:	Run ID: Skalar 03_458404	SeqNo: 7822127		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) 938.8 5.00 1000 0 93.9 85 - 115

LCSD	Sample ID: LCSD-02082024	Units: mg/L		Analysis Date: 08-Feb-2024 12:57					
Client ID:	Run ID: Skalar 03_458404	SeqNo: 7822128		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) 936 5.00 1000 0 93.6 85 - 115 938.8 0.299 20

DUP	Sample ID: HS24020042-01DUP	Units: mg/L		Analysis Date: 08-Feb-2024 13:23					
Client ID:	Run ID: Skalar 03_458404	SeqNo: 7822120		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) 36.1 5.00 34.8 3.67 20

Alkalinity, Carbonate (As CaCO₃) U 5.00 0 0 20

The following samples were analyzed in this batch:

HS24020201-01	HS24020201-03	HS24020201-04	HS24020201-05
HS24020201-06	HS24020201-07	HS24020201-08	HS24020201-09
HS24020201-10			

Client:Environmental Resources Mgmt.

Project:Sulphur Dome

WorkOrder:HS24020201

QC BATCH REPORT

Batch ID: R458406 (0)		Instrument: Skalar 03		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS24020042-01DUP		Units: pH Units		Analysis Date: 08-Feb-2024 13:23				
Client ID:	Run ID: Skalar 03_458406		SeqNo: 7822169		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.53	0.100					7.51	0.266	10
Temp Deg C @pH	17	0					17.2	1.17	10
The following samples were analyzed in this batch:									
HS24020201-01 HS24020201-03 HS24020201-04 HS24020201-05 HS24020201-06 HS24020201-07 HS24020201-08 HS24020201-09 HS24020201-10									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020201

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24020201

Date/Time Received: 01-Feb-2024 14:00

Client Name: ERMSW-HOU

Received by: Si Ma

Completed By: /S/ Nelson D. Dusara

05-Feb-2024 20:21

Reviewed by: /S/ Bernadette A. Fini

06-Feb-2024 09:53

eSignature

Date/Time

eSignature

Date/Time

Matrices: WCarrier 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:312738

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):

3.9/3.8,2.6/2.5,1.2/1.1,1.0/0.9 C UC/C

IR 31

Cooler(s)/Kit(s):

51799/50490/51950/Blue

Date/Time sample(s) sent to storage:

FEB/05/2024 10:30

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 1 of 1

COC ID: **312738**

ALS Project Manager:

HS24020201

Environmental Resources Mgmt.

Sulphur Dome



Customer Information		Project Information			
Purchase Order	0712237	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_W2320E: (carb, bicarb), pH
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_TWAs, Bra, Cd, Ca, Cr, Fe, Pb, Mg, Mn, K, Se, Ag, Na, Sr, Zn, Ni, V
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	I	SULFD_4500S F (Sulfide)
				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	MW-2-700	1/30/24	16:00	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2	BS-12	1/31/24	10:15	W	8	2				X							X
3	Cottages		11:20	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
4	019-1055		11:35														
5	019-580		11:50														
6	019-995		12:10														
7	019-582		12:55														
8	MW-2-500		13:30														
9	019-1603		14:00														
10	MW-2-200		15:15														

Sampler(s) Please Print & Sign Taylor Brown		Shipment Method	Required Turnaround Time: (Check Box) ☒ 2-5 Business Days ☐ 5-10 Business Days ☐ 10-15 Business Days ☐ 15-20 Business Days ☐ 20-25 Business Days ☐ 25-30 Business Days ☐ Other: _____		Results Due Date:
Relinquished by: Taylor Brown	Date: 2/1/24	Time: 14:00	Received by:		
Relinquished by:	Date:	Time:	Received by (Laboratory): ERM 2/1/24 14:00		
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		
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					
Cooler ID 51799		Cooler Temp. 3.0	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			

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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February 15, 2024

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

Work Order: **HS24020204**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 1 sample(s) on Feb 01, 2024 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,

Generated By: JUMOKE.LAWAL

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24020204

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24020204-01	019-13785Z	Water		31-Jan-2024 17:20	01-Feb-2024 14:00	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24020204

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: 206996

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

GC Volatiles by Method MA VPH

Batch ID: R458792,R458793

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

GCMS Volatiles by Method SW8260

Batch ID: R458320

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

Metals by Method SW7470A

Batch ID: 207352

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

Metals by Method SW6020A

Batch ID: 206987

Sample ID: HS24020201-01MS

- MS and MSD are for an unrelated sample

Wet Chemistry by Method SW9056

Batch ID: R458108

Sample ID: HS24020193-01MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SM4500H+ B

Batch ID: R458880

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

WetChemistry by Method SM2320B

Batch ID: R458951

Sample ID: 019-13785Z (HS24020204-01)

- Sample was analyzed outside of the holding time due to laboratory error. Sample results should be considered estimated.

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24020204

CASE NARRATIVE

WetChemistry by Method E376.1

Batch ID: R458380

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

WetChemistry by Method M2540C

Batch ID: R458362

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

WetChemistry by Method SM4500 S2-F

Batch ID: R458131

- 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: 019-13785Z
 Collection Date: 31-Jan-2024 17:20

ANALYTICAL REPORT

WorkOrder:HS24020204
 Lab ID:HS24020204-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	08-Feb-2024 05:49
Ethylbenzene	U		0.30	1.0	ug/L	1	08-Feb-2024 05:49
m,p-Xylene	U		0.50	2.0	ug/L	1	08-Feb-2024 05:49
o-Xylene	U		0.30	1.0	ug/L	1	08-Feb-2024 05:49
Toluene	U		0.20	1.0	ug/L	1	08-Feb-2024 05:49
Xylenes, Total	U		0.30	3.0	ug/L	1	08-Feb-2024 05:49
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>89.3</i>			<i>70-126</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 05:49</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>96.1</i>			<i>77-113</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 05:49</i>
<i>Surr: Dibromofluoromethane</i>	<i>90.7</i>			<i>77-123</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 05:49</i>
<i>Surr: Toluene-d8</i>	<i>91.0</i>			<i>82-127</i>	<i>%REC</i>	<i>1</i>	<i>08-Feb-2024 05:49</i>
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	09-Feb-2024 23:31
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	09-Feb-2024 23:31
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	09-Feb-2024 23:31
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	<i>72.3</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>09-Feb-2024 23:31</i>
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	<i>81.7</i>			<i>70-130</i>	<i>%REC</i>	<i>1</i>	<i>09-Feb-2024 23:31</i>
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 07-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	13-Feb-2024 17:41
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	13-Feb-2024 17:41
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	13-Feb-2024 17:41
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	13-Feb-2024 16:09
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	13-Feb-2024 16:09
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	13-Feb-2024 16:09
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	13-Feb-2024 16:09
<i>Surr: 1-Chlorooctadecane</i>	<i>47.9</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>13-Feb-2024 17:41</i>
<i>Surr: 2-Bromonaphthalene</i>	<i>126</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>13-Feb-2024 16:09</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>134</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>13-Feb-2024 16:09</i>
<i>Surr: o-Terphenyl</i>	<i>52.4</i>			<i>40-140</i>	<i>%REC</i>	<i>1</i>	<i>13-Feb-2024 16:09</i>

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: 019-13785Z
 Collection Date: 31-Jan-2024 17:20

ANALYTICAL REPORT

WorkOrder:HS24020204
 Lab ID:HS24020204-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 06-Feb-2024		Analyst: MSC	
Arsenic	0.00342		0.000400	0.00200	mg/L	1	07-Feb-2024 22:42
Barium	0.276		0.00190	0.00400	mg/L	1	07-Feb-2024 22:42
Cadmium	U		0.000200	0.00200	mg/L	1	07-Feb-2024 22:42
Calcium	25.8		0.0340	0.500	mg/L	1	07-Feb-2024 22:42
Chromium	0.000634	J	0.000400	0.00400	mg/L	1	07-Feb-2024 22:42
Iron	0.335		0.0120	0.200	mg/L	1	07-Feb-2024 22:42
Lead	0.000918	J	0.000600	0.00200	mg/L	1	07-Feb-2024 22:42
Magnesium	9.20		0.0100	0.200	mg/L	1	07-Feb-2024 22:42
Manganese	0.0868		0.000700	0.00500	mg/L	1	07-Feb-2024 22:42
Nickel	U		0.000600	0.00200	mg/L	1	07-Feb-2024 22:42
Potassium	1.21		0.0180	0.200	mg/L	1	07-Feb-2024 22:42
Selenium	U		0.00110	0.00200	mg/L	1	07-Feb-2024 22:42
Silver	U		0.000200	0.00200	mg/L	1	07-Feb-2024 22:42
Sodium	64.2		0.0140	0.200	mg/L	1	07-Feb-2024 22:42
Strontium	0.307		0.000200	0.00500	mg/L	1	07-Feb-2024 22:42
Vanadium	0.00146	J	0.000600	0.00500	mg/L	1	07-Feb-2024 22:42
Zinc	0.0291		0.00200	0.00400	mg/L	1	07-Feb-2024 22:42
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 14-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	14-Feb-2024 13:49
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	06-Feb-2024 15:00
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JAC	
Total Dissolved Solids (Residue, Filterable)	298		5.00	10.0	mg/L	1	07-Feb-2024 14:00
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	213	H	3.50	5.00	mg/L	1	15-Feb-2024 11:04
Alkalinity, Carbonate (As CaCO ₃)	U	H	3.50	5.00	mg/L	1	15-Feb-2024 11:04
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	06-Feb-2024 15:16
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	8.08	H	0.100	0.100	pH Units	1	15-Feb-2024 07:32
Temp Deg C @pH	21.2	H	0	0	°C	1	15-Feb-2024 07:32
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.101		0.0300	0.100	mg/L	1	06-Feb-2024 11:19
Chloride	42.2		0.200	0.500	mg/L	1	06-Feb-2024 11:19
Sulfate	0.380	J	0.200	0.500	mg/L	1	06-Feb-2024 11:19

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

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

Batch ID: 206987		Start Date: 06 Feb 2024 09:00			End Date: 06 Feb 2024 09:00	
Method: WATER - SW3010A					Prep Code: 3010A	
Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor		
HS24020204-01		10 (mL)	10 (mL)	1	120 plastic HNO3	
Batch ID: 206996		Start Date: 07 Feb 2024 07:04			End Date: 07 Feb 2024 07:04	
Method: MA EPH EXTRACTION-FRACTIONATION					Prep Code: MA EPH_WPR	
Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor		
HS24020204-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2	
Batch ID: 207352		Start Date: 14 Feb 2024 08:30			End Date: 14 Feb 2024 08:30	
Method: MERCURY PREP BY 7470A- WATER					Prep Code: HG_WPR	
Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor		
HS24020204-01		10 (mL)	10 (mL)	1	120 plastic HNO3	

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 206987 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20		06 Feb 2024 09:00	07 Feb 2024 22:42	1
Batch ID: 206996 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20		07 Feb 2024 07:04	13 Feb 2024 17:41	1
Batch ID: 206996 (1)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20		07 Feb 2024 07:04	13 Feb 2024 16:09	1
Batch ID: 207352 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20		14 Feb 2024 08:30	14 Feb 2024 13:49	1
Batch ID: R458108 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			06 Feb 2024 11:19	1
Batch ID: R458131 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			06 Feb 2024 15:16	1
Batch ID: R458320 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			08 Feb 2024 05:49	1
Batch ID: R458362 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			07 Feb 2024 14:00	1
Batch ID: R458380 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			06 Feb 2024 15:00	1
Batch ID: R458792 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			09 Feb 2024 23:31	1
Batch ID: R458793 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			09 Feb 2024 23:31	1
Batch ID: R458880 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			15 Feb 2024 07:32	1
Batch ID: R458951 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24020204-01	019-13785Z	31 Jan 2024 17:20			15 Feb 2024 11:04	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206996 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-206996	Units: mg/L		Analysis Date: 13-Feb-2024 13:04					
Client ID:	Run ID: FID23_458490		SeqNo: 7827535		PrepDate: 07-Feb-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.02567</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>64.2</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-206996	Units: mg/L		Analysis Date: 08-Feb-2024 17:18					
Client ID:	Run ID: FID-8_458453		SeqNo: 7823427		PrepDate: 07-Feb-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.03976</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>99.4</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.04165</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>104</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.01607</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>40.2</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-206996	Units: mg/L		Analysis Date: 09-Feb-2024 09:44					
Client ID:	Run ID: FID23_458490		SeqNo: 7824083		PrepDate: 07-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.05014	0.00100	0.05	0	100	40 - 140			
Aliphatics >C12 - C16	0.1051	0.00200	0.1	0	105	40 - 140			
Aliphatics >C16 - C35	0.4032	0.00800	0.4	0	101	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.01788</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>44.7</i>	<i>40 - 140</i>			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206996 (0)		Instrument: FID23		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS		Sample ID: LCS-206996	Units: mg/L		Analysis Date: 08-Feb-2024 17:49				
Client ID:		Run ID: FID-8_458453		SeqNo: 7823428		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.05533	0.00100	0.05	0	111	40 - 140			
Aromatics >C12 - C16	0.2209	0.00400	0.2	0	110	40 - 140			
Aromatics >C16 - C21	0.1891	0.00300	0.15	0	126	40 - 140			
Aromatics >C21 - C35	0.4947	0.00900	0.45	0	110	40 - 140			
Surr: 2-Bromonaphthalene	0.04371	0	0.04	0	109	40 - 140			
Surr: 2-Fluorobiphenyl	0.04617	0	0.04	0	115	40 - 140			
Surr: o-Terphenyl	0.02011	0	0.04	0	50.3	40 - 140			

LCSD		Sample ID: LCSD-206996	Units: mg/L		Analysis Date: 09-Feb-2024 11:42				
Client ID:		Run ID: FID23_458490		SeqNo: 7824102		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04736	0.00100	0.05	0	94.7	40 - 140	0.05014	5.7	50
Aliphatics >C12 - C16	0.1025	0.00200	0.1	0	103	40 - 140	0.1051	2.49	50
Aliphatics >C16 - C35	0.4061	0.00800	0.4	0	102	40 - 140	0.4032	0.712	50
Surr: 1-Chlorooctadecane	0.0162	0	0.04	0	40.5	40 - 140	0.01788	9.82	50

LCSD		Sample ID: LCSD-206996	Units: mg/L		Analysis Date: 08-Feb-2024 18:20				
Client ID:		Run ID: FID-8_458453		SeqNo: 7823429		PrepDate: 07-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04279	0.00100	0.05	0	85.6	40 - 140	0.05533	25.6	50
Aromatics >C12 - C16	0.1715	0.00400	0.2	0	85.7	40 - 140	0.2209	25.2	50
Aromatics >C16 - C21	0.1522	0.00300	0.15	0	101	40 - 140	0.1891	21.6	50
Aromatics >C21 - C35	0.4032	0.00900	0.45	0	89.6	40 - 140	0.4947	20.4	50
Surr: 2-Bromonaphthalene	0.0415	0	0.04	0	104	40 - 140	0.04371	5.18	50
Surr: 2-Fluorobiphenyl	0.0442	0	0.04	0	111	40 - 140	0.04617	4.36	50
Surr: o-Terphenyl	0.01618	0	0.04	0	40.5	40 - 140	0.02011	21.7	50

The following samples were analyzed in this batch: HS24020204-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458792 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240209	Units: mg/L		Analysis Date: 09-Feb-2024 19:08					
Client ID:	Run ID: FID-14_458792	SeqNo: 7830559		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)	0.2019	0.0100	0.25	0	80.8	70 - 130			
LCS	Sample ID: LCS-240209	Units: mg/L		Analysis Date: 09-Feb-2024 17:40					
Client ID:	Run ID: FID-14_458792	SeqNo: 7830557		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02068	0.0100	0.025	0	82.7	70 - 130			
Aliphatics >C8 - C10	0.02536	0.0100	0.025	0	101	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2128	0.0100	0.25	0	85.1	70 - 130			
LCSD	Sample ID: LCSD-240209	Units: mg/L		Analysis Date: 09-Feb-2024 18:24					
Client ID:	Run ID: FID-14_458792	SeqNo: 7830558		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.0221	0.0100	0.025	0	88.4	70 - 130	0.02068	6.62	25
Aliphatics >C8 - C10	0.02208	0.0100	0.025	0	88.3	70 - 130	0.02536	13.8	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2243	0.0100	0.25	0	89.7	70 - 130	0.2128	5.27	25
The following samples were analyzed in this batch: HS24020204-01									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458793 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240209	Units: mg/L		Analysis Date: 09-Feb-2024 19:08					
Client ID:	Run ID: FID-15_458793		SeqNo: 7830565		PrepDate:		DF: 1		
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) 0.203 0.0100 0.25 0 81.2 70 - 130

LCS	Sample ID: LCS-240209	Units: mg/L		Analysis Date: 09-Feb-2024 17:40					
Client ID:	Run ID: FID-15_458793		SeqNo: 7830563		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aromatics >C8 - C10 0.1093 0.0100 0.1 0 109 70 - 130

Surr: 2,5-Dibromotoluene (Aromatic) 0.2125 0.0100 0.25 0 85.0 70 - 130

LCSD	Sample ID: LCSD-240209	Units: mg/L		Analysis Date: 09-Feb-2024 18:24					
Client ID:	Run ID: FID-15_458793		SeqNo: 7830564		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Aromatics >C8 - C10 0.1079 0.0100 0.1 0 108 70 - 130 0.1093 1.3 25

Surr: 2,5-Dibromotoluene (Aromatic) 0.2258 0.0100 0.25 0 90.3 70 - 130 0.2125 6.06 25

The following samples were analyzed in this batch: HS24020204-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLKF1-206987	Units: mg/L		Analysis Date: 07-Feb-2024 14:06					
Client ID:	Run ID: ICPMS07_458244		SeqNo: 7818941		PrepDate: 06-Feb-2024		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	0.02114	0.200							J
Manganese	0.001779	0.00500							J
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	0.04319	0.200							J
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	0.002992	0.00400							J

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-206987	Units: mg/L		Analysis Date: 07-Feb-2024 14:03					
Client ID:	Run ID: ICPMS07_458244	SeqNo: 7818940		PrepDate: 06-Feb-2024		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							
Nickel	U	0.00200							
Potassium	U	0.200							
Selenium	U	0.00200							
Silver	U	0.00200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	U	0.00400							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
LCS	Sample ID: LCS-206987	Units: mg/L			Analysis Date: 07-Feb-2024 14:17				
Client ID:	Run ID: ICPMS07_458244		SeqNo: 7818942		PrepDate: 06-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04908	0.00200	0.05	0	98.2	80 - 120			
Barium	0.04497	0.00400	0.05	0	89.9	80 - 120			
Cadmium	0.04736	0.00200	0.05	0	94.7	80 - 120			
Calcium	4.65	0.500	5	0	93.0	80 - 120			
Chromium	0.04636	0.00400	0.05	0	92.7	80 - 120			
Iron	4.962	0.200	5	0	99.2	80 - 120			
Lead	0.04671	0.00200	0.05	0	93.4	80 - 120			
Magnesium	5.062	0.200	5	0	101	80 - 120			
Manganese	0.04741	0.00500	0.05	0	94.8	80 - 120			
Nickel	0.04952	0.00200	0.05	0	99.0	80 - 120			
Potassium	4.91	0.200	5	0	98.2	80 - 120			
Selenium	0.04824	0.00200	0.05	0	96.5	80 - 120			
Silver	0.04628	0.00200	0.05	0	92.6	80 - 120			
Sodium	5.08	0.200	5	0	102	80 - 120			
Strontium	0.09718	0.00500	0.1	0	97.2	80 - 120			
Vanadium	0.0457	0.00500	0.05	0	91.4	80 - 120			
Zinc	0.05062	0.00400	0.05	0	101	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS24020201-01MS		Units: mg/L		Analysis Date: 07-Feb-2024 21:52			
Client ID:		Run ID: ICPMS07_458244		SeqNo: 7820138		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.04704	0.0100	0.05	0	94.1	80 - 120			
Barium	0.2837	0.0200	0.05	0.2491	69.2	80 - 120			SO
Cadmium	0.04479	0.0100	0.05	0	89.6	80 - 120			
Calcium	438.3	2.50	5	432.6	115	80 - 120			O
Chromium	0.1122	0.0200	0.05	0.002527	219	80 - 120			S
Iron	5.379	1.00	5	0.1709	104	80 - 120			
Lead	0.04198	0.0100	0.05	0	84.0	80 - 120			
Magnesium	4.544	1.00	5	0	90.9	80 - 120			
Manganese	0.04417	0.0250	0.05	0	88.3	80 - 120			
Nickel	0.04744	0.0100	0.05	0	94.9	80 - 120			
Potassium	512.4	1.00	5	509.8	52.8	80 - 120			SO
Selenium	0.04428	0.0100	0.05	0	88.6	80 - 120			
Silver	0.04217	0.0100	0.05	0	84.3	80 - 120			
Sodium	765.3	1.00	5	762	66.1	80 - 120			SO
Strontium	11.36	0.0250	0.1	11.81	-451	80 - 120			SEO
Vanadium	0.04289	0.0250	0.05	0	85.8	80 - 120			
Zinc	0.05325	0.0200	0.05	0.01234	81.8	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS24020201-01MSD		Units: mg/L		Analysis Date: 07-Feb-2024 21:54			
Client ID:		Run ID: ICPMS07_458244		SeqNo: 7820139		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.04539	0.0100	0.05	0	90.8	80 - 120	0.04704	3.58	20
Barium	0.2813	0.0200	0.05	0.2491	64.4	80 - 120	0.2837	0.856	20 SO
Cadmium	0.04422	0.0100	0.05	0	88.4	80 - 120	0.04479	1.27	20
Calcium	429.9	2.50	5	432.6	-54.2	80 - 120	438.3	1.95	20 SO
Iron	4.562	1.00	5	0.1709	87.8	80 - 120	5.379	16.4	20
Lead	0.04238	0.0100	0.05	0	84.8	80 - 120	0.04198	0.944	20
Magnesium	4.377	1.00	5	0	87.5	80 - 120	4.544	3.74	20
Manganese	0.0436	0.0250	0.05	0	87.2	80 - 120	0.04417	1.29	20
Nickel	0.04597	0.0100	0.05	0	91.9	80 - 120	0.04744	3.15	20
Potassium	500.3	1.00	5	509.8	-189	80 - 120	512.4	2.38	20 SO
Selenium	0.04301	0.0100	0.05	0	86.0	80 - 120	0.04428	2.92	20
Silver	0.04164	0.0100	0.05	0	83.3	80 - 120	0.04217	1.26	20
Sodium	745.7	1.00	5	762	-326	80 - 120	765.3	2.59	20 SO
Strontium	11.24	0.0250	0.1	11.81	-567	80 - 120	11.36	1.03	20 SEO
Vanadium	0.04147	0.0250	0.05	0	82.9	80 - 120	0.04289	3.37	20
Zinc	0.05383	0.0200	0.05	0.01234	83.0	80 - 120	0.05325	1.09	20
MSD		Sample ID: HS24020201-01MSD		Units: mg/L		Analysis Date: 08-Feb-2024 11:04			
Client ID:		Run ID: ICPMS07_458329		SeqNo: 7820876		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chromium	0.09495	0.0200	0.05	0.002527	185	80 - 120	0.1122	16.7	20 S

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS24020201-01PDS		Units: mg/L		Analysis Date: 07-Feb-2024 21:57			
Client ID:		Run ID: ICPMS07_458244		SeqNo: 7820140		PrepDate: 06-Feb-2024		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.9276	0.0100	1	0	92.8	75 - 125			
Barium	1.239	0.0200	1	0.2491	98.9	75 - 125			
Cadmium	0.9052	0.0100	1	0	90.5	75 - 125			
Calcium	525.3	2.50	100	432.6	92.7	75 - 125			O
Chromium	0.9027	0.0200	1	0.002527	90.0	75 - 125			
Iron	90.49	1.00	100	0.1709	90.3	75 - 125			
Lead	0.9339	0.0100	1	0	93.4	75 - 125			
Magnesium	91.11	1.00	100	0	91.1	75 - 125			
Manganese	0.9117	0.0250	1	0	91.2	75 - 125			
Nickel	0.8912	0.0100	1	0	89.1	75 - 125			
Potassium	591.4	1.00	100	509.8	81.6	75 - 125			O
Selenium	0.9302	0.0100	1	0	93.0	75 - 125			
Silver	0.8806	0.0100	1	0	88.1	75 - 125			
Sodium	845.2	1.00	100	762	83.2	75 - 125			O
Vanadium	0.9287	0.0250	1	0	92.9	75 - 125			
Zinc	0.9357	0.0200	1	0.01234	92.3	75 - 125			
PDS		Sample ID: HS24020201-01PDS		Units: mg/L		Analysis Date: 08-Feb-2024 11:11			
Client ID:		Run ID: ICPMS07_458329		SeqNo: 7820879		PrepDate: 06-Feb-2024		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Strontium	24.45	0.500	10	11.96	125	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 206987 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
SD		Sample ID: HS24020201-01SD		Units: mg/L		Analysis Date: 07-Feb-2024 21:49			
Client ID:		Run ID: ICPMS07_458244		SeqNo: 7820137		PrepDate: 06-Feb-2024		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic	U	0.0500					0.001329	0	10
Barium	0.2418	0.100					0.2491	2.93	10
Cadmium	U	0.0500					0.000341	0	10
Calcium	456.4	12.5					432.6	5.5	10
Chromium	0.1017	0.100					0.002527	0	10
Iron	1.309	5.00					0.1709	0	10 J
Lead	U	0.0500					0.000088	0	10
Magnesium	U	5.00					0.0429	0	10
Manganese	U	0.125					0.001954	0	10
Nickel	U	0.0500					0.002398	0	10
Potassium	517.5	5.00					509.8	1.53	10
Selenium	U	0.0500					-0.000444	0	10
Silver	U	0.0500					0.000022	0	10
Sodium	771.6	5.00					762	1.26	10
Strontium	11.42	0.125					11.81	3.25	10
Vanadium	U	0.125					-0.000029	0	10
Zinc	U	0.100					0.01234	0	10
SD		Sample ID: HS24020201-01SD		Units: mg/L		Analysis Date: 08-Feb-2024 11:09			
Client ID:		Run ID: ICPMS07_458329		SeqNo: 7820878		PrepDate: 06-Feb-2024		DF: 500	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Strontium	12.45	2.50					11.96	4.04	10
The following samples were analyzed in this batch: HS24020204-01									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: 207352 (0)		Instrument: HG04		Method: MERCURY BY SW7470A						
MBLK	Sample ID: MBLK-207352	Units: mg/L		Analysis Date: 14-Feb-2024 13:25						
Client ID:	Run ID: HG04_458803		SeqNo: 7830757		PrepDate: 14-Feb-2024		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-207352	Units: mg/L		Analysis Date: 14-Feb-2024 13:29						
Client ID:	Run ID: HG04_458803		SeqNo: 7830758		PrepDate: 14-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00463	0.000200	0.005	0	92.6	80 - 120				
MS	Sample ID: HS24020374-01MS	Units: mg/L		Analysis Date: 14-Feb-2024 13:52						
Client ID:	Run ID: HG04_458803		SeqNo: 7830771		PrepDate: 14-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00531	0.000200	0.005	0.000002	106	75 - 125				
MSD	Sample ID: HS24020374-01MSD	Units: mg/L		Analysis Date: 14-Feb-2024 13:59						
Client ID:	Run ID: HG04_458803		SeqNo: 7830774		PrepDate: 14-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00543	0.000200	0.005	0.000002	109	75 - 125	0.00531	2.23	20	
The following samples were analyzed in this batch: HS24020204-01										

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458320 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-240207	Units: ug/L		Analysis Date: 07-Feb-2024 22:25					
Client ID:	Run ID: VOA4_458320	SeqNo: 7820453		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	3.0							
Surr: 1,2-Dichloroethane-d4	42.07	1.0	50	0	84.1	70 - 123			
Surr: 4-Bromofluorobenzene	51.16	1.0	50	0	102	77 - 113			
Surr: Dibromofluoromethane	43.54	1.0	50	0	87.1	73 - 126			
Surr: Toluene-d8	45.84	1.0	50	0	91.7	81 - 120			

LCS	Sample ID: VLCSW-240207	Units: ug/L		Analysis Date: 08-Feb-2024 08:08					
Client ID:	Run ID: VOA4_458320	SeqNo: 7820476		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	16.87	1.0	20	0	84.4	74 - 120			
Ethylbenzene	17.68	1.0	20	0	88.4	77 - 117			
m,p-Xylene	36.14	2.0	40	0	90.3	77 - 122			
o-Xylene	18.4	1.0	20	0	92.0	75 - 119			
Toluene	17.34	1.0	20	0	86.7	77 - 118			
Xylenes, Total	54.54	3.0	60	0	90.9	75 - 122			
Surr: 1,2-Dichloroethane-d4	41.01	1.0	50	0	82.0	70 - 123			
Surr: 4-Bromofluorobenzene	50.32	1.0	50	0	101	77 - 113			
Surr: Dibromofluoromethane	42.8	1.0	50	0	85.6	73 - 126			
Surr: Toluene-d8	47.35	1.0	50	0	94.7	81 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458320 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCS DW-240207		Units: ug/L		Analysis Date: 08-Feb-2024 08:30			
Client ID:		Run ID: VOA4_458320		SeqNo: 7820477		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	16.36	1.0	20	0	81.8	74 - 120	16.87	3.08	20
Ethylbenzene	17.43	1.0	20	0	87.2	77 - 117	17.68	1.38	20
m,p-Xylene	36.9	2.0	40	0	92.3	77 - 122	36.14	2.09	20
o-Xylene	17.89	1.0	20	0	89.5	75 - 119	18.4	2.8	20
Toluene	17.52	1.0	20	0	87.6	77 - 118	17.34	1.05	20
Xylenes, Total	54.79	3.0	60	0	91.3	75 - 122	54.54	0.47	20
Surr: 1,2-Dichloroethane-d4	40.1	1.0	50	0	80.2	70 - 123	41.01	2.25	20
Surr: 4-Bromofluorobenzene	51.31	1.0	50	0	103	77 - 113	50.32	1.96	20
Surr: Dibromofluoromethane	41.31	1.0	50	0	82.6	73 - 126	42.8	3.54	20
Surr: Toluene-d8	47.46	1.0	50	0	94.9	81 - 120	47.35	0.246	20

MS		Sample ID: HS24020221-10MS		Units: ug/L		Analysis Date: 08-Feb-2024 06:35			
Client ID:		Run ID: VOA4_458320		SeqNo: 7820474		PrepDate:		DF: 50	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	935.9	50	1000	78.68	85.7	70 - 127			
Ethylbenzene	885.7	50	1000	0	88.6	70 - 124			
m,p-Xylene	1811	100	2000	0	90.5	70 - 130			
o-Xylene	904.4	50	1000	0	90.4	70 - 124			
Toluene	885.2	50	1000	0	88.5	70 - 123			
Xylenes, Total	2715	150	3000	0	90.5	70 - 130			
Surr: 1,2-Dichloroethane-d4	2039	50	2500	0	81.6	70 - 126			
Surr: 4-Bromofluorobenzene	2523	50	2500	0	101	77 - 113			
Surr: Dibromofluoromethane	2142	50	2500	0	85.7	77 - 123			
Surr: Toluene-d8	2291	50	2500	0	91.7	82 - 127			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458320 (0)		Instrument: VOA4		Method: LOW LEVEL VOLATILES BY SW8260C						
MSD	Sample ID: HS24020221-10MSD	Units: ug/L		Analysis Date: 08-Feb-2024 06:57						
Client ID:	Run ID: VOA4_458320		SeqNo: 7820475		PrepDate:		DF: 50			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	907.9	50	1000	78.68	82.9	70 - 127	935.9	3.04	20	
Ethylbenzene	884.7	50	1000	0	88.5	70 - 124	885.7	0.113	20	
m,p-Xylene	1830	100	2000	0	91.5	70 - 130	1811	1.08	20	
o-Xylene	922.4	50	1000	0	92.2	70 - 124	904.4	1.97	20	
Toluene	882.2	50	1000	0	88.2	70 - 123	885.2	0.331	20	
Xylenes, Total	2753	150	3000	0	91.8	70 - 130	2715	1.38	20	
Surr: 1,2-Dichloroethane-d4	1977	50	2500	0	79.1	70 - 126	2039	3.11	20	
Surr: 4-Bromofluorobenzene	2527	50	2500	0	101	77 - 113	2523	0.168	20	
Surr: Dibromofluoromethane	2042	50	2500	0	81.7	77 - 123	2142	4.78	20	
Surr: Toluene-d8	2376	50	2500	0	95.1	82 - 127	2291	3.64	20	
The following samples were analyzed in this batch: HS24020204-01										

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458108 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 06-Feb-2024 08:50					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815875		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: 06-Feb-2024 09:02					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815876		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	4.182	0.100	4	0	105	80 - 120			
Chloride	19.5	0.500	20	0	97.5	80 - 120			
Sulfate	20.12	0.500	20	0	101	80 - 120			

MS	Sample ID: HS24020193-01MS	Units: mg/L		Analysis Date: 06-Feb-2024 09:14					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815878		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	1.661	0.100	2	0	83.1	80 - 120			
Chloride	112.7	0.500	10	105.5	71.9	80 - 120			SEO
Sulfate	33.57	0.500	10	25.31	82.6	80 - 120			

MSD	Sample ID: HS24020193-01MSD	Units: mg/L		Analysis Date: 06-Feb-2024 09:20					
Client ID:	Run ID: ICS-Integrion_458108		SeqNo: 7815879		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Bromide	1.76	0.100	2	0	88.0	80 - 120	1.661	5.78	20
Chloride	113	0.500	10	105.5	74.6	80 - 120	112.7	0.236	20 SEO
Sulfate	33.73	0.500	10	25.31	84.2	80 - 120	33.57	0.478	20

The following samples were analyzed in this batch: HS24020204-01

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458131 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011						
MBLK	Sample ID: MBLK-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16						
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816420		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-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16						
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816419		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.76	2.00	25	0	87.0	85 - 115				
LCSD	Sample ID: LCSD-R458131	Units: mg/L		Analysis Date: 06-Feb-2024 15:16						
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816418		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.96	2.00	25	0	87.8	85 - 115	21.76	0.915	20	
MS	Sample ID: HS24020201-04MS	Units: mg/L		Analysis Date: 06-Feb-2024 15:16						
Client ID:	Run ID: WetChem_HS_458131		SeqNo: 7816421		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	21.96	2.00	25	-1.04	92.0	80 - 120				
The following samples were analyzed in this batch: HS24020204-01										

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458362 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-02072024	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821404		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-02072024	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821403		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1024	10.0	1000	0	102	85 - 115		
DUP	Sample ID: HS24020199-08DUP	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821399		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		2370	10.0			2350	0.847	20	
DUP	Sample ID: HS24020199-07DUP	Units: mg/L		Analysis Date: 07-Feb-2024 14:00					
Client ID:	Run ID: Balance1_458362	SeqNo: 7821397		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1328	10.0			1304	1.82	20	
The following samples were analyzed in this batch:		HS24020204-01							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458380 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821627		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							
LCS	Sample ID: LCS-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821626		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.12	1.00	26.56	0	87.0	80 - 120			
LCSD	Sample ID: LCSD-R458380	Units: mg/L		Analysis Date: 06-Feb-2024 15:00					
Client ID:	Run ID: WetChem_HS_458380		SeqNo: 7821625		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.33	1.00	26.56	0	87.8	80 - 120	23.12	0.915	20
The following samples were analyzed in this batch: HS24020204-01									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458880 (0)		Instrument: WetChem_HS		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS24020464-01DUP	Units: pH Units		Analysis Date: 15-Feb-2024 07:44					
Client ID:	Run ID: WetChem_HS_458880		SeqNo: 7832688		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.65	0.100					7.59	0.787	10
Temp Deg C @pH	20.6	0					20.5	0.487	10
The following samples were analyzed in this batch: HS24020204-01									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24020204

QC BATCH REPORT

Batch ID: R458951 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-02152024	Units: mg/L		Analysis Date: 15-Feb-2024 10:47					
Client ID:	Run ID: Skalar 03_458951	SeqNo: 7833722		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Bicarbonate (As CaCO3)	U	5.00							
Alkalinity, Carbonate (As CaCO3)	U	5.00							
LCS	Sample ID: LCS-02152024	Units: mg/L		Analysis Date: 15-Feb-2024 10:53					
Client ID:	Run ID: Skalar 03_458951	SeqNo: 7833723		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	931.8	5.00	1000	0	93.2	85 - 115			
LCSD	Sample ID: LCSD-02152024	Units: mg/L		Analysis Date: 15-Feb-2024 10:59					
Client ID:	Run ID: Skalar 03_458951	SeqNo: 7833724		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Alkalinity, Carbonate (As CaCO3)	926.6	5.00	1000	0	92.7	85 - 115	931.8	0.56	20
The following samples were analyzed in this batch: HS24020204-01									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24020204

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L22-90-R2	31-Mar-2024
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24020204

Date/Time Received: 01-Feb-2024 14:00

Client Name: ERMSW-HOU

Received by: Si Ma

Completed By: /S/ Nelson D. Dusara	05-Feb-2024 20:21	Reviewed by: /S/ Bernadette A. Fini	06-Feb-2024 09:51
eSignature	Date/Time	eSignature	Date/Time

Matrices: WCarrier 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:058515
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):	2.6/2.5 C UC/C	IR 31	
Cooler(s)/Kit(s):	50490		
Date/Time sample(s) sent to storage:	FEB/05/2024 10:30		
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 1 of 1

COC ID: 058515

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

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order	0712237	Project Name	Sulphur Dome	A 8260 LLW (Low Level VOC) (8260) BTEX													
Work Order		Project Number	0712237	B MA EPH W La (MA EPH)													
Company Name	ERM	Bill To Company	ERM	C MA VPH LA W (MA VPH)													
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D 9056 anions W (Cl, SO4, Br)													
Address	840 W Sam Houston Pkwy Ste 6	Address	←	E ALK W 2320B (carb, bicarb, pH)													
City/State/Zip	Houston, TX 77024	City/State/Zip	←	F H2S W (H2S)													
Phone	281-600-1000	Phone	←	G HG W (Mercury)													
Fax	281-600-1001	Fax	←	H 10P TW (As, Ba, Cd, Cr, Cu, Fe, Pb, Mg, Mn, K, Se)													
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNA.AccountsPayable@erm.com	I SULFD 4500S F (Sulfide)													
				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	019-137853	1/31/24	17:20	LV	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

HS24020204

Environmental Resources Mgmt.

Sulphur Dome



Sampler(s) Please Print & Sign		Shipment Method		Turnaround Time in Business Days (BD)				Results Due Date:	
Taylor Brown <i>Taylor Brown</i>				240 BD 15 BD 3 BD 72 BD 71 BD					
Relinquished by:	Date:	Time:	Received by:	Notes:					
Taylor Brown	2/1/24	14:00							
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)			
			ERM 02101124 14:05	51794	3.9	☐ Level II Std QC ☐ TARP Checklist ☐ Level III Std QC/Raw Data ☐ TARP Level IV ☐ Level IV SW846/CLP ☐ Other _____			
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):	51794	3.9				
				50490	2.6				
				51450	1.2				

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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February 28, 2024

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

Work Order: **HS24021299**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 5 sample(s) on Feb 20, 2024 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,

Generated By: DAYNA.FISHER

Bernadette A. Fini
Project Manager

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24021299

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS24021299-01	019-1055	Water		20-Feb-2024 11:15	20-Feb-2024 16:35	☐
HS24021299-02	019-582	Water		20-Feb-2024 11:45	20-Feb-2024 16:35	☐
HS24021299-03	019-580	Water		20-Feb-2024 12:30	20-Feb-2024 16:35	☐
HS24021299-04	019-995	Water		20-Feb-2024 12:45	20-Feb-2024 16:35	☐
HS24021299-05	Cottages	Water		20-Feb-2024 12:15	20-Feb-2024 16:35	☐

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
Work Order: HS24021299

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.

Work Order Comments

- Login Comment: Vial 3 of 3 "019-1055 MA-VPH" received broken.

GC Semivolatiles by Method MA EPH

Batch ID: 207951

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

GC Volatiles by Method MA VPH

Batch ID: R459815,R459818,R459820,R459821

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

GCMS Volatiles by Method SW8260

Batch ID: R459636

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

Metals by Method SW7470A

Batch ID: 207982

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

Metals by Method SW6020A

Batch ID: 207894

Sample ID: HS24020238-02MS, HS24020239-02MS, HS24020237-02MS

- MS and MSD are for an unrelated sample

WetChemistry by Method M2540C

Batch ID: R459795

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

WetChemistry by Method E376.1

Batch ID: R459903

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

WetChemistry by Method SM4500 S2-F

Batch ID: R459900

- 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: HS24021299

CASE NARRATIVE

WetChemistry by Method SM4500H+ B

Batch ID: R459700

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

WetChemistry by Method SM2320B

Batch ID: R459651,R459876

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

WetChemistry by Method SW9056

Batch ID: R459630

- 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: 019-1055
 Collection Date: 20-Feb-2024 11:15

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	22-Feb-2024 13:57
Ethylbenzene	U		0.30	1.0	ug/L	1	22-Feb-2024 13:57
m,p-Xylene	U		0.50	2.0	ug/L	1	22-Feb-2024 13:57
o-Xylene	U		0.30	1.0	ug/L	1	22-Feb-2024 13:57
Toluene	U		0.20	1.0	ug/L	1	22-Feb-2024 13:57
Xylenes, Total	U		0.30	3.0	ug/L	1	22-Feb-2024 13:57
<i>Surr: 1,2-Dichloroethane-d4</i>	105			70-126	%REC	1	22-Feb-2024 13:57
<i>Surr: 4-Bromofluorobenzene</i>	95.8			77-113	%REC	1	22-Feb-2024 13:57
<i>Surr: Dibromofluoromethane</i>	101			77-123	%REC	1	22-Feb-2024 13:57
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	22-Feb-2024 13:57
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:00
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:00
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:00
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	83.9			70-130	%REC	1	24-Feb-2024 12:00
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	76.0			70-130	%REC	1	24-Feb-2024 12:00
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 26-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	27-Feb-2024 14:14
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	27-Feb-2024 14:14
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	27-Feb-2024 14:14
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	28-Feb-2024 10:22
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	28-Feb-2024 10:22
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	28-Feb-2024 10:22
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	28-Feb-2024 10:22
<i>Surr: 1-Chlorooctadecane</i>	110			40-140	%REC	1	27-Feb-2024 14:14
<i>Surr: 2-Bromonaphthalene</i>	78.6			40-140	%REC	1	28-Feb-2024 10:22
<i>Surr: 2-Fluorobiphenyl</i>	82.6			40-140	%REC	1	28-Feb-2024 10:22
<i>Surr: o-Terphenyl</i>	76.6			40-140	%REC	1	28-Feb-2024 10:22

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: 20-Feb-2024 11:15

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-01
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 23-Feb-2024		Analyst: MSC	
Arsenic	U		0.000400	0.00200	mg/L	1	27-Feb-2024 11:20
Barium	0.314		0.00190	0.00400	mg/L	1	27-Feb-2024 11:20
Calcium	29.4		0.0340	0.500	mg/L	1	27-Feb-2024 11:20
Chromium	U		0.000400	0.00400	mg/L	1	27-Feb-2024 11:20
Iron	4.11		0.0120	0.200	mg/L	1	27-Feb-2024 11:20
Lead	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:20
Magnesium	9.12		0.0100	0.200	mg/L	1	27-Feb-2024 11:20
Manganese	0.432		0.000700	0.00500	mg/L	1	27-Feb-2024 11:20
Nickel	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:20
Potassium	3.06		0.0180	0.200	mg/L	1	27-Feb-2024 11:20
Sodium	35.0		0.0140	0.200	mg/L	1	27-Feb-2024 11:20
Strontium	0.288		0.000200	0.00500	mg/L	1	27-Feb-2024 11:20
Vanadium	0.000831	J	0.000600	0.00500	mg/L	1	27-Feb-2024 11:20
Zinc	0.00589		0.00200	0.00400	mg/L	1	27-Feb-2024 11:20
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 26-Feb-2024		Analyst: JS	
Mercury	0.0000320	J	0.0000300	0.000200	mg/L	1	26-Feb-2024 15:52
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	27-Feb-2024 11:52
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JHD	
Total Dissolved Solids (Residue, Filterable)	246		5.00	10.0	mg/L	1	23-Feb-2024 16:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	122		3.50	5.00	mg/L	1	22-Feb-2024 22:19
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	22-Feb-2024 22:19
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	27-Feb-2024 11:41
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	7.12	H	0.100	0.100	pH Units	1	23-Feb-2024 02:17
Temp Deg C @pH	21.5	H	0	0	°C	1	23-Feb-2024 02:17
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0745	J	0.0300	0.100	mg/L	1	22-Feb-2024 15:35
Chloride	38.9		0.200	0.500	mg/L	1	22-Feb-2024 15:35
Sulfate	3.72		0.200	0.500	mg/L	1	22-Feb-2024 15:35

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: 20-Feb-2024 11:45

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	22-Feb-2024 14:19
Ethylbenzene	U		0.30	1.0	ug/L	1	22-Feb-2024 14:19
m,p-Xylene	U		0.50	2.0	ug/L	1	22-Feb-2024 14:19
o-Xylene	U		0.30	1.0	ug/L	1	22-Feb-2024 14:19
Toluene	U		0.20	1.0	ug/L	1	22-Feb-2024 14:19
Xylenes, Total	U		0.30	3.0	ug/L	1	22-Feb-2024 14:19
<i>Surr: 1,2-Dichloroethane-d4</i>	106			70-126	%REC	1	22-Feb-2024 14:19
<i>Surr: 4-Bromofluorobenzene</i>	95.5			77-113	%REC	1	22-Feb-2024 14:19
<i>Surr: Dibromofluoromethane</i>	103			77-123	%REC	1	22-Feb-2024 14:19
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	22-Feb-2024 14:19
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:44
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:44
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 12:44
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	77.9			70-130	%REC	1	24-Feb-2024 12:44
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	79.4			70-130	%REC	1	24-Feb-2024 12:44
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 26-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	27-Feb-2024 14:45
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	27-Feb-2024 14:45
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	27-Feb-2024 14:45
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	28-Feb-2024 10:53
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	28-Feb-2024 10:53
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	28-Feb-2024 10:53
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	28-Feb-2024 10:53
<i>Surr: 1-Chlorooctadecane</i>	89.4			40-140	%REC	1	27-Feb-2024 14:45
<i>Surr: 2-Bromonaphthalene</i>	76.8			40-140	%REC	1	28-Feb-2024 10:53
<i>Surr: 2-Fluorobiphenyl</i>	82.1			40-140	%REC	1	28-Feb-2024 10:53
<i>Surr: o-Terphenyl</i>	74.9			40-140	%REC	1	28-Feb-2024 10:53

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: 20-Feb-2024 11:45

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-02
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 23-Feb-2024		Analyst: MSC	
Arsenic	0.000475	J	0.000400	0.00200	mg/L	1	27-Feb-2024 11:22
Barium	0.214		0.00190	0.00400	mg/L	1	27-Feb-2024 11:22
Calcium	22.2		0.0340	0.500	mg/L	1	27-Feb-2024 11:22
Chromium	U		0.000400	0.00400	mg/L	1	27-Feb-2024 11:22
Iron	2.01		0.0120	0.200	mg/L	1	27-Feb-2024 11:22
Lead	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:22
Magnesium	6.78		0.0100	0.200	mg/L	1	27-Feb-2024 11:22
Manganese	0.310		0.000700	0.00500	mg/L	1	27-Feb-2024 11:22
Nickel	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:22
Potassium	2.31		0.0180	0.200	mg/L	1	27-Feb-2024 11:22
Sodium	25.7		0.0140	0.200	mg/L	1	27-Feb-2024 11:22
Strontium	0.209		0.000200	0.00500	mg/L	1	27-Feb-2024 11:22
Vanadium	0.00167	J	0.000600	0.00500	mg/L	1	27-Feb-2024 11:22
Zinc	0.00841		0.00200	0.00400	mg/L	1	27-Feb-2024 11:22
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 26-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	26-Feb-2024 15:54
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	27-Feb-2024 11:52
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JHD	
Total Dissolved Solids (Residue, Filterable)	244		5.00	10.0	mg/L	1	23-Feb-2024 16:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	120		3.50	5.00	mg/L	1	22-Feb-2024 22:24
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	22-Feb-2024 22:24
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	27-Feb-2024 11:41
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	7.13	H	0.100	0.100	pH Units	1	23-Feb-2024 02:18
Temp Deg C @pH	21.3	H	0	0	°C	1	23-Feb-2024 02:18
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0680	J	0.0300	0.100	mg/L	1	22-Feb-2024 15:41
Chloride	34.2		0.200	0.500	mg/L	1	22-Feb-2024 15:41
Sulfate	3.72		0.200	0.500	mg/L	1	22-Feb-2024 15:41

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: 20-Feb-2024 12:30

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	22-Feb-2024 14:41
Ethylbenzene	U		0.30	1.0	ug/L	1	22-Feb-2024 14:41
m,p-Xylene	U		0.50	2.0	ug/L	1	22-Feb-2024 14:41
o-Xylene	U		0.30	1.0	ug/L	1	22-Feb-2024 14:41
Toluene	U		0.20	1.0	ug/L	1	22-Feb-2024 14:41
Xylenes, Total	U		0.30	3.0	ug/L	1	22-Feb-2024 14:41
Surr: 1,2-Dichloroethane-d4	105			70-126	%REC	1	22-Feb-2024 14:41
Surr: 4-Bromofluorobenzene	96.2			77-113	%REC	1	22-Feb-2024 14:41
Surr: Dibromofluoromethane	103			77-123	%REC	1	22-Feb-2024 14:41
Surr: Toluene-d8	98.9			82-127	%REC	1	22-Feb-2024 14:41
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-Feb-2024 13:28
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 13:28
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 13:28
Surr: 2,5-Dibromotoluene (Aliphatic)	80.6			70-130	%REC	1	24-Feb-2024 13:28
Surr: 2,5-Dibromotoluene (Aromatic)	77.0			70-130	%REC	1	24-Feb-2024 13:28
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 26-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	27-Feb-2024 15:16
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	27-Feb-2024 15:16
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	27-Feb-2024 15:16
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	28-Feb-2024 11:24
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	28-Feb-2024 11:24
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	28-Feb-2024 11:24
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	28-Feb-2024 11:24
Surr: 1-Chlorooctadecane	90.6			40-140	%REC	1	27-Feb-2024 15:16
Surr: 2-Bromonaphthalene	81.9			40-140	%REC	1	28-Feb-2024 11:24
Surr: 2-Fluorobiphenyl	87.9			40-140	%REC	1	28-Feb-2024 11:24
Surr: o-Terphenyl	83.1			40-140	%REC	1	28-Feb-2024 11:24

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: 20-Feb-2024 12:30

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-03
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 23-Feb-2024		Analyst: MSC	
Arsenic	0.000481	J	0.000400	0.00200	mg/L	1	27-Feb-2024 11:25
Barium	0.265		0.00190	0.00400	mg/L	1	27-Feb-2024 11:25
Calcium	27.7		0.0340	0.500	mg/L	1	27-Feb-2024 11:25
Chromium	U		0.000400	0.00400	mg/L	1	27-Feb-2024 11:25
Iron	1.45		0.0120	0.200	mg/L	1	27-Feb-2024 11:25
Lead	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:25
Magnesium	8.70		0.0100	0.200	mg/L	1	27-Feb-2024 11:25
Manganese	0.352		0.000700	0.00500	mg/L	1	27-Feb-2024 11:25
Nickel	0.000724	J	0.000600	0.00200	mg/L	1	27-Feb-2024 11:25
Potassium	2.91		0.0180	0.200	mg/L	1	27-Feb-2024 11:25
Sodium	32.5		0.0140	0.200	mg/L	1	27-Feb-2024 11:25
Strontium	0.255		0.000200	0.00500	mg/L	1	27-Feb-2024 11:25
Vanadium	0.00273	J	0.000600	0.00500	mg/L	1	27-Feb-2024 11:25
Zinc	0.0138		0.00200	0.00400	mg/L	1	27-Feb-2024 11:25
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 26-Feb-2024		Analyst: JS	
Mercury	0.0000330	J	0.0000300	0.000200	mg/L	1	26-Feb-2024 16:05
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	27-Feb-2024 11:52
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JHD	
Total Dissolved Solids (Residue, Filterable)	244		5.00	10.0	mg/L	1	23-Feb-2024 16:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	120		3.50	5.00	mg/L	1	22-Feb-2024 22:30
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	22-Feb-2024 22:30
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	27-Feb-2024 11:41
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	7.33	H	0.100	0.100	pH Units	1	23-Feb-2024 02:19
Temp Deg C @pH	21.3	H	0	0	°C	1	23-Feb-2024 02:19
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0647	J	0.0300	0.100	mg/L	1	22-Feb-2024 16:16
Chloride	37.5		0.200	0.500	mg/L	1	22-Feb-2024 16:16
Sulfate	4.64		0.200	0.500	mg/L	1	22-Feb-2024 16:16

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: 20-Feb-2024 12:45

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	22-Feb-2024 15:03
Ethylbenzene	U		0.30	1.0	ug/L	1	22-Feb-2024 15:03
m,p-Xylene	U		0.50	2.0	ug/L	1	22-Feb-2024 15:03
o-Xylene	U		0.30	1.0	ug/L	1	22-Feb-2024 15:03
Toluene	U		0.20	1.0	ug/L	1	22-Feb-2024 15:03
Xylenes, Total	U		0.30	3.0	ug/L	1	22-Feb-2024 15:03
Surr: 1,2-Dichloroethane-d4	106			70-126	%REC	1	22-Feb-2024 15:03
Surr: 4-Bromofluorobenzene	95.3			77-113	%REC	1	22-Feb-2024 15:03
Surr: Dibromofluoromethane	103			77-123	%REC	1	22-Feb-2024 15:03
Surr: Toluene-d8	98.9			82-127	%REC	1	22-Feb-2024 15:03
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-Feb-2024 23:39
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 23:39
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-Feb-2024 23:39
Surr: 2,5-Dibromotoluene (Aliphatic)	78.2			70-130	%REC	1	24-Feb-2024 23:39
Surr: 2,5-Dibromotoluene (Aromatic)	76.5			70-130	%REC	1	24-Feb-2024 23:39
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 26-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	27-Feb-2024 15:46
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	27-Feb-2024 15:46
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	27-Feb-2024 15:46
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	28-Feb-2024 11:55
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	28-Feb-2024 11:55
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	28-Feb-2024 11:55
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	28-Feb-2024 11:55
Surr: 1-Chlorooctadecane	79.6			40-140	%REC	1	27-Feb-2024 15:46
Surr: 2-Bromonaphthalene	83.5			40-140	%REC	1	28-Feb-2024 11:55
Surr: 2-Fluorobiphenyl	88.4			40-140	%REC	1	28-Feb-2024 11:55
Surr: o-Terphenyl	85.4			40-140	%REC	1	28-Feb-2024 11:55

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: 20-Feb-2024 12:45

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-04
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 23-Feb-2024		Analyst: MSC	
Arsenic	0.000756	J	0.000400	0.00200	mg/L	1	27-Feb-2024 11:39
Barium	0.222		0.00190	0.00400	mg/L	1	27-Feb-2024 11:39
Calcium	25.2		0.0340	0.500	mg/L	1	27-Feb-2024 11:39
Chromium	U		0.000400	0.00400	mg/L	1	27-Feb-2024 11:39
Iron	1.04		0.0120	0.200	mg/L	1	27-Feb-2024 11:39
Lead	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:39
Magnesium	7.96		0.0100	0.200	mg/L	1	27-Feb-2024 11:39
Manganese	0.366		0.000700	0.00500	mg/L	1	27-Feb-2024 11:39
Nickel	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:39
Potassium	2.67		0.0180	0.200	mg/L	1	27-Feb-2024 11:39
Sodium	29.3		0.0140	0.200	mg/L	1	27-Feb-2024 11:39
Strontium	0.235		0.000200	0.00500	mg/L	1	27-Feb-2024 11:39
Vanadium	0.00308	J	0.000600	0.00500	mg/L	1	27-Feb-2024 11:39
Zinc	0.00932		0.00200	0.00400	mg/L	1	27-Feb-2024 11:39
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 26-Feb-2024		Analyst: JS	
Mercury	0.0000310	J	0.0000300	0.000200	mg/L	1	26-Feb-2024 16:07
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	27-Feb-2024 11:52
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JHD	
Total Dissolved Solids (Residue, Filterable)	220		5.00	10.0	mg/L	1	23-Feb-2024 16:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	119		3.50	5.00	mg/L	1	22-Feb-2024 22:36
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	22-Feb-2024 22:36
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	27-Feb-2024 11:41
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	7.34	H	0.100	0.100	pH Units	1	23-Feb-2024 02:20
Temp Deg C @pH	21.5	H	0	0	°C	1	23-Feb-2024 02:20
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.0655	J	0.0300	0.100	mg/L	1	22-Feb-2024 16:22
Chloride	27.6		0.200	0.500	mg/L	1	22-Feb-2024 16:22
Sulfate	2.50		0.200	0.500	mg/L	1	22-Feb-2024 16:22

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 20-Feb-2024 12:15

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
LOW LEVEL VOLATILES BY SW8260C		Method:SW8260		Analyst: AKP			
Benzene	U		0.20	1.0	ug/L	1	22-Feb-2024 15:25
Ethylbenzene	U		0.30	1.0	ug/L	1	22-Feb-2024 15:25
m,p-Xylene	U		0.50	2.0	ug/L	1	22-Feb-2024 15:25
o-Xylene	U		0.30	1.0	ug/L	1	22-Feb-2024 15:25
Toluene	U		0.20	1.0	ug/L	1	22-Feb-2024 15:25
Xylenes, Total	U		0.30	3.0	ug/L	1	22-Feb-2024 15:25
<i>Surr: 1,2-Dichloroethane-d4</i>	108			70-126	%REC	1	22-Feb-2024 15:25
<i>Surr: 4-Bromofluorobenzene</i>	94.2			77-113	%REC	1	22-Feb-2024 15:25
<i>Surr: Dibromofluoromethane</i>	104			77-123	%REC	1	22-Feb-2024 15:25
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	22-Feb-2024 15:25
MASSACHUSETTS VPH, FEB 2018, REV 2.1		Method:MA VPH		Analyst: TS			
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	25-Feb-2024 01:50
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	25-Feb-2024 01:50
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	25-Feb-2024 01:50
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	81.7			70-130	%REC	1	25-Feb-2024 01:50
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	75.5			70-130	%REC	1	25-Feb-2024 01:50
MASSACHUSETTS EPH R2.1, DEC 2019		Method:MA EPH		Prep:SW3510 / 26-Feb-2024		Analyst: E.H.	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	27-Feb-2024 16:17
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	27-Feb-2024 16:17
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	27-Feb-2024 16:17
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	28-Feb-2024 12:26
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	28-Feb-2024 12:26
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	28-Feb-2024 12:26
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	28-Feb-2024 12:26
<i>Surr: 1-Chlorooctadecane</i>	85.7			40-140	%REC	1	27-Feb-2024 16:17
<i>Surr: 2-Bromonaphthalene</i>	82.7			40-140	%REC	1	28-Feb-2024 12:26
<i>Surr: 2-Fluorobiphenyl</i>	88.1			40-140	%REC	1	28-Feb-2024 12:26
<i>Surr: o-Terphenyl</i>	85.8			40-140	%REC	1	28-Feb-2024 12:26

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

Client: Environmental Resources Mgmt.
 Project: Sulphur Dome
 Sample ID: Cottages
 Collection Date: 20-Feb-2024 12:15

ANALYTICAL REPORT

WorkOrder:HS24021299
 Lab ID:HS24021299-05
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
ICP-MS METALS BY SW6020A		Method:SW6020A		Prep:SW3010A / 23-Feb-2024		Analyst: MSC	
Arsenic	U		0.000400	0.00200	mg/L	1	27-Feb-2024 11:41
Barium	0.212		0.00190	0.00400	mg/L	1	27-Feb-2024 11:41
Calcium	14.6		0.0340	0.500	mg/L	1	27-Feb-2024 11:41
Chromium	U		0.000400	0.00400	mg/L	1	27-Feb-2024 11:41
Iron	2.97		0.0120	0.200	mg/L	1	27-Feb-2024 11:41
Lead	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:41
Magnesium	3.98		0.0100	0.200	mg/L	1	27-Feb-2024 11:41
Manganese	0.194		0.000700	0.00500	mg/L	1	27-Feb-2024 11:41
Nickel	U		0.000600	0.00200	mg/L	1	27-Feb-2024 11:41
Potassium	2.22		0.0180	0.200	mg/L	1	27-Feb-2024 11:41
Sodium	79.5		1.40	20.0	mg/L	100	27-Feb-2024 10:58
Strontium	0.175		0.000200	0.00500	mg/L	1	27-Feb-2024 11:41
Vanadium	0.00303	J	0.000600	0.00500	mg/L	1	27-Feb-2024 11:41
Zinc	0.123		0.00200	0.00400	mg/L	1	27-Feb-2024 11:41
MERCURY BY SW7470A		Method:SW7470A		Prep:SW7470A / 26-Feb-2024		Analyst: JS	
Mercury	U		0.0000300	0.000200	mg/L	1	26-Feb-2024 16:09
HYDROGEN SULFIDE BY E376.1		Method:E376.1				Analyst: CD	
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	27-Feb-2024 11:52
TOTAL DISSOLVED SOLIDS BY SM2540C -2011		Method:M2540C				Analyst: JHD	
Total Dissolved Solids (Residue, Filterable)	304		5.00	10.0	mg/L	1	23-Feb-2024 16:30
ALKALINITY BY -2011		Method:SM2320B				Analyst: JAC	
Alkalinity, Bicarbonate (As CaCO ₃)	143		3.50	5.00	mg/L	1	24-Feb-2024 17:42
Alkalinity, Carbonate (As CaCO ₃)	U		3.50	5.00	mg/L	1	24-Feb-2024 17:42
SULFIDE BY SM4500 S2-F-2011		Method:SM4500 S2-F				Analyst: CD	
Sulfide	U		1.20	2.00	mg/L	1	27-Feb-2024 11:41
PH BY SM4500H+ B-2011		Method:SM4500H+ B				Analyst: MR	
pH	7.46	H	0.100	0.100	pH Units	1	23-Feb-2024 02:21
Temp Deg C @pH	21.5	H	0	0	°C	1	23-Feb-2024 02:21
ANIONS BY SW9056A		Method:SW9056				Analyst: TH	
Bromide	0.108		0.0300	0.100	mg/L	1	22-Feb-2024 16:28
Chloride	56.4		0.200	0.500	mg/L	1	22-Feb-2024 16:28
Sulfate	0.304	J	0.200	0.500	mg/L	1	22-Feb-2024 16:28

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

Weight / Prep Log

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

Batch ID: 207894	Start Date: 23 Feb 2024 09:00	End Date: 23 Feb 2024 09:00
Method: WATER - SW3010A	Prep Code: 3010A	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24021299-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Batch ID: 207951	Start Date: 26 Feb 2024 09:52	End Date: 26 Feb 2024 09:52
Method: MA EPH EXTRACTION-FRACTIONATION	Prep Code: MA EPH_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24021299-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24021299-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24021299-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24021299-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS24021299-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

Batch ID: 207982	Start Date: 26 Feb 2024 09:00	End Date: 26 Feb 2024 09:00
Method: MERCURY PREP BY 7470A- WATER	Prep Code: HG_WPR	

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS24021299-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS24021299-05		10 (mL)	10 (mL)	1	120 plastic HNO3

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 207894 (0)		Test Name : ICP-MS METALS BY SW6020A			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15		23 Feb 2024 09:00	27 Feb 2024 11:20	1
HS24021299-02	019-582	20 Feb 2024 11:45		23 Feb 2024 09:00	27 Feb 2024 11:22	1
HS24021299-03	019-580	20 Feb 2024 12:30		23 Feb 2024 09:00	27 Feb 2024 11:25	1
HS24021299-04	019-995	20 Feb 2024 12:45		23 Feb 2024 09:00	27 Feb 2024 11:39	1
HS24021299-05	Cottages	20 Feb 2024 12:15		23 Feb 2024 09:00	27 Feb 2024 11:41	1
HS24021299-05	Cottages	20 Feb 2024 12:15		23 Feb 2024 09:00	27 Feb 2024 10:58	100
Batch ID: 207951 (0)		Test Name : MASSACHUSETTS EPH R2.1, DEC 2019			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15		26 Feb 2024 09:52	28 Feb 2024 10:22	1
HS24021299-01	019-1055	20 Feb 2024 11:15		26 Feb 2024 09:52	27 Feb 2024 14:14	1
HS24021299-02	019-582	20 Feb 2024 11:45		26 Feb 2024 09:52	28 Feb 2024 10:53	1
HS24021299-02	019-582	20 Feb 2024 11:45		26 Feb 2024 09:52	27 Feb 2024 14:45	1
HS24021299-03	019-580	20 Feb 2024 12:30		26 Feb 2024 09:52	28 Feb 2024 11:24	1
HS24021299-03	019-580	20 Feb 2024 12:30		26 Feb 2024 09:52	27 Feb 2024 15:16	1
HS24021299-04	019-995	20 Feb 2024 12:45		26 Feb 2024 09:52	28 Feb 2024 11:55	1
HS24021299-04	019-995	20 Feb 2024 12:45		26 Feb 2024 09:52	27 Feb 2024 15:46	1
HS24021299-05	Cottages	20 Feb 2024 12:15		26 Feb 2024 09:52	28 Feb 2024 12:26	1
HS24021299-05	Cottages	20 Feb 2024 12:15		26 Feb 2024 09:52	27 Feb 2024 16:17	1
Batch ID: 207982 (0)		Test Name : MERCURY BY SW7470A			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15		26 Feb 2024 09:00	26 Feb 2024 15:52	1
HS24021299-02	019-582	20 Feb 2024 11:45		26 Feb 2024 09:00	26 Feb 2024 15:54	1
HS24021299-03	019-580	20 Feb 2024 12:30		26 Feb 2024 09:00	26 Feb 2024 16:05	1
HS24021299-04	019-995	20 Feb 2024 12:45		26 Feb 2024 09:00	26 Feb 2024 16:07	1
HS24021299-05	Cottages	20 Feb 2024 12:15		26 Feb 2024 09:00	26 Feb 2024 16:09	1
Batch ID: R459630 (0)		Test Name : ANIONS BY SW9056A			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			22 Feb 2024 15:35	1
HS24021299-02	019-582	20 Feb 2024 11:45			22 Feb 2024 15:41	1
HS24021299-03	019-580	20 Feb 2024 12:30			22 Feb 2024 16:16	1
HS24021299-04	019-995	20 Feb 2024 12:45			22 Feb 2024 16:22	1
HS24021299-05	Cottages	20 Feb 2024 12:15			22 Feb 2024 16:28	1
Batch ID: R459636 (0)		Test Name : LOW LEVEL VOLATILES BY SW8260C			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			22 Feb 2024 13:57	1
HS24021299-02	019-582	20 Feb 2024 11:45			22 Feb 2024 14:19	1
HS24021299-03	019-580	20 Feb 2024 12:30			22 Feb 2024 14:41	1
HS24021299-04	019-995	20 Feb 2024 12:45			22 Feb 2024 15:03	1
HS24021299-05	Cottages	20 Feb 2024 12:15			22 Feb 2024 15:25	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R459651 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			22 Feb 2024 22:19	1
HS24021299-02	019-582	20 Feb 2024 11:45			22 Feb 2024 22:24	1
HS24021299-03	019-580	20 Feb 2024 12:30			22 Feb 2024 22:30	1
HS24021299-04	019-995	20 Feb 2024 12:45			22 Feb 2024 22:36	1
Batch ID: R459700 (0)		Test Name : PH BY SM4500H+ B-2011			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			23 Feb 2024 02:17	1
HS24021299-02	019-582	20 Feb 2024 11:45			23 Feb 2024 02:18	1
HS24021299-03	019-580	20 Feb 2024 12:30			23 Feb 2024 02:19	1
HS24021299-04	019-995	20 Feb 2024 12:45			23 Feb 2024 02:20	1
HS24021299-05	Cottages	20 Feb 2024 12:15			23 Feb 2024 02:21	1
Batch ID: R459795 (0)		Test Name : TOTAL DISSOLVED SOLIDS BY SM2540C-2011			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			23 Feb 2024 16:30	1
HS24021299-02	019-582	20 Feb 2024 11:45			23 Feb 2024 16:30	1
HS24021299-03	019-580	20 Feb 2024 12:30			23 Feb 2024 16:30	1
HS24021299-04	019-995	20 Feb 2024 12:45			23 Feb 2024 16:30	1
HS24021299-05	Cottages	20 Feb 2024 12:15			23 Feb 2024 16:30	1
Batch ID: R459815 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			24 Feb 2024 12:00	1
HS24021299-02	019-582	20 Feb 2024 11:45			24 Feb 2024 12:44	1
HS24021299-03	019-580	20 Feb 2024 12:30			24 Feb 2024 13:28	1
Batch ID: R459818 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			24 Feb 2024 12:00	1
HS24021299-02	019-582	20 Feb 2024 11:45			24 Feb 2024 12:44	1
HS24021299-03	019-580	20 Feb 2024 12:30			24 Feb 2024 13:28	1
Batch ID: R459820 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24021299-04	019-995	20 Feb 2024 12:45			24 Feb 2024 23:39	1
HS24021299-05	Cottages	20 Feb 2024 12:15			25 Feb 2024 01:50	1
Batch ID: R459821 (0)		Test Name : MASSACHUSETTS VPH, FEB 2018, REV 2.1			Matrix: Water	
HS24021299-04	019-995	20 Feb 2024 12:45			24 Feb 2024 23:39	1
HS24021299-05	Cottages	20 Feb 2024 12:15			25 Feb 2024 01:50	1
Batch ID: R459876 (0)		Test Name : ALKALINITY BY -2011			Matrix: Water	
HS24021299-05	Cottages	20 Feb 2024 12:15			24 Feb 2024 17:42	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R459900 (0)		Test Name : SULFIDE BY SM4500 S2-F-2011			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			27 Feb 2024 11:41	1
HS24021299-02	019-582	20 Feb 2024 11:45			27 Feb 2024 11:41	1
HS24021299-03	019-580	20 Feb 2024 12:30			27 Feb 2024 11:41	1
HS24021299-04	019-995	20 Feb 2024 12:45			27 Feb 2024 11:41	1
HS24021299-05	Cottages	20 Feb 2024 12:15			27 Feb 2024 11:41	1
Batch ID: R459903 (0)		Test Name : HYDROGEN SULFIDE BY E376.1			Matrix: Water	
HS24021299-01	019-1055	20 Feb 2024 11:15			27 Feb 2024 11:52	1
HS24021299-02	019-582	20 Feb 2024 11:45			27 Feb 2024 11:52	1
HS24021299-03	019-580	20 Feb 2024 12:30			27 Feb 2024 11:52	1
HS24021299-04	019-995	20 Feb 2024 12:45			27 Feb 2024 11:52	1
HS24021299-05	Cottages	20 Feb 2024 12:15			27 Feb 2024 11:52	1

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207951 (0)		Instrument: FID-8		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MBLK	Sample ID: MBLK-207951	Units: mg/L		Analysis Date: 27-Feb-2024 11:39					
Client ID:	Run ID: FID-8_460013		SeqNo: 7858077		PrepDate: 26-Feb-2024		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							
<i>Surr: 1-Chlorooctadecane</i>	<i>0.04819</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>120</i>	<i>40 - 140</i>			
MBLK	Sample ID: MBLK-207951	Units: mg/L		Analysis Date: 28-Feb-2024 10:22					
Client ID:	Run ID: FID-7_460014		SeqNo: 7858131		PrepDate: 26-Feb-2024		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							
<i>Surr: 2-Bromonaphthalene</i>	<i>0.03237</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>80.9</i>	<i>40 - 140</i>			
<i>Surr: 2-Fluorobiphenyl</i>	<i>0.03491</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>87.3</i>	<i>40 - 140</i>			
<i>Surr: o-Terphenyl</i>	<i>0.03832</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>95.8</i>	<i>40 - 140</i>			
LCS	Sample ID: LCS-207951	Units: mg/L		Analysis Date: 27-Feb-2024 12:10					
Client ID:	Run ID: FID-8_460013		SeqNo: 7858078		PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.0515	0.00100	0.05	0	103	40 - 140			
Aliphatics >C12 - C16	0.1134	0.00200	0.1	0	113	40 - 140			
Aliphatics >C16 - C35	0.4112	0.00800	0.4	0	103	40 - 140			
<i>Surr: 1-Chlorooctadecane</i>	<i>0.04004</i>	<i>0</i>	<i>0.04</i>	<i>0</i>	<i>100</i>	<i>40 - 140</i>			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207951 (0)		Instrument: FID-8		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS	Sample ID: LCS-207951	Units: mg/L		Analysis Date: 28-Feb-2024 10:53					
Client ID:	Run ID: FID-7_460014		SeqNo: 7858132		PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04102	0.00100	0.05	0	82.0	40 - 140			
Aromatics >C12 - C16	0.18	0.00400	0.2	0	90.0	40 - 140			
Aromatics >C16 - C21	0.1562	0.00300	0.15	0	104	40 - 140			
Aromatics >C21 - C35	0.2884	0.00900	0.45	0	64.1	40 - 140			
Surr: 2-Bromonaphthalene	0.03329	0	0.04	0	83.2	40 - 140			
Surr: 2-Fluorobiphenyl	0.03552	0	0.04	0	88.8	40 - 140			
Surr: o-Terphenyl	0.04006	0	0.04	0	100	40 - 140			
MS	Sample ID: HS24021428-04MS	Units: mg/L		Analysis Date: 27-Feb-2024 18:21					
Client ID:	Run ID: FID-8_460013		SeqNo: 7858089		PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.05238	0.00100	0.05	0	105	40 - 140			
Aliphatics >C12 - C16	0.1184	0.00200	0.1	0	118	40 - 140			
Aliphatics >C16 - C35	0.3891	0.00800	0.4	0	97.3	40 - 140			
Surr: 1-Chlorooctadecane	0.03799	0	0.04	0	95.0	40 - 140			
MS	Sample ID: HS24021292-02MS	Units: mg/L		Analysis Date: 27-Feb-2024 13:12					
Client ID:	Run ID: FID-8_460013		SeqNo: 7858080		PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.04522	0.00100	0.05	0	90.4	40 - 140			
Aliphatics >C12 - C16	0.1038	0.00200	0.1	0	104	40 - 140			
Aliphatics >C16 - C35	0.3582	0.00800	0.4	0	89.5	40 - 140			
Surr: 1-Chlorooctadecane	0.03323	0	0.04	0	83.1	40 - 140			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207951 (0)		Instrument: FID-8		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
MS		Sample ID: HS24021428-04MS	Units: mg/L		Analysis Date: 28-Feb-2024 12:56				
Client ID:		Run ID: FID-7_460014		SeqNo: 7858744	PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C10 - C12	0.04272	0.00100	0.05	0	85.4	40 - 140			
Aromatics >C12 - C16	0.1896	0.00400	0.2	0	94.8	40 - 140			
Aromatics >C16 - C21	0.158	0.00300	0.15	0	105	40 - 140			
Aromatics >C21 - C35	0.2926	0.00900	0.45	0	65.0	40 - 140			
Surr: 2-Bromonaphthalene	0.03862	0	0.04	0	96.6	40 - 140			
Surr: 2-Fluorobiphenyl	0.04161	0	0.04	0	104	40 - 140			
Surr: o-Terphenyl	0.04073	0	0.04	0	102	40 - 140			

MS		Sample ID: HS24021292-02MS	Units: mg/L		Analysis Date: 28-Feb-2024 11:55				
Client ID:		Run ID: FID-7_460014		SeqNo: 7858349	PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C10 - C12	0.08433	0.00100	0.05	0.04476	79.1	40 - 140			
Aromatics >C12 - C16	0.2995	0.00400	0.2	0.08878	105	40 - 140			
Aromatics >C16 - C21	0.2123	0.00300	0.15	0.06117	101	40 - 140			
Aromatics >C21 - C35	0.2684	0.00900	0.45	0	59.7	40 - 140			
Surr: 2-Bromonaphthalene	0.04002	0	0.04	0	100	40 - 140			
Surr: 2-Fluorobiphenyl	0.04491	0	0.04	0	112	40 - 140			
Surr: o-Terphenyl	0.03832	0	0.04	0	95.8	40 - 140			

MSD		Sample ID: HS24021428-04MSD	Units: mg/L		Analysis Date: 27-Feb-2024 18:52				
Client ID:		Run ID: FID-8_460013		SeqNo: 7858090	PrepDate: 26-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C10 - C12	0.05321	0.00100	0.05	0	106	40 - 140	0.05238	1.57	50
Aliphatics >C12 - C16	0.1226	0.00200	0.1	0	123	40 - 140	0.1184	3.44	50
Aliphatics >C16 - C35	0.4184	0.00800	0.4	0	105	40 - 140	0.3891	7.27	50
Surr: 1-Chlorooctadecane	0.03445	0	0.04	0	86.1	40 - 140	0.03799	9.77	50

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207951 (0) **Instrument:** FID-8 **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD		Sample ID: HS24021292-02MSD			Units: mg/L		Analysis Date: 27-Feb-2024 13:43			
Client ID:		Run ID: FID-8_460013			SeqNo: 7858081		PrepDate: 26-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aliphatics >C10 - C12	0.05665	0.00100	0.05	0	113	40 - 140	0.04522	22.4	50	
Aliphatics >C12 - C16	0.1293	0.00200	0.1	0	129	40 - 140	0.1038	21.9	50	
Aliphatics >C16 - C35	0.4436	0.00800	0.4	0	111	40 - 140	0.3582	21.3	50	
Surr: 1-Chlorooctadecane	0.03968	0	0.04	0	99.2	40 - 140	0.03323	17.7	50	

MSD		Sample ID: HS24021428-04MSD			Units: mg/L		Analysis Date: 28-Feb-2024 13:27			
Client ID:		Run ID: FID-7_460014			SeqNo: 7858745		PrepDate: 26-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aromatics >C10 - C12	0.04489	0.00100	0.05	0	89.8	40 - 140	0.04272	4.97	50	
Aromatics >C12 - C16	0.1937	0.00400	0.2	0	96.9	40 - 140	0.1896	2.17	50	
Aromatics >C16 - C21	0.1681	0.00300	0.15	0	112	40 - 140	0.158	6.14	50	
Aromatics >C21 - C35	0.3013	0.00900	0.45	0	67.0	40 - 140	0.2926	2.92	50	
Surr: 2-Bromonaphthalene	0.03677	0	0.04	0	91.9	40 - 140	0.03862	4.92	50	
Surr: 2-Fluorobiphenyl	0.03989	0	0.04	0	99.7	40 - 140	0.04161	4.22	50	
Surr: o-Terphenyl	0.03883	0	0.04	0	97.1	40 - 140	0.04073	4.76	50	

MSD		Sample ID: HS24021292-02MSD			Units: mg/L		Analysis Date: 28-Feb-2024 12:26			
Client ID:		Run ID: FID-7_460014			SeqNo: 7858350		PrepDate: 26-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aromatics >C10 - C12	0.09003	0.00100	0.05	0.04476	90.5	40 - 140	0.08433	6.54	50	
Aromatics >C12 - C16	0.3043	0.00400	0.2	0.08878	108	40 - 140	0.2995	1.6	50	
Aromatics >C16 - C21	0.2264	0.00300	0.15	0.06117	110	40 - 140	0.2123	6.43	50	
Aromatics >C21 - C35	0.2972	0.00900	0.45	0	66.0	40 - 140	0.2684	10.2	50	
Surr: 2-Bromonaphthalene	0.03608	0	0.04	0	90.2	40 - 140	0.04002	10.4	50	
Surr: 2-Fluorobiphenyl	0.03941	0	0.04	0	98.5	40 - 140	0.04491	13.1	50	
Surr: o-Terphenyl	0.0391	0	0.04	0	97.7	40 - 140	0.03832	2.01	50	

The following samples were analyzed in this batch: HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04
 HS24021299-05

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459815 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240223	Units: mg/L		Analysis Date: 23-Feb-2024 19:58					
Client ID:	Run ID: FID-14_459815		SeqNo: 7852729		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)	0.1957	0.0100	0.25	0	78.3	70 - 130			
LCS	Sample ID: LCS-240223	Units: mg/L		Analysis Date: 23-Feb-2024 18:30					
Client ID:	Run ID: FID-14_459815		SeqNo: 7852727		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.02158	0.0100	0.025	0	86.3	70 - 130			
Aliphatics >C8 - C10	0.02533	0.0100	0.025	0	101	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2148	0.0100	0.25	0	85.9	70 - 130			
LCSD	Sample ID: LCSD-240223	Units: mg/L		Analysis Date: 23-Feb-2024 19:14					
Client ID:	Run ID: FID-14_459815		SeqNo: 7852728		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aliphatics >C6 - C8	0.01999	0.0100	0.025	0	80.0	70 - 130	0.02158	7.65	25
Aliphatics >C8 - C10	0.02147	0.0100	0.025	0	85.9	70 - 130	0.02533	16.5	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2236	0.0100	0.25	0	89.4	70 - 130	0.2148	4	25
The following samples were analyzed in this batch:									
HS24021299-01		HS24021299-02		HS24021299-03					

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459818 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240223	Units: mg/L		Analysis Date: 23-Feb-2024 19:58					
Client ID:	Run ID: FID-15_459818		SeqNo: 7852758		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	U	0.0100							
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	0.1967	0.0100	0.25	0	78.7	70 - 130			
LCS	Sample ID: LCS-240223	Units: mg/L		Analysis Date: 23-Feb-2024 18:30					
Client ID:	Run ID: FID-15_459818		SeqNo: 7852756		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.1147	0.0100	0.1	0	115	70 - 130			
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	0.2061	0.0100	0.25	0	82.4	70 - 130			
LCSD	Sample ID: LCSD-240223	Units: mg/L		Analysis Date: 23-Feb-2024 19:14					
Client ID:	Run ID: FID-15_459818		SeqNo: 7852757		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.1144	0.0100	0.1	0	114	70 - 130	0.1147	0.263	25
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	0.2191	0.0100	0.25	0	87.6	70 - 130	0.2061	6.11	25
The following samples were analyzed in this batch:									
HS24021299-01 HS24021299-02 HS24021299-03									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459820 (0)		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MBLK	Sample ID: MBLK-240223	Units: mg/L		Analysis Date: 24-Feb-2024 18:34					
Client ID:	Run ID: FID-15_459820		SeqNo: 7852819		PrepDate:		DF: 1		
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)	0.2106	0.0100	0.25	0	84.2	70 - 130			
LCS	Sample ID: LCS-240223	Units: mg/L		Analysis Date: 24-Feb-2024 17:06					
Client ID:	Run ID: FID-15_459820		SeqNo: 7852817		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.105	0.0100	0.1	0	105	70 - 130			
Surr: 2,5-Dibromotoluene (Aromatic)	0.1975	0.0100	0.25	0	79.0	70 - 130			
LCSD	Sample ID: LCSD-240223	Units: mg/L		Analysis Date: 24-Feb-2024 17:50					
Client ID:	Run ID: FID-15_459820		SeqNo: 7852818		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.1049	0.0100	0.1	0	105	70 - 130	0.105	0.08	25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2046	0.0100	0.25	0	81.8	70 - 130	0.1975	3.52	25
MS	Sample ID: HS24021292-02MS	Units: mg/L		Analysis Date: 25-Feb-2024 10:36					
Client ID:	Run ID: FID-15_459820		SeqNo: 7852839		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.1146	0.0100	0.1	0	115	70 - 130			
Surr: 2,5-Dibromotoluene (Aromatic)	0.2266	0.0100	0.25	0	90.6	70 - 130			
MSD	Sample ID: HS24021292-02MSD	Units: mg/L		Analysis Date: 25-Feb-2024 11:19					
Client ID:	Run ID: FID-15_459820		SeqNo: 7852840		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Aromatics >C8 - C10	0.108	0.0100	0.1	0	108	70 - 130	0.1146	5.94	25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2364	0.0100	0.25	0	94.5	70 - 130	0.2266	4.23	25
The following samples were analyzed in this batch: HS24021299-04 HS24021299-05									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459821 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1						
MBLK	Sample ID: MBLK-240223	Units: mg/L		Analysis Date: 24-Feb-2024 18:34						
Client ID:	Run ID: FID-14_459821		SeqNo: 7852879		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)	0.1811	0.0100	0.25	0	72.4	70 - 130				
LCS	Sample ID: LCS-240223	Units: mg/L		Analysis Date: 24-Feb-2024 17:06						
Client ID:	Run ID: FID-14_459821		SeqNo: 7852877		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aliphatics >C6 - C8	0.02255	0.0100	0.025	0	90.2	70 - 130				
Aliphatics >C8 - C10	0.02099	0.0100	0.025	0	83.9	70 - 130				
Surr: 2,5-Dibromotoluene (Aliphatic)	0.1956	0.0100	0.25	0	78.3	70 - 130				
LCSD	Sample ID: LCSD-240223	Units: mg/L		Analysis Date: 24-Feb-2024 17:50						
Client ID:	Run ID: FID-14_459821		SeqNo: 7852878		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aliphatics >C6 - C8	0.02254	0.0100	0.025	0	90.1	70 - 130	0.02255	0.0488	25	
Aliphatics >C8 - C10	0.01999	0.0100	0.025	0	80.0	70 - 130	0.02099	4.87	25	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.204	0.0100	0.25	0	81.6	70 - 130	0.1956	4.17	25	
MS	Sample ID: HS24021292-02MS	Units: mg/L		Analysis Date: 25-Feb-2024 10:36						
Client ID:	Run ID: FID-14_459821		SeqNo: 7852899		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aliphatics >C6 - C8	0.02027	0.0100	0.025	0	81.1	70 - 130				
Aliphatics >C8 - C10	0.0298	0.0100	0.025	0	119	70 - 130				
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2298	0.0100	0.25	0	91.9	70 - 130				

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459821 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1						
MSD	Sample ID: HS24021292-02MSD	Units: mg/L		Analysis Date: 25-Feb-2024 11:19						
Client ID:	Run ID: FID-14_459821		SeqNo: 7852900		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aliphatics >C6 - C8	0.02022	0.0100	0.025	0	80.9	70 - 130	0.02027	0.267	25	
Aliphatics >C8 - C10	0.0287	0.0100	0.025	0	115	70 - 130	0.0298	3.78	25	
Surr: 2,5-Dibromotoluene (Aliphatic)	0.2282	0.0100	0.25	0	91.3	70 - 130	0.2298	0.707	25	
Surr: 2,5-Dibromotoluene (Aromatic)	0.2282	0.0100	0.25	0	91.3	70 - 130	0.2298	0.707	25	
The following samples were analyzed in this batch:										
HS24021299-04 HS24021299-05										

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MBLK	Sample ID: MBLK-207894	Units: mg/L		Analysis Date: 27-Feb-2024 10:40					
Client ID:	Run ID: ICPMS07_459884		SeqNo: 7854955		PrepDate: 23-Feb-2024		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							
Calcium	U	0.500							
Chromium	U	0.00400							
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	U	0.200							
Manganese	U	0.00500							
Nickel	U	0.00200							
Potassium	U	0.200							
Sodium	U	0.200							
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	U	0.00400							

LCS	Sample ID: LCS-207894	Units: mg/L		Analysis Date: 27-Feb-2024 10:47					
Client ID:	Run ID: ICPMS07_459884		SeqNo: 7854958		PrepDate: 23-Feb-2024		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Arsenic	0.05094	0.00200	0.05	0	102	80 - 120			
Barium	0.05078	0.00400	0.05	0	102	80 - 120			
Calcium	4.897	0.500	5	0	97.9	80 - 120			
Chromium	0.0483	0.00400	0.05	0	96.6	80 - 120			
Iron	5.078	0.200	5	0	102	80 - 120			
Lead	0.05058	0.00200	0.05	0	101	80 - 120			
Magnesium	5.197	0.200	5	0	104	80 - 120			
Manganese	0.04947	0.00500	0.05	0	99.0	80 - 120			
Nickel	0.0526	0.00200	0.05	0	105	80 - 120			
Potassium	5.205	0.200	5	0	104	80 - 120			
Sodium	5.244	0.200	5	0	105	80 - 120			
Strontium	0.1013	0.00500	0.1	0	101	80 - 120			
Vanadium	0.04911	0.00500	0.05	0	98.2	80 - 120			
Zinc	0.05282	0.00400	0.05	0	106	80 - 120			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS24020239-02MS		Units: mg/L		Analysis Date: 27-Feb-2024 11:13			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855236		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	110	80 - 120			
Barium	1.028	0.00400	0.05	0.9369	181	80 - 120			SO
Calcium	316.4	0.500	5	300	328	80 - 120			SEO
Chromium	0.0508	0.00400	0.05	0.002624	96.3	80 - 120			
Iron	35.24	0.200	5	28.26	140	80 - 120			SO
Lead	0.0542	0.00200	0.05	0.003224	102	80 - 120			
Magnesium	99.04	0.200	5	90.83	164	80 - 120			SO
Manganese	0.5227	0.00500	0.05	0.4493	147	80 - 120			SO
Nickel	0.05671	0.00200	0.05	0.008086	97.2	80 - 120			
Potassium	15.55	0.200	5	10.13	108	80 - 120			
Sodium	74.56	0.200	5	66.24	166	80 - 120			SO
Strontium	2.353	0.00500	0.1	2.119	235	80 - 120			SEO
Vanadium	0.05033	0.00500	0.05	0.001716	97.2	80 - 120			
Zinc	0.05855	0.00400	0.05	0.009757	97.6	80 - 120			

MS		Sample ID: HS24020238-02MS		Units: mg/L		Analysis Date: 27-Feb-2024 11:13			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855103		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	110	80 - 120			
Barium	1.028	0.00400	0.05	0.9369	181	80 - 120			SO
Calcium	316.4	0.500	5	300	328	80 - 120			SEO
Chromium	0.0508	0.00400	0.05	0.002624	96.3	80 - 120			
Iron	35.24	0.200	5	28.26	140	80 - 120			SO
Lead	0.0542	0.00200	0.05	0.003224	102	80 - 120			
Magnesium	99.04	0.200	5	90.83	164	80 - 120			SO
Manganese	0.5227	0.00500	0.05	0.4493	147	80 - 120			SO
Nickel	0.05671	0.00200	0.05	0.008086	97.2	80 - 120			
Potassium	15.55	0.200	5	10.13	108	80 - 120			
Sodium	74.56	0.200	5	66.24	166	80 - 120			SO
Strontium	2.353	0.00500	0.1	2.119	235	80 - 120			SEO
Vanadium	0.05033	0.00500	0.05	0.001716	97.2	80 - 120			
Zinc	0.05855	0.00400	0.05	0.009757	97.6	80 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MS		Sample ID: HS24020237-02MS		Units: mg/L		Analysis Date: 27-Feb-2024 11:13			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855243		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	110	80 - 120			
Barium	1.028	0.00400	0.05	0.9369	181	80 - 120			SO
Calcium	316.4	0.500	5	300	328	80 - 120			SEO
Chromium	0.0508	0.00400	0.05	0.002624	96.3	80 - 120			
Iron	35.24	0.200	5	28.26	140	80 - 120			SO
Lead	0.0542	0.00200	0.05	0.003224	102	80 - 120			
Magnesium	99.04	0.200	5	90.83	164	80 - 120			SO
Manganese	0.5227	0.00500	0.05	0.4493	147	80 - 120			SO
Nickel	0.05671	0.00200	0.05	0.008086	97.2	80 - 120			
Potassium	15.55	0.200	5	10.13	108	80 - 120			
Sodium	74.56	0.200	5	66.24	166	80 - 120			SO
Strontium	2.353	0.00500	0.1	2.119	235	80 - 120			SEO
Vanadium	0.05033	0.00500	0.05	0.001716	97.2	80 - 120			
Zinc	0.05855	0.00400	0.05	0.009757	97.6	80 - 120			

MSD		Sample ID: HS24020239-02MSD		Units: mg/L		Analysis Date: 27-Feb-2024 11:15			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855237		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	111	80 - 120	0.1523	0.0466	20
Barium	1.025	0.00400	0.05	0.9369	176	80 - 120	1.028	0.248	20 SO
Calcium	317.4	0.500	5	300	349	80 - 120	316.4	0.332	20 SEO
Chromium	0.05076	0.00400	0.05	0.002624	96.3	80 - 120	0.0508	0.0689	20
Iron	35.29	0.200	5	28.26	141	80 - 120	35.24	0.138	20 SO
Lead	0.05521	0.00200	0.05	0.003224	104	80 - 120	0.0542	1.84	20
Magnesium	99.38	0.200	5	90.83	171	80 - 120	99.04	0.343	20 SO
Manganese	0.5197	0.00500	0.05	0.4493	141	80 - 120	0.5227	0.578	20 SO
Nickel	0.05798	0.00200	0.05	0.008086	99.8	80 - 120	0.05671	2.22	20
Potassium	15.46	0.200	5	10.13	107	80 - 120	15.55	0.606	20
Sodium	75.22	0.200	5	66.24	180	80 - 120	74.56	0.877	20 SO
Strontium	2.345	0.00500	0.1	2.119	227	80 - 120	2.353	0.345	20 SEO
Vanadium	0.05024	0.00500	0.05	0.001716	97.0	80 - 120	0.05033	0.179	20
Zinc	0.06061	0.00400	0.05	0.009757	102	80 - 120	0.05855	3.46	20

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
MSD		Sample ID: HS24020238-02MSD		Units: mg/L		Analysis Date: 27-Feb-2024 11:15			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855104		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	111	80 - 120	0.1523	0.0466	20
Barium	1.025	0.00400	0.05	0.9369	176	80 - 120	1.028	0.248	20 SO
Calcium	317.4	0.500	5	300	349	80 - 120	316.4	0.332	20 SEO
Chromium	0.05076	0.00400	0.05	0.002624	96.3	80 - 120	0.0508	0.0689	20
Iron	35.29	0.200	5	28.26	141	80 - 120	35.24	0.138	20 SO
Lead	0.05521	0.00200	0.05	0.003224	104	80 - 120	0.0542	1.84	20
Magnesium	99.38	0.200	5	90.83	171	80 - 120	99.04	0.343	20 SO
Manganese	0.5197	0.00500	0.05	0.4493	141	80 - 120	0.5227	0.578	20 SO
Nickel	0.05798	0.00200	0.05	0.008086	99.8	80 - 120	0.05671	2.22	20
Potassium	15.46	0.200	5	10.13	107	80 - 120	15.55	0.606	20
Sodium	75.22	0.200	5	66.24	180	80 - 120	74.56	0.877	20 SO
Strontium	2.345	0.00500	0.1	2.119	227	80 - 120	2.353	0.345	20 SEO
Vanadium	0.05024	0.00500	0.05	0.001716	97.0	80 - 120	0.05033	0.179	20
Zinc	0.06061	0.00400	0.05	0.009757	102	80 - 120	0.05855	3.46	20

MSD		Sample ID: HS24020237-02MSD		Units: mg/L		Analysis Date: 27-Feb-2024 11:15			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855244		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.1523	0.00200	0.05	0.09704	111	80 - 120	0.1523	0.0466	20
Barium	1.025	0.00400	0.05	0.9369	176	80 - 120	1.028	0.248	20 SO
Calcium	317.4	0.500	5	300	349	80 - 120	316.4	0.332	20 SEO
Chromium	0.05076	0.00400	0.05	0.002624	96.3	80 - 120	0.0508	0.0689	20
Iron	35.29	0.200	5	28.26	141	80 - 120	35.24	0.138	20 SO
Lead	0.05521	0.00200	0.05	0.003224	104	80 - 120	0.0542	1.84	20
Magnesium	99.38	0.200	5	90.83	171	80 - 120	99.04	0.343	20 SO
Manganese	0.5197	0.00500	0.05	0.4493	141	80 - 120	0.5227	0.578	20 SO
Nickel	0.05798	0.00200	0.05	0.008086	99.8	80 - 120	0.05671	2.22	20
Potassium	15.46	0.200	5	10.13	107	80 - 120	15.55	0.606	20
Sodium	75.22	0.200	5	66.24	180	80 - 120	74.56	0.877	20 SO
Strontium	2.345	0.00500	0.1	2.119	227	80 - 120	2.353	0.345	20 SEO
Vanadium	0.05024	0.00500	0.05	0.001716	97.0	80 - 120	0.05033	0.179	20
Zinc	0.06061	0.00400	0.05	0.009757	102	80 - 120	0.05855	3.46	20

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS24020239-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 13:30			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855598		PrepDate: 23-Feb-2024		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	1.096	0.0200	1	0.09923	99.7	75 - 125			
Barium	1.965	0.0400	1	0.9343	103	75 - 125			
Calcium	386.5	5.00	100	301.3	85.2	75 - 125			
Iron	125.9	2.00	100	28.97	96.9	75 - 125			
Magnesium	186.2	2.00	100	92.11	94.1	75 - 125			
Manganese	1.436	0.0500	1	0.4488	98.7	75 - 125			
Sodium	161.1	2.00	100	66.74	94.4	75 - 125			
Strontium	4.024	0.0500	2	2.133	94.6	75 - 125			

PDS		Sample ID: HS24020238-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 13:30			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855571		PrepDate: 23-Feb-2024		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	1.096	0.0200	1	0.09923	99.7	75 - 125			
Barium	1.965	0.0400	1	0.9343	103	75 - 125			
Calcium	386.5	5.00	100	301.3	85.2	75 - 125			
Iron	125.9	2.00	100	28.97	96.9	75 - 125			
Magnesium	186.2	2.00	100	92.11	94.1	75 - 125			
Manganese	1.436	0.0500	1	0.4488	98.7	75 - 125			
Sodium	161.1	2.00	100	66.74	94.4	75 - 125			
Strontium	4.024	0.0500	2	2.133	94.6	75 - 125			

PDS		Sample ID: HS24020237-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 13:30			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855599		PrepDate: 23-Feb-2024		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	1.096	0.0200	1	0.09923	99.7	75 - 125			
Barium	1.965	0.0400	1	0.9343	103	75 - 125			
Calcium	386.5	5.00	100	301.3	85.2	75 - 125			
Iron	125.9	2.00	100	28.97	96.9	75 - 125			
Magnesium	186.2	2.00	100	92.11	94.1	75 - 125			
Manganese	1.436	0.0500	1	0.4488	98.7	75 - 125			
Sodium	161.1	2.00	100	66.74	94.4	75 - 125			
Strontium	4.024	0.0500	2	2.133	94.6	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A					
PDS		Sample ID: HS24020239-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 11:18			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855238		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chromium	0.1258	0.00400	0.1	0.002624	123	75 - 125			
Lead	0.1155	0.00200	0.1	0.003224	112	75 - 125			
Nickel	0.1227	0.00200	0.1	0.008086	115	75 - 125			
Potassium	21.78	0.200	10	10.13	116	75 - 125			
Vanadium	0.1151	0.00500	0.1	0.001716	113	75 - 125			
Zinc	0.1225	0.00400	0.1	0.009757	113	75 - 125			
PDS		Sample ID: HS24020238-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 11:18			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855105		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chromium	0.1258	0.00400	0.1	0.002624	123	75 - 125			
Lead	0.1155	0.00200	0.1	0.003224	112	75 - 125			
Nickel	0.1227	0.00200	0.1	0.008086	115	75 - 125			
Potassium	21.78	0.200	10	10.13	116	75 - 125			
Vanadium	0.1151	0.00500	0.1	0.001716	113	75 - 125			
Zinc	0.1225	0.00400	0.1	0.009757	113	75 - 125			
PDS		Sample ID: HS24020237-02PDS		Units: mg/L		Analysis Date: 27-Feb-2024 11:18			
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855245		PrepDate: 23-Feb-2024		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Chromium	0.1258	0.00400	0.1	0.002624	123	75 - 125			
Lead	0.1155	0.00200	0.1	0.003224	112	75 - 125			
Nickel	0.1227	0.00200	0.1	0.008086	115	75 - 125			
Potassium	21.78	0.200	10	10.13	116	75 - 125			
Vanadium	0.1151	0.00500	0.1	0.001716	113	75 - 125			
Zinc	0.1225	0.00400	0.1	0.009757	113	75 - 125			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD		Sample ID: HS24020239-02SD		Units: mg/L		Analysis Date: 27-Feb-2024 12:07				
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855363		PrepDate: 23-Feb-2024		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Arsenic	0.1026	0.100					0.09923	0	10	
Barium	0.9482	0.200					0.9343	1.49	10	
Calcium	295.3	25.0					301.3	2	10	
Iron	29.41	10.0					28.97	1.53	10	
Magnesium	94.16	10.0					92.11	2.22	10	
Manganese	0.4441	0.250					0.4488	1.04	10	
Sodium	66.88	10.0					66.74	0.198	10	
Strontium	2.225	0.250					2.133	4.35	10	

SD		Sample ID: HS24020238-02SD		Units: mg/L		Analysis Date: 27-Feb-2024 12:07				
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855380		PrepDate: 23-Feb-2024		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Arsenic	0.1026	0.100					0.09923	0	10	
Barium	0.9482	0.200					0.9343	1.49	10	
Calcium	295.3	25.0					301.3	2	10	
Iron	29.41	10.0					28.97	1.53	10	
Magnesium	94.16	10.0					92.11	2.22	10	
Manganese	0.4441	0.250					0.4488	1.04	10	
Sodium	66.88	10.0					66.74	0.198	10	
Strontium	2.225	0.250					2.133	4.35	10	

SD		Sample ID: HS24020237-02SD		Units: mg/L		Analysis Date: 27-Feb-2024 12:07				
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855387		PrepDate: 23-Feb-2024		DF: 50		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Arsenic	0.1026	0.100					0.09923	0	10	
Barium	0.9482	0.200					0.9343	1.49	10	
Calcium	295.3	25.0					301.3	2	10	
Iron	29.41	10.0					28.97	1.53	10	
Magnesium	94.16	10.0					92.11	2.22	10	
Manganese	0.4441	0.250					0.4488	1.04	10	
Sodium	66.88	10.0					66.74	0.198	10	
Strontium	2.225	0.250					2.133	4.35	10	

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD		Sample ID: HS24020239-02SD		Units: mg/L		Analysis Date: 27-Feb-2024 11:08				
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855234		PrepDate: 23-Feb-2024		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Barium	0.9714	0.0200					0.9369	3.69	10	
Chromium	U	0.0200					0.002624	0	10	
Lead	U	0.0100					0.003224	0	10	
Magnesium	92.41	1.00					90.83	1.74	10	
Manganese	0.4846	0.0250					0.4493	7.85	10	
Nickel	0.008251	0.0100					0.008086	0	10	J
Potassium	10.18	1.00					10.13	0.445	10	
Sodium	66.85	1.00					66.24	0.925	10	
Vanadium	U	0.0250					0.001716	0	10	
Zinc	0.01007	0.0200					0.009757	0	10	J

SD		Sample ID: HS24020238-02SD		Units: mg/L		Analysis Date: 27-Feb-2024 11:08				
Client ID:		Run ID: ICPMS07_459884		SeqNo: 7855101		PrepDate: 23-Feb-2024		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	Limit	Qual
Barium	0.9714	0.0200					0.9369	3.69	10	
Chromium	U	0.0200					0.002624	0	10	
Lead	U	0.0100					0.003224	0	10	
Magnesium	92.41	1.00					90.83	1.74	10	
Manganese	0.4846	0.0250					0.4493	7.85	10	
Nickel	0.008251	0.0100					0.008086	0	10	J
Potassium	10.18	1.00					10.13	0.445	10	
Sodium	66.85	1.00					66.24	0.925	10	
Vanadium	U	0.0250					0.001716	0	10	
Zinc	0.01007	0.0200					0.009757	0	10	J

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207894 (0)		Instrument: ICPMS07		Method: ICP-MS METALS BY SW6020A						
SD	Sample ID: HS24020237-02SD	Units: mg/L		Analysis Date: 27-Feb-2024 11:08						
Client ID:	Run ID: ICPMS07_459884		SeqNo: 7855342		PrepDate: 23-Feb-2024		DF: 5			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Barium	0.9714	0.0200					0.9369	3.69	10	
Chromium	U	0.0200					0.002624	0	10	
Lead	U	0.0100					0.003224	0	10	
Magnesium	92.41	1.00					90.83	1.74	10	
Manganese	0.4846	0.0250					0.4493	7.85	10	
Nickel	0.008251	0.0100					0.008086	0	10	J
Potassium	10.18	1.00					10.13	0.445	10	
Sodium	66.85	1.00					66.24	0.925	10	
Vanadium	U	0.0250					0.001716	0	10	
Zinc	0.01007	0.0200					0.009757	0	10	J
The following samples were analyzed in this batch:										
HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04 HS24021299-05										

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: 207982 (0)		Instrument: HG04		Method: MERCURY BY SW7470A					
MBLK	Sample ID: MBLK-207982	Units: mg/L		Analysis Date: 26-Feb-2024 15:18					
Client ID:	Run ID: HG04_459839	SeqNo: 7853599		PrepDate: 26-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	U	0.000200							
LCS	Sample ID: LCS-207982	Units: mg/L		Analysis Date: 26-Feb-2024 15:20					
Client ID:	Run ID: HG04_459839	SeqNo: 7853600		PrepDate: 26-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00482	0.000200	0.005	0	96.4	80 - 120			
MS	Sample ID: HS24020809-05MS	Units: mg/L		Analysis Date: 26-Feb-2024 15:42					
Client ID:	Run ID: HG04_459839	SeqNo: 7853612		PrepDate: 26-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.0048	0.000200	0.005	0.000026	95.5	75 - 125			
MSD	Sample ID: HS24020809-05MSD	Units: mg/L		Analysis Date: 26-Feb-2024 15:44					
Client ID:	Run ID: HG04_459839	SeqNo: 7853613		PrepDate: 26-Feb-2024		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Mercury	0.00453	0.000200	0.005	0.000026	90.1	75 - 125	0.0048	5.79	20
The following samples were analyzed in this batch:									
HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04 HS24021299-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459636 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MBLK	Sample ID: VBLKW-240222	Units: ug/L		Analysis Date: 22-Feb-2024 10:28					
Client ID:	Run ID: VOA11_459636	SeqNo: 7849036		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	3.0							
Surr: 1,2-Dichloroethane-d4	50.68	1.0	50	0	101	70 - 123			
Surr: 4-Bromofluorobenzene	47.79	1.0	50	0	95.6	77 - 113			
Surr: Dibromofluoromethane	48.85	1.0	50	0	97.7	73 - 126			
Surr: Toluene-d8	51.3	1.0	50	0	103	81 - 120			

LCS	Sample ID: VLCSW-240222	Units: ug/L		Analysis Date: 22-Feb-2024 09:22					
Client ID:	Run ID: VOA11_459636	SeqNo: 7849034		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	19.59	1.0	20	0	97.9	74 - 120			
Ethylbenzene	20.83	1.0	20	0	104	77 - 117			
m,p-Xylene	41.93	2.0	40	0	105	77 - 122			
o-Xylene	21.51	1.0	20	0	108	75 - 119			
Toluene	19.86	1.0	20	0	99.3	77 - 118			
Xylenes, Total	63.44	3.0	60	0	106	75 - 122			
Surr: 1,2-Dichloroethane-d4	49.45	1.0	50	0	98.9	70 - 123			
Surr: 4-Bromofluorobenzene	49.7	1.0	50	0	99.4	77 - 113			
Surr: Dibromofluoromethane	49.71	1.0	50	0	99.4	73 - 126			
Surr: Toluene-d8	49.99	1.0	50	0	100.0	81 - 120			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459636 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
LCSD		Sample ID: VLCSDW-240222		Units: ug/L		Analysis Date: 22-Feb-2024 09:44			
Client ID:		Run ID: VOA11_459636		SeqNo: 7849035		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	19.01	1.0	20	0	95.0	74 - 120	19.59	2.99	20
Ethylbenzene	20.68	1.0	20	0	103	77 - 117	20.83	0.709	20
m,p-Xylene	42.01	2.0	40	0	105	77 - 122	41.93	0.18	20
o-Xylene	21.52	1.0	20	0	108	75 - 119	21.51	0.0575	20
Toluene	19.75	1.0	20	0	98.8	77 - 118	19.86	0.546	20
Xylenes, Total	63.53	3.0	60	0	106	75 - 122	63.44	0.138	20
Surr: 1,2-Dichloroethane-d4	49.36	1.0	50	0	98.7	70 - 123	49.45	0.166	20
Surr: 4-Bromofluorobenzene	50.63	1.0	50	0	101	77 - 113	49.7	1.85	20
Surr: Dibromofluoromethane	49.78	1.0	50	0	99.6	73 - 126	49.71	0.149	20
Surr: Toluene-d8	50.21	1.0	50	0	100	81 - 120	49.99	0.441	20

MS		Sample ID: HS24021284-05MS		Units: ug/L		Analysis Date: 22-Feb-2024 18:45			
Client ID:		Run ID: VOA11_459636		SeqNo: 7849057		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Benzene	18.78	1.0	20	0	93.9	70 - 127			
Ethylbenzene	18.98	1.0	20	0	94.9	70 - 124			
m,p-Xylene	39.21	2.0	40	0	98.0	70 - 130			
o-Xylene	19.65	1.0	20	0	98.2	70 - 124			
Toluene	18.83	1.0	20	0	94.1	70 - 123			
Xylenes, Total	58.85	3.0	60	0	98.1	70 - 130			
Surr: 1,2-Dichloroethane-d4	52.34	1.0	50	0	105	70 - 126			
Surr: 4-Bromofluorobenzene	49.71	1.0	50	0	99.4	77 - 113			
Surr: Dibromofluoromethane	51.69	1.0	50	0	103	77 - 123			
Surr: Toluene-d8	50.55	1.0	50	0	101	82 - 127			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459636 (0)		Instrument: VOA11		Method: LOW LEVEL VOLATILES BY SW8260C					
MSD		Sample ID: HS24021284-05MSD		Units: ug/L		Analysis Date: 22-Feb-2024 19:07			
Client ID:		Run ID: VOA11_459636		SeqNo: 7849058		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.92	1.0	20	0	89.6	70 - 127	18.78	4.68	20
Ethylbenzene	18.11	1.0	20	0	90.5	70 - 124	18.98	4.7	20
m,p-Xylene	36.46	2.0	40	0	91.2	70 - 130	39.21	7.25	20
o-Xylene	18.52	1.0	20	0	92.6	70 - 124	19.65	5.9	20
Toluene	17.71	1.0	20	0	88.5	70 - 123	18.83	6.14	20
Xylenes, Total	54.98	3.0	60	0	91.6	70 - 130	58.85	6.8	20
Surr: 1,2-Dichloroethane-d4	48.75	1.0	50	0	97.5	70 - 126	52.34	7.11	20
Surr: 4-Bromofluorobenzene	49.34	1.0	50	0	98.7	77 - 113	49.71	0.763	20
Surr: Dibromofluoromethane	50.37	1.0	50	0	101	77 - 123	51.69	2.59	20
Surr: Toluene-d8	49.9	1.0	50	0	99.8	82 - 127	50.55	1.31	20

The following samples were analyzed in this batch:

HS24021299-01	HS24021299-02	HS24021299-03	HS24021299-04
HS24021299-05			

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459630 (0)		Instrument: ICS-Integrion		Method: ANIONS BY SW9056A					
MBLK	Sample ID: MBLK	Units: mg/L		Analysis Date: 22-Feb-2024 14:47					
Client ID:	Run ID: ICS-Integrion_459630		SeqNo: 7848890		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: 22-Feb-2024 14:53					
Client ID:	Run ID: ICS-Integrion_459630		SeqNo: 7848891		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	4.341	0.100	4	0	109	80 - 120			
Chloride	19.82	0.500	20	0	99.1	80 - 120			
Sulfate	21.11	0.500	20	0	106	80 - 120			

MS	Sample ID: HS24021336-01MS	Units: mg/L		Analysis Date: 22-Feb-2024 15:05					
Client ID:	Run ID: ICS-Integrion_459630		SeqNo: 7848893		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	2.788	0.100	2	0.5803	110	80 - 120			
Chloride	32.3	0.500	10	22.97	93.3	80 - 120			
Sulfate	14.09	0.500	10	3.652	104	80 - 120			

MSD	Sample ID: HS24021336-01MSD	Units: mg/L		Analysis Date: 22-Feb-2024 15:11					
Client ID:	Run ID: ICS-Integrion_459630		SeqNo: 7848894		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual

Bromide	2.796	0.100	2	0.5803	111	80 - 120	2.788	0.297	20
Chloride	32.35	0.500	10	22.97	93.8	80 - 120	32.3	0.158	20
Sulfate	14.09	0.500	10	3.652	104	80 - 120	14.09	0.0227	20

The following samples were analyzed in this batch: HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04
 HS24021299-05

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459651 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-02202024	Units: mg/L		Analysis Date: 22-Feb-2024 19:52					
Client ID:	Run ID: Skalar 03_459651	SeqNo: 7849270		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-02202024	Units: mg/L		Analysis Date: 22-Feb-2024 19:59					
Client ID:	Run ID: Skalar 03_459651	SeqNo: 7849271		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)	937.2	5.00	1000	0	93.7	85 - 115			
LCSD	Sample ID: LCSD-02202024	Units: mg/L		Analysis Date: 22-Feb-2024 20:06					
Client ID:	Run ID: Skalar 03_459651	SeqNo: 7849272		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)	938.2	5.00	1000	0	93.8	85 - 115	937.2	0.107	20
DUP	Sample ID: HS24020773-05DUP	Units: mg/L		Analysis Date: 22-Feb-2024 21:53					
Client ID:	Run ID: Skalar 03_459651	SeqNo: 7849289		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)	711.5	5.00					715.7	0.589	20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0	20
The following samples were analyzed in this batch:									
HS24021299-01		HS24021299-02		HS24021299-03		HS24021299-04			

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459700 (0)		Instrument: WetChem_HS		Method: PH BY SM4500H+ B-2011					
DUP	Sample ID: HS24020990-02DUP	Units: pH Units		Analysis Date: 23-Feb-2024 02:16					
Client ID:	Run ID: WetChem_HS_459700		SeqNo: 7850348		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
pH	7.05	0.100					7.03	0.284	10
Temp Deg C @pH	21.1	0					21.1	0	10
The following samples were analyzed in this batch:									
HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04									
HS24021299-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459795 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011					
MBLK	Sample ID: WMBLK-0232024	Units: mg/L		Analysis Date: 23-Feb-2024 16:30					
Client ID:	Run ID: Balance1_459795	SeqNo: 7852435		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0						
LCS	Sample ID: WLCS-02232024	Units: mg/L		Analysis Date: 23-Feb-2024 16:30					
Client ID:	Run ID: Balance1_459795	SeqNo: 7852434		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1064	10.0	1000	0	106	85 - 115		
DUP	Sample ID: HS24021384-01DUP	Units: mg/L		Analysis Date: 23-Feb-2024 16:30					
Client ID:	Run ID: Balance1_459795	SeqNo: 7852432		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		2300	10.0			2200	4.44	20	
DUP	Sample ID: HS24021361-03DUP	Units: mg/L		Analysis Date: 23-Feb-2024 16:30					
Client ID:	Run ID: Balance1_459795	SeqNo: 7852428		PrepDate: DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		648	10.0			650	0.308	20	
The following samples were analyzed in this batch:		HS24021299-01	HS24021299-02	HS24021299-03	HS24021299-04				
		HS24021299-05							

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459876 (0)		Instrument: Skalar 03		Method: ALKALINITY BY -2011					
MBLK	Sample ID: MBLK-02242024	Units: mg/L		Analysis Date: 24-Feb-2024 17:24					
Client ID:	Run ID: Skalar 03_459876	SeqNo: 7854611		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-02242024	Units: mg/L		Analysis Date: 24-Feb-2024 17:30					
Client ID:	Run ID: Skalar 03_459876	SeqNo: 7854612		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)	930	5.00	1000	0	93.0	85 - 115			
LCSD	Sample ID: LCSD-02242024	Units: mg/L		Analysis Date: 24-Feb-2024 17:37					
Client ID:	Run ID: Skalar 03_459876	SeqNo: 7854613		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)	927	5.00	1000	0	92.7	85 - 115	930	0.323	20
DUP	Sample ID: HS24021299-05DUP	Units: mg/L		Analysis Date: 24-Feb-2024 17:47					
Client ID: Cottages	Run ID: Skalar 03_459876	SeqNo: 7854615		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)	143.4	5.00					142.6	0.559	20
Alkalinity, Carbonate (As CaCO3)	U	5.00					0	0	20
The following samples were analyzed in this batch: HS24021299-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459900 (0)		Instrument: WetChem_HS		Method: SULFIDE BY SM4500 S2-F-2011					
MBLK	Sample ID: MBLK-R459900	Units: mg/L		Analysis Date: 27-Feb-2024 11:41					
Client ID:	Run ID: WetChem_HS_459900		SeqNo: 7855136		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	U	2.00							
LCS	Sample ID: LCS-R459900	Units: mg/L		Analysis Date: 27-Feb-2024 11:41					
Client ID:	Run ID: WetChem_HS_459900		SeqNo: 7855135		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	22	2.00	25	0	88.0	85 - 115			
LCSD	Sample ID: LCSD-R459900	Units: mg/L		Analysis Date: 27-Feb-2024 11:41					
Client ID:	Run ID: WetChem_HS_459900		SeqNo: 7855134		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	0	87.2	85 - 115	22	0.913	20
MS	Sample ID: HS24021299-01MS	Units: mg/L		Analysis Date: 27-Feb-2024 11:41					
Client ID: 019-1055	Run ID: WetChem_HS_459900		SeqNo: 7855137		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sulfide	21.8	2.00	25	-3.2	100	80 - 120			
The following samples were analyzed in this batch:									
HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04 HS24021299-05									

Client: Environmental Resources Mgmt.

Project: Sulphur Dome

WorkOrder: HS24021299

QC BATCH REPORT

Batch ID: R459903 (0)		Instrument: WetChem_HS		Method: HYDROGEN SULFIDE BY E376.1					
MBLK	Sample ID: MBLK-R459903	Units: mg/L		Analysis Date: 27-Feb-2024 11:52					
Client ID:	Run ID: WetChem_HS_459903		SeqNo: 7855208		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	U	1.00							
LCS	Sample ID: LCS-R459903	Units: mg/L		Analysis Date: 27-Feb-2024 11:52					
Client ID:	Run ID: WetChem_HS_459903		SeqNo: 7855207		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.38	1.00	26.56	0	88.0	80 - 120			
LCSD	Sample ID: LCSD-R459903	Units: mg/L		Analysis Date: 27-Feb-2024 11:52					
Client ID:	Run ID: WetChem_HS_459903		SeqNo: 7855206		PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Hydrogen Sulfide	23.16	1.00	26.56	0	87.2	80 - 120	23.38	0.913	20
The following samples were analyzed in this batch:									
HS24021299-01 HS24021299-02 HS24021299-03 HS24021299-04 HS24021299-05									

Client: Environmental Resources Mgmt.
Project: Sulphur Dome
WorkOrder: HS24021299

**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 Quantitation 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	88-00356	27-Mar-2024
California	2919; 2024	30-Apr-2024
Dept of Defense	L22-90-R2	31-Mar-2024
Florida	E87611-38	30-Jun-2024
Illinois	2000322023-11	30-Jun-2024
Kansas	E-10352 2023-2024	31-Jul-2024
Louisiana	03087 2023-2024	30-Jun-2024
Maryland	343; 2023-2024	30-Jun-2024
North Carolina	624 - 2024	31-Dec-2024
North Dakota	R-193 2023-2024	30-Apr-2024
Oklahoma	2023-140	31-Aug-2024
Texas	T104704231-23-32	30-Apr-2024
Utah	TX026932023-14	31-Jul-2024

Sample Receipt Checklist

Work Order ID: HS24021299

Date/Time Received: 20-Feb-2024 16:35

Client Name: ERMSW-HOU

Received by: Jacob Coronado

Completed By: /S/ Jacob Coronado	21-Feb-2024 19:48	Reviewed by: /S/ luis.aguilar	22-Feb-2024 09:39
eSignature	Date/Time	eSignature	Date/Time

Matrices: WCarrier name: FedEx

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:310263
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):	2.2uc/2.1c, 1.8uc/1.7c ir31		
Cooler(s)/Kit(s):	51648, 51876		
Date/Time sample(s) sent to storage:	02/21/2024 1949		
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: Login Comment: Vial 3 of 3 "019-1055 MA-VPH" received broken.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:

COC ID: 310263

						ALS Project Manager:		ALS Work Order #:									
Customer Information			Project Information			Parameter/Method Request for Analysis											
Purchase Order	0722101		Project Name	Sulphur Dome			A	826C_LL_W(Low Level VOC) (8260) BTEX;									
Work Order			Project Number				B	ICP.As.Ba.Cd,Cr.Fe.Pb.Mg.Mn.Ni,K.Se.Ag.Ia.Sr.Zn.V)									
Company Name	Environmental Resources Mgmt.		Bill To Company	Environmental Resources Mgmt.			C	HG_W(Mercury)									
Send Report To	Scott Himes		Invoice Attn	Accounts Payable			D	MA.EPH_W_La(MA.EPH)									
Address	CityCentre Four		Address	CityCentre Four			E	MA.VPH_LA_W(MA.VPH)									
	840 W. Sam Houston Pkwy., Suite 6			840 W. Sam Houston Pkwy., Suite 6			F	9056_anions_W(Cl,SOM.Br)/ pH									
City/State/Zip	Houston, TX 77024		City/State/Zip	Houston TX 77024			G	ALK_W.2320B(carb,bicarb)									
Phone	(281) 600-1000		Phone	(281) 600-1000			H	H2S_W(H2S)									
Fax	(281) 600-1001		Fax	(281) 600-1001			I	SULFD_4500S F(Sulfide)									
e-Mail Address	scott.himes@erm.com		e-Mail Address	ERMINV.AccountsPayable@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	019-1055	2/20/24	11:15	W	1,2,8	12	X	X	X	X	X	X	X	X	X	X	
2	019-582		11:45														
3	019-580		12:30														
4	019-995		12:45														
5	Cottages		12:15														
6																	
7																	
8																	
9																	
10																	

HS24021299

Environmental Resources Mgmt.
Sulphur Dome

Sampler(s) Please Print & Sign <i>Taylor Brown</i>			Shipment Method		Required Turnaround Time: (Check Box) ☒ 1-2 Business Days ☒ 3-5 Days ☐ 7-10 Days ☐ 2+ Weeks	
Relinquished by: <i>Taylor Brown</i>		Date: 2/20/24	Time: 16:35	Received by:		Notes: ERM Sulphur Dome
Relinquished by:		Date: 2/20/24	Time: 16:35	Received by (Laboratory): JC		Cooler ID: 51643 Cooler Temp.: 2.2 QC Package: (Check One Box Below) ☒ Low Level VOC ☐ ICP As Pb Cu Cr Fe Ni V ☐ Lead Pb Cd Zn Mn Cu ☐ Hg W Se Ag Na Sr Ba Zn ☐ Other: _____
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):		

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.

Lab #: 903020 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-6 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 13:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.108			
Oxygen -----	1.78			
Nitrogen -----	6.58			
Carbon Dioxide -----	0.75			
Methane -----	89.64	-34.83	-150.0	
Ethane -----	0.669			
Ethylene -----	0.0363			
Propane -----	0.235			
Propylene -----	nd			
Iso-butane -----	0.0831			
N-butane -----	0.0644			
Iso-pentane -----	0.0270			
N-pentane -----	0.0142			
Hexanes + -----	0.0142			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 934

Specific gravity, calculated: 0.608

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903021 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-19 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 11:45 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.535			
Oxygen -----	10.73			
Nitrogen -----	40.42			
Carbon Dioxide -----	1.27			
Methane -----	46.71	-36.27	-146.2	
Ethane -----	0.280			
Ethylene -----	nd			
Propane -----	0.0258			
Propylene -----	nd			
Iso-butane -----	0.0164			
N-butane -----	0.0001			
Iso-pentane -----	0.0044			
N-pentane -----	nd			
Hexanes + -----	0.0095			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 480

Specific gravity, calculated: 0.799

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903022 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-8 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 8:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	na			
Helium -----	na			
Hydrogen -----	na			
Argon -----	na			
Oxygen -----	na			
Nitrogen -----	na			
Carbon Dioxide -----	na			
Methane -----	na			
Ethane -----	na			
Ethylene -----	na			
Propane -----	na			
Propylene -----	na			
Iso-butane -----	na			
N-butane -----	na			
Iso-pentane -----	na			
N-pentane -----	na			
Hexanes + -----	na			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 0

Remarks: IsoBag arrived empty - no analysis possible.

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903023 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-4 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 15:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.0266			
Oxygen -----	0.23			
Nitrogen -----	1.73			
Carbon Dioxide -----	1.75			
Methane -----	94.44	-37.69	-158.0	
Ethane -----	1.27			
Ethylene -----	0.0447			
Propane -----	0.277			
Propylene -----	nd			
Iso-butane -----	0.0790			
N-butane -----	0.0720			
Iso-pentane -----	0.0301			
N-pentane -----	0.0205			
Hexanes + -----	0.0291			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 996

Specific gravity, calculated: 0.592

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903024 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-26 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 13:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.213			
Oxygen -----	2.25			
Nitrogen -----	13.90			
Carbon Dioxide -----	1.39			
Methane -----	81.36	-38.38	-155.6	
Ethane -----	0.723			
Ethylene -----	nd			
Propane -----	0.0634			
Propylene -----	nd			
Iso-butane -----	0.0736			
N-butane -----	0.0030			
Iso-pentane -----	0.0150			
N-pentane -----	0.0001			
Hexanes + -----	0.0065			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 843

Specific gravity, calculated: 0.645

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903025 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: Brine Well 7A Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 11:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.215			
Oxygen -----	3.92			
Nitrogen -----	16.65			
Carbon Dioxide -----	0.034			
Methane -----	78.13	-31.20	-146.7	
Ethane -----	0.733			
Ethylene -----	0.0007			
Propane -----	0.207			
Propylene -----	nd			
Iso-butane -----	0.0699			
N-butane -----	0.0258			
Iso-pentane -----	0.0052			
N-pentane -----	0.0013			
Hexanes + -----	0.0037			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 814

Specific gravity, calculated: 0.654

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903026 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-7 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 10:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.365			
Oxygen -----	6.63			
Nitrogen -----	25.40			
Carbon Dioxide -----	0.42			
Methane -----	64.68	-45.00	-189.4	
Ethane -----	2.22			
Ethylene -----	nd			
Propane -----	0.176			
Propylene -----	nd			
Iso-butane -----	0.0452			
N-butane -----	0.0365			
Iso-pentane -----	0.0135			
N-pentane -----	0.0072			
Hexanes + -----	0.0111			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 703

Specific gravity, calculated: 0.717

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903027 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-24 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 17:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.0269			
Oxygen -----	0.27			
Nitrogen -----	1.66			
Carbon Dioxide -----	2.51			
Methane -----	94.02	-35.28	-154.0	
Ethane -----	0.869			
Ethylene -----	0.133			
Propane -----	0.253			
Propylene -----	nd			
Iso-butane -----	0.0799			
N-butane -----	0.0747			
Iso-pentane -----	0.0347			
N-pentane -----	0.0264			
Hexanes + -----	0.0445			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 987

Specific gravity, calculated: 0.598

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903028 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-10 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 16:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.748			
Oxygen -----	15.67			
Nitrogen -----	68.50			
Carbon Dioxide -----	1.55			
Methane -----	13.48	-30.02	-134.9	
Ethane -----	0.0470			
Ethylene -----	nd			
Propane -----	0.0017			
Propylene -----	nd			
Iso-butane -----	0.0028			
N-butane -----	nd			
Iso-pentane -----	0.0004			
N-pentane -----	nd			
Hexanes + -----	0.0005			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 137

Specific gravity, calculated: 0.945

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903029 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-17 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/13/2023 13:45 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.213			
Oxygen -----	2.84			
Nitrogen -----	13.63			
Carbon Dioxide -----	1.02			
Methane -----	80.49	-40.70	-168.2	
Ethane -----	1.45			
Ethylene -----	0.0002			
Propane -----	0.197			
Propylene -----	nd			
Iso-butane -----	0.0620			
N-butane -----	0.0448			
Iso-pentane -----	0.0205			
N-pentane -----	0.0118			
Hexanes + -----	0.0187			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 852

Specific gravity, calculated: 0.649

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903030 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-9 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/13/2023 15:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.700			
Oxygen -----	15.35			
Nitrogen -----	62.75			
Carbon Dioxide -----	0.63			
Methane -----	20.40	-33.44	-147.5	
Ethane -----	0.121			
Ethylene -----	0.0008			
Propane -----	0.0238			
Propylene -----	0.0003			
Iso-butane -----	0.0114			
N-butane -----	0.0051			
Iso-pentane -----	0.0037			
N-pentane -----	0.0022			
Hexanes + -----	0.0065			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 210

Specific gravity, calculated: 0.911

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903031 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-5 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/13/2023 13:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.131			
Oxygen -----	2.44			
Nitrogen -----	8.90			
Carbon Dioxide -----	0.59			
Methane -----	86.34	-37.36	-154.9	
Ethane -----	1.08			
Ethylene -----	0.0362			
Propane -----	0.272			
Propylene -----	nd			
Iso-butane -----	0.0741			
N-butane -----	0.0685			
Iso-pentane -----	0.0250			
N-pentane -----	0.0165			
Hexanes + -----	0.0261			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 910

Specific gravity, calculated: 0.622

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903032 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-18 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/13/2023 11:15 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.134			
Oxygen -----	2.48			
Nitrogen -----	9.16			
Carbon Dioxide -----	0.71			
Methane -----	86.23	-36.57	-154.0	
Ethane -----	0.863			
Ethylene -----	nd			
Propane -----	0.228			
Propylene -----	nd			
Iso-butane -----	0.0711			
N-butane -----	0.0607			
Iso-pentane -----	0.0266			
N-pentane -----	0.0178			
Hexanes + -----	0.0235			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 902

Specific gravity, calculated: 0.623

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903033 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BCRD ATM Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/13/2023 16:10 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.867			
Oxygen -----	19.41			
Nitrogen -----	79.64			
Carbon Dioxide -----	0.062			
Methane -----	0.0230			
Ethane -----	0.0006			
Ethylene -----	nd			
Propane -----	0.0003			
Propylene -----	nd			
Iso-butane -----	0.0001			
N-butane -----	0.0002			
Iso-pentane -----	nd			
N-pentane -----	0.0001			
Hexanes + -----	0.0002			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0

Specific gravity, calculated: 0.998

Remarks: 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. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903034 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-22 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 10:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.126			
Oxygen -----	2.25			
Nitrogen -----	8.79			
Carbon Dioxide -----	0.69			
Methane -----	86.33	-38.50	-154.7	
Ethane -----	1.34			
Ethylene -----	0.0184			
Propane -----	0.233			
Propylene -----	0.0002			
Iso-butane -----	0.0735			
N-butane -----	0.0646			
Iso-pentane -----	0.0296			
N-pentane -----	0.0208			
Hexanes + -----	0.0324			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 913

Specific gravity, calculated: 0.623

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903035 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-3 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 15:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.543			
Oxygen -----	2.87			
Nitrogen -----	15.08			
Carbon Dioxide -----	2.02			
Methane -----	78.53	-33.88	-151.6	
Ethane -----	0.575			
Ethylene -----	0.0178			
Propane -----	0.159			
Propylene -----	nd			
Iso-butane -----	0.0608			
N-butane -----	0.0519			
Iso-pentane -----	0.0286			
N-pentane -----	0.0223			
Hexanes + -----	0.0411			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 818

Specific gravity, calculated: 0.664

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903036 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-12 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/12/2023 9:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.315			
Oxygen -----	6.00			
Nitrogen -----	25.63			
Carbon Dioxide -----	0.47			
Methane -----	65.00	-44.36	-182.8	
Ethane -----	2.29			
Ethylene -----	nd			
Propane -----	0.177			
Propylene -----	nd			
Iso-butane -----	0.0459			
N-butane -----	0.0359			
Iso-pentane -----	0.0137			
N-pentane -----	0.0073			
Hexanes + -----	0.0106			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 708

Specific gravity, calculated: 0.715

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

Lab #: 903037 Job #: 57070 IS-102884 Co. Job#:
 Sample Name: BS-1 Co. Lab#:
 Company: Environmental Resources Management (ERM)
 API/Well:
 Container: IsoBag
 Field/Site Name: Sulphur Dome
 Location: Sulphur, Louisiana
 Formation:
 Sampling Point:
 Date Sampled: 12/11/2023 10:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.669			
Oxygen -----	14.23			
Nitrogen -----	61.50			
Carbon Dioxide -----	0.46			
Methane -----	22.56	-39.09	-158.7	
Ethane -----	0.382			
Ethylene -----	0.0002			
Propane -----	0.107			
Propylene -----	nd			
Iso-butane -----	0.0255			
N-butane -----	0.0277			
Iso-pentane -----	0.0112			
N-pentane -----	0.0093			
Hexanes + -----	0.0227			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 242

Specific gravity, calculated: 0.901

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. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

SEND DATA TO:

Name: Scott Himes

Company: ERM

Address: 840 W. Sam Houston Pkwy N.
Ste 600
Houston, TX 77024

Phone: 832-209-8811

Email: scott.himes@erm.com

Project: Sulphur Dome

PO #: 0712237

Location: Sulphur Louisiana

Sampled By: Taylar Brown/Aaron Martinez

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

Standard ☐Priority ☐Rush ☒

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	NG-1				Comments
1	BS-6	Dec-12-23	1:00 pm	X				
1	BS-19	Dec-11-23	11:45 am	X				
1	BS-8	Dec-12-23	8:30 am	X				
1	BS-4	Dec-11-23	3:30 pm	X				
1	BS-26	Dec-11-23	1:30 pm	X				
1	Brine Well 7A	Dec-11-23	11:00 am	X				
1	BS-7	Dec-12-23	10:30 am	X				
1	BS-24	Dec-11-23	5:00 pm	X				

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by 	ERM	12/14/23	17:30
Received by Les Schluter / SR Isotech		12-18-23	9:30
Relinquished by			
Received by			
Relinquished by			
Received by			

SEND DATA TO:

Name: Scott Himes

Company: ERM

Address: 840 W. Sam Houston Pkwy N.
Ste 600
Houston, TX 77024

Phone: 832-209-8811

Email: scott.himes@erm.com

Project: Sulphur Dome

PO #: 0712237

Location: Sulphur Louisiana

Sampled By: Taylar Brown/Aaron Martinez

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

Standard ☐Priority ☐Rush ☒

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	NG1				Comments
1	BS-10	Dec-12-23	4:30 pm	X				
1	BS-17	Dec-13-23	1:45 pm	X				
1	BS-9	Dec-13-23	3:30 pm	X				
1	BS-5	Dec-13-23	1:00 pm	X				
1	BS-18	Dec-13-23	11:15 am	X				
1	BCRD ATM	Dec-13-23	4:10 pm	X				
1	BS-22	Dec-12-23	10:00 am	X				
1	BS-3	Dec-11-23	3:30 pm	X				

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by 	ERM	12/14/23	17:30
Received by Les Schluter / SR Isotech		12-18-23	9:30
Relinquished by			
Received by			
Relinquished by			
Received by			

SEND DATA TO:

Name: Scott Himes

Company: ERM

Address: 840 W. Sam Houston Pkwy N.
Ste 600
Houston, TX 77024

Phone: 832-209

Email: scott.himes@erm.com

Project: Sulphur Dome

PO #: 0712237

Location: Sulphur Louisiana

Sampled By: Taylor Brown/Aaron Martinez

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

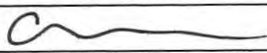
Standard ☐Priority ☐Rush ☒

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	NG-1					Comments
1	BS-12	Dec-12-23	9:00 am	X					
1	BS-1	Dec-11-23	10:00 am	X					

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by 	ERM	12/14/23	17:30
Received by Les Schluter / SR Isotech		12-18-23	9:30
Relinquished by			
Received by			
Relinquished by			
Received by			

Lab #: 903038 Job #: 57071 IS-102884 Co. Job#:

Sample Name: WW #12 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 9:15 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.81					
Oxygen -----	3.26					
Nitrogen -----	82.26					
Carbon Dioxide -----	12.52					
Methane -----	0.151				0.033	0.022
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 + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.88

*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. 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 #: 903039 Job #: 57071 IS-102884 Co. Job#:

Sample Name: WW #13 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 8:45 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	6.70					
Nitrogen -----	84.49					
Carbon Dioxide -----	7.46					
Methane -----	0.0367				0.017	0.011
Ethane -----	nd				< 0.0002	< 0.0003
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0004
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

*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. 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 #: 903040 Job #: 57071 IS-102884 Co. Job#:

Sample Name: WW #11 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 8:00 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.46					
Oxygen -----	7.85					
Nitrogen -----	83.27					
Carbon Dioxide -----	7.39					
Methane -----	0.0315				0.011	0.0077
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 + -----	0.0004					

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.
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. 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 #: 903041 Job #: 57071 IS-102884 Co. Job#:

Sample Name: COTTAGES Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 9:15 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.73					
Oxygen -----	2.30					
Nitrogen -----	78.59					
Carbon Dioxide -----	15.26					
Methane -----	2.12	-82.0			0.50	0.33
Ethane -----	nd				< 0.0002	< 0.0003
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0004
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.89

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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 #: 903042 Job #: 57071 IS-102884 Co. Job#:

Sample Name: WW #19 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 7:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.43					
Oxygen -----	8.51					
Nitrogen -----	80.06					
Carbon Dioxide -----	9.71					
Methane -----	0.291	-51.2			0.11	0.073
Ethane -----	0.0015				0.00062	0.00077
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0004
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

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.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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 #: 903043 Job #: 57071 IS-102884 Co. Job#:

Sample Name: BS-21 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/13/2023 10:45 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.42					
Oxygen -----	25.21					
Nitrogen -----	63.27					
Carbon Dioxide -----	2.79					
Methane -----	7.23	-38.00	-147		1.9	1.3
Ethane -----	0.0665				0.019	0.023
Ethylene -----	nd					
Propane -----	0.0087				0.0023	0.0043
Propylene -----	nd					
Iso-butane -----	0.0036					
N-butane -----	nd					
Iso-pentane -----	0.0007					
N-pentane -----	nd					
Hexanes + -----	nd					

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.

Methane dD 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 #: 903044 Job #: 57071 IS-102884 Co. Job#:

Sample Name: BS-13 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/13/2023 8:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.22					
Oxygen -----	24.49					
Nitrogen -----	73.05					
Carbon Dioxide -----	1.17					
Methane -----	0.0670				0.033	0.022
Ethane -----	0.0011				0.00059	0.00073
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.73

*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. 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 #: 903045 Job #: 57071 IS-102884 Co. Job#:

Sample Name: BS-14 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/13/2023 9:15 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.48					
Oxygen -----	29.11					
Nitrogen -----	66.00					
Carbon Dioxide -----	1.98					
Methane -----	1.41	-66.5			0.39	0.26
Ethane -----	0.0231				0.0069	0.0086
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.85

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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 #: 903046 Job #: 57071 IS-102884 Co. Job#:

Sample Name: WW#40 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/14/2023 10:30 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.77					
Oxygen -----	5.29					
Nitrogen -----	81.98					
Carbon Dioxide -----	10.16					
Methane -----	0.799	-60.5			0.20	0.14
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 + -----	nd					

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 dD analysis.

Methane carbon isotope data obtained online via GC-C-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 #: 903047 Job #: 57071 IS-102884 Co. Job#:

Sample Name: BS25 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/12/2023 13:50 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.46					
Oxygen -----	33.30					
Nitrogen -----	63.82					
Carbon Dioxide -----	1.18					
Methane -----	0.233				0.065	0.043
Ethane -----	0.0038				0.0011	0.0014
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

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 isotopic 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 #: 903048 Job #: 57071 IS-102884 Co. Job#:

Sample Name: BS-23 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/12/2023 13:45 Date Received: 12/18/2023 Date Reported: 1/05/2024

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 -----	1.42					
Oxygen -----	28.99					
Nitrogen -----	66.73					
Carbon Dioxide -----	2.30					
Methane -----	0.548	-35.7			0.17	0.11
Ethane -----	0.0081				0.0026	0.0032
Ethylene -----	nd					
Propane -----	0.0008				0.0002	0.0005
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.88

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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. %.

SEND DATA TO:

Name: Scott Himes

Company: ERM

Address: 840 W. Sam Houston Pkwy N.
Ste 600
Houston, TX 77024

Phone: 832-209-8811

Email: scott.himes@erm.com

Project: Sulphur Dome

PO #: 0712237

Location: Sulphur, Louisiana

Sampled By: Taylar Brown, / Aaron Martinez

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

Standard ☐Priority ☐Rush ☒

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	GT				Comments
1	WW #12	Dec-14-23	9:15 am	X				
1	WW #13	Dec-14-23	8:45 am	X				
1	WW #11	Dec-14-23	8:00 am	X				
1	COTTAGES	Dec-14-23	9:15 am	X				
1	WW #19	Dec-14-23	7:30 am	X				
1	BS-21	Dec-13-23	10:45 am	X				
1	BS-13	Dec-13-23	8:30 am	X				
1	BS-14	Dec-13-23	9:15 am	X				

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by 	ERM	12/14/23	17:30
Received by Les Schluter / SR Isotech		12-18-23	9:30
Relinquished by			
Received by			
Relinquished by			
Received by			

SEND DATA TO:

Name: Scott Himes

Company: ERM

Address: 840 W. Sam Houston Pkwy N.
Ste 600
Houston, TX 77024

Phone: 832-209-8811

Email: scott.himes@erm.com

Project: Sulphur Dome

PO #: 0712237

Location: Sulphur Louisiana

Sampled By: Taylar Brown/Aaron Martinez

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

Standard ☐Priority ☐Rush ☒

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	LOG					Comments
1	VW #40	Dec-14-23	10:30 am	X					
1	BS-25	Dec-12-23	1:50 pm	X					
1	BS-23	Dec-12-23	1:45 pm	X					

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by 	ERM	12/14/23	17:30
Received by Les Schluter / SR Isotech		12-18-23	9:30
Relinquished by			
Received by			
Relinquished by			
Received by			

Lab #: 904394 Job #: 57186 IS-102884 Co. Job#:

Sample Name: MW-1-500 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/27/2023 16:30 Date Received: 1/02/2024 Date Reported: 1/30/2024

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 -----	1.90					
Oxygen -----	0.99					
Nitrogen -----	88.83					
Carbon Dioxide -----	6.85					
Methane -----	1.42	-68.8			0.32	0.21
Ethane -----	0.0008				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 + -----	0.0121					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.87

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Data for d13C of methane obtained online via GC-IRMS.

Insufficient methane concentration for dD 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 #: 904395 Job #: 57186 IS-102884 Co. Job#:

Sample Name: MW-1-200 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 12/28/2023 11:45 Date Received: 1/02/2024 Date Reported: 1/30/2024

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 -----	0.359					
Oxygen -----	0.51					
Nitrogen -----	16.92					
Carbon Dioxide -----	0.55					
Methane -----	81.63	-56.15	-192.1		94	63
Ethane -----	0.0323				0.040	0.050
Ethylene -----	nd					
Propane -----	0.0002				0.0002	0.0004
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0014					

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. %.

SEND DATA TO:

Name: *Scott Himes*Company: *ERM*Address: *840 W Sam Houston Pkwy N
#600
Houston, TX 77024*Phone: *281-660-1000*Email: *scott.himes@erm.com*Project: *0712237*PO #: *Sulphur Dome*Location: *Sulphur, LA*Sampled By: *Taylor Brown*

SEND INVOICE TO (if different from SEND DATA TO):

Name:

Company:

Address:

Phone:

Email:

Standard ☒Priority ☐Rush ☐

Analysis Requested

Sample Description

Container Number	Sample Identification	Date Sampled	Time	DG-1					Comments
<i>1</i>	<i>MW-1-500</i>	<i>12/27/23</i>	<i>16:30</i>	<i>X</i>					
<i>1</i>	<i>MW-1-200</i>	<i>12/28/23</i>	<i>11:45</i>	<i>X</i>					

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by <i>Taylor Brown</i>	<i>ERM</i>	<i>12/29/23</i>	<i>14:00</i>
Received by <i>Les Schluter / SR Isotech</i>		<i>12-29-23</i>	<i>9:00</i>
Relinquished by			
Received by			
Relinquished by			
Received by			

Lab #: 908238 Job #: 57474 IS-102884 Co. Job#:

Sample Name: MW-2-700 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/30/2024 16:00 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.48					
Oxygen -----	13.50					
Nitrogen -----	77.05					
Carbon Dioxide -----	nd					
Methane -----	7.93	-64.13	-202.2		2.3	1.5
Ethane -----	0.0325				0.010	0.013
Ethylene -----	0.0006					
Propane -----	0.0062				0.0018	0.0034
Propylene -----	nd					
Iso-butane -----	0.0006					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0006					

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 #: 908239 Job #: 57474 IS-102884 Co. Job#:

Sample Name: Cottages Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 11:20 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.79					
Oxygen -----	2.05					
Nitrogen -----	80.52					
Carbon Dioxide -----	13.12					
Methane -----	2.52	-84.1	-198		0.56	0.37
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 + -----	0.0014					

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.

Methane isotopes obtained online via GC-C-IRMS/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 #: 908240 Job #: 57474 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 11:35 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.78					
Oxygen -----	2.06					
Nitrogen -----	83.87					
Carbon Dioxide -----	11.85					
Methane -----	0.435	-53.3			0.10	0.069
Ethane -----	0.0018				0.00047	0.00059
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0006					

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.

Methane carbon isotope data obtained online via GC-C-IRMS.

Insufficient methane concentration for dD 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 #: 908241 Job #: 57474 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 11:50 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.79					
Oxygen -----	2.29					
Nitrogen -----	84.45					
Carbon Dioxide -----	11.42					
Methane -----	0.0504				0.012	0.0077
Ethane -----	0.0006				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 + -----	nd					

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 isotopic 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 #: 908242 Job #: 57474 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 12:10 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.85					
Oxygen -----	3.02					
Nitrogen -----	82.91					
Carbon Dioxide -----	12.09					
Methane -----	0.124				0.028	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 + -----	0.0014					

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 isotopic 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 #: 908243 Job #: 57474 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 12:55 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.81					
Oxygen -----	1.84					
Nitrogen -----	84.35					
Carbon Dioxide -----	11.93					
Methane -----	0.0713				0.016	0.011
Ethane -----	0.0007				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 + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.85

*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. 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 #: 908244 Job #: 57474 IS-102884 Co. Job#:

Sample Name: MW-2-500 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 13:30 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.65					
Oxygen -----	2.91					
Nitrogen -----	73.26					
Carbon Dioxide -----	nd					
Methane -----	22.16	-49.25	-186.4		5.3	3.6
Ethane -----	0.0134				0.0034	0.0043
Ethylene -----	0.0015					
Propane -----	0.0022				0.00054	0.00100
Propylene -----	nd					
Iso-butane -----	0.0015					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.87

*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 #: 908245 Job #: 57474 IS-102884 Co. Job#:

Sample Name: 019-1603 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 14:00 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.51					
Oxygen -----	8.50					
Nitrogen -----	81.95					
Carbon Dioxide -----	7.85					
Methane -----	0.193				0.068	0.046
Ethane -----	0.0004				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 + -----	nd					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.77

*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. 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 #: 908246 Job #: 57474 IS-102884 Co. Job#:

Sample Name: MW-2-200 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 15:15 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	0.245					
Oxygen -----	1.23					
Nitrogen -----	7.27					
Carbon Dioxide -----	nd					
Methane -----	91.12	-47.64	-186.2		43	29
Ethane -----	0.0964				0.048	0.061
Ethylene -----	nd					
Propane -----	0.0214				0.010	0.019
Propylene -----	nd					
Iso-butane -----	0.0113					
N-butane -----	0.0029					
Iso-pentane -----	0.0008					
N-pentane -----	nd					
Hexanes + -----	nd					

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 #: 908247 Job #: 57474 IS-102884 Co. Job#:

Sample Name: BS-28 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 13:20 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	0.300					
Oxygen -----	1.95					
Nitrogen -----	16.00					
Carbon Dioxide -----	0.62					
Methane -----	80.47	-34.64	-152.3		45	30
Ethane -----	0.477				0.28	0.35
Ethylene -----	nd					
Propane -----	0.107				0.060	0.11
Propylene -----	nd					
Iso-butane -----	0.0466					
N-butane -----	0.0173					
Iso-pentane -----	0.0051					
N-pentane -----	0.0014					
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 = 0.72

*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 #: 908248 Job #: 57474 IS-102884 Co. Job#:

Sample Name: BS-27 Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 1/31/2024 15:45 Date Received: 2/02/2024 Date Reported: 2/14/2024

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 -----	1.71					
Oxygen -----	23.25					
Nitrogen -----	73.42					
Carbon Dioxide -----	1.51					
Methane -----	0.106				0.025	0.017
Ethane -----	0.0007				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 + -----	nd					

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 isotopic 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. %.

Address: 1308 Parkland Court Champaign, IL 61821-1826 Phone: 217-398-3490

SEND DATA TO:

Name: Scott Himes
 Company: ERM
 Address: 840 W Sam Houston Pkwy Ste. 6
 City/State: Houston, TX
 Phone: 832-209-8811
 Email: scott.himes@erm.com

SEND INVOICE TO: (if different from SEND DATA TO:)

Name: _____
 Company: _____
 Address: _____
 City/State: _____
 Phone: _____
 Email: _____

Project: Sulphur Dome
 Location: Sulphur, LA

Purchase Order #: 0712237
 Sampled By: Taylor Brown

Select One: ☐ Standard ☒ Priority ☐ Rush

Sample Description				Analyses Requested			Comments
Container Number	Sample Identification	Date Sampled	Time				
1	MW-2-700	1/30/24	16:00	X			
1	~~202-2000~~	~~1/30/24~~	~~16:00~~				
1	Cottages	1/30/24	11:20	X			
1	019-1055		11:35	X			
1	019-580		11:50	X			
1	019-995		12:10	X			
1	019-582		12:55	X			
1	MW-2-500		13:30	X			
1	019-1603		14:00	X			
1	MW-2-200		15:15	X			

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by <u>Taylor Brown</u>	<u>ERM</u>	<u>2/1/24</u>	<u>15:00</u>
Received by <u>Les Schluter / SR Isotech</u>		<u>2-2-24</u>	<u>9:15</u>
Relinquished by			
Received by			
Relinquished by			
Received by			

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Address: 1308 Parkland Court Champaign, IL 61821-1826 Phone: 217-398-3490

SEND DATA TO:

Name: Scott Himes
Company: ERM
Address: 840 W Sam Houston Pkwy
City/State: Houston, TX Ste 6
Phone: 832-209-8811
Email: Scott.himes@erm.com

SEND INVOICE TO: (if different from SEND DATA TO:)

Name: _____
Company: _____
Address: _____
City/State: _____
Phone: _____
Email: _____

Project: Sulphur Dome
Location: Sulphur, LA

Purchase Order #: 0712237
Sampled By: Taylor Brown

Select One: ☐ Standard ☒ Priority ☐ Rush

Sample Description

Container Number	Sample Identification	Date Sampled	Time	Analyses Requested			Comments
1	BS-28	1/31/24	13:20	X			
1	BS-27	1/31/24	15:45	X			

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by <u>Taylor Brown</u>	<u>ERM</u>	<u>2/1/24</u>	<u>15:00</u>
Received by <u>Les Schluter / SR Isotech</u>		<u>2-2-24</u>	<u>9:15</u>
Relinquished by			
Received by			
Relinquished by			
Received by			

ISOTECH

a Stratum Reservoir brand

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Lab #: 911190 Job #: 57661 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/20/2024 11:15 Date Received: 2/21/2024 Date Reported: 2/28/2024

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 -----	1.73					
Oxygen -----	2.62					
Nitrogen -----	82.03					
Carbon Dioxide -----	13.20					
Methane -----	0.418	-52.8			0.11	0.071
Ethane -----	0.0020				0.00055	0.00068
Ethylene -----	nd					
Propane -----	nd				< 0.0002	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0040					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.85

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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 #: 911191 Job #: 57661 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/20/2024 11:45 Date Received: 2/21/2024 Date Reported: 2/28/2024

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 -----	3.70					
Nitrogen -----	84.88					
Carbon Dioxide -----	9.59					
Methane -----	0.207				0.061	0.041
Ethane -----	0.0009				0.00031	0.00038
Ethylene -----	nd					
Propane -----	nd				< 0.0001	< 0.0003
Propylene -----	nd					
Iso-butane -----	nd					
N-butane -----	nd					
Iso-pentane -----	nd					
N-pentane -----	nd					
Hexanes + -----	0.0052					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.79

*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. 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 #: 911192 Job #: 57661 IS-102884 Co. Job#:

Sample Name: Cottages Co. Lab#:

Company: Environmental Resources Management (ERM)

API/Well:

Container: IsoFlask

Field/Site Name: Sulphur Dome

Location: Sulphur, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/20/2024 12:15 Date Received: 2/21/2024 Date Reported: 2/28/2024

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 -----	1.72					
Oxygen -----	2.41					
Nitrogen -----	80.79					
Carbon Dioxide -----	13.16					
Methane -----	1.92	-79.7	-159		0.46	0.31
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 + -----	0.0034					

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.85

*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/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 #: 911193 Job #: 57661 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/20/2024 12:30 Date Received: 2/21/2024 Date Reported: 2/28/2024

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 -----	3.83					
Nitrogen -----	83.13					
Carbon Dioxide -----	11.27					
Methane -----	0.0065				0.0014	0.00095
Ethane -----	nd				< 0.0001	< 0.0002
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 = 0.83

*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. 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 #: 911194 Job #: 57661 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, LA

Formation/Depth:

Sampling Point:

Date Sampled: 2/20/2024 12:45 Date Received: 2/21/2024 Date Reported: 2/28/2024

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 -----	1.74					
Oxygen -----	5.49					
Nitrogen -----	81.38					
Carbon Dioxide -----	11.00					
Methane -----	0.385	-78.0			0.10	0.068
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 + -----	0.0013					

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.

Insufficient methane concentration for dD analysis.

Methane carbon isotope data obtained online via GC-C-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. %.

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Address: 1308 Parkland Court Champaign, IL 61821-1826 Phone: 217-398-3490

SEND DATA TO:

Name: Scott Himes
Company: ERM
Address: 840 W Sam Houston Pkwy N #600
City/State: Houston, TX 77024
Phone: 832-209-8811
Email: scott.himes@erm.com

SEND INVOICE TO: (if different from SEND DATA TO:)

Name: _____
Company: _____
Address: _____
City/State: _____
Phone: _____
Email: _____

Project: Sulphur Dome
Location: Sulphur, LA

Purchase Order #: 0722101
Sampled By: Taylor Brown

Select One: ☐ Standard

☒ Priority

☐ Rush

Sample Description

Container Number	Sample Identification	Date Sampled	Time	Analyses Requested			Comments
1	019-1055	2/20/24	11:15	X			
↓	019-582		11:45	X			
↓	Cottages		12:15	X			
↓	019-580		12:30	X			
↓	019-995		12:45	X			

Chain-of-Custody Record

Signature	Company	Date	Time
Relinquished by <u>Taylor Brown</u>	<u>ERM</u>	<u>2/20/24</u>	<u>17:00</u>
Received by <u>Les Schluter / SR Isotech</u>		<u>2-21-24</u>	<u>9:00</u>
Relinquished by			
Received by			
Relinquished by			
Received by			

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