

**via email**

21 July 2023



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

Reference: 0688077

Subject: Revised 3<sup>rd</sup> Analytical Data Submittal  
Westlake US 2, LLC  
Sulphur Dome  
Calcasieu Parish, Louisiana

Dear Mr. Lee:

On behalf of Westlake US 2, LLC (Westlake), Environmental Resources Management Southwest, Inc. (ERM) is pleased to provide the Louisiana Department of Natural Resources (LDNR) Injection & Mining Division with the final laboratory analytical data for groundwater, surface water, and oil samples collected at the Sulphur Dome in Calcasieu Parish. The samples were collected by ERM during May and June 2023 sampling events. This revised report replaces the initial submittal dated June 29, 2023, providing revised data summary tables.

Enclosed are the following:

- Table 1 – Groundwater Data (Revised)
- Table 2 – Surface Water Data (Revised)
- Table 3 – Central Lake Water Column Profile
- Table 4 – Gas Data
- Table 5 – Oil Data
- Figure 1-3 – Sample Location Maps
- Figure 4 – Piper Diagram
- Figure 5 – Methane Isotopes
- Attachment 1 – Laboratory Reports

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

## 1. WATER SAMPLING RESULTS

In May and June 2023, additional samples of groundwater, surface water, and oil were collected at the site. The sampling locations are shown on Figures 1-3. The water samples were analyzed by ALS Global laboratory based in Houston, Texas, a Louisiana Environmental Laboratory Accreditation Program (LELAP) accredited laboratory. Dissolved gases were submitted to and analyzed by Isotech, a Stratum Reservoir Company, located in Champaign, Illinois. Oil samples

were submitted to SPL, a hydrocarbon analytical laboratory in Houston, Texas. All samples were submitted under proper Chain-of-Custody in laboratory supplied containers with appropriate preservative and handling requirements.

## 1.1 Groundwater Sampling Results

On May 18<sup>th</sup> and 22<sup>nd</sup>, 2023, five groundwater samples were collected from the industrial water wells operated by Westlake, as well as the Cottages Well located west of Cavern 7 (see Figure 1). At each well, water was allowed to flow from each well for several minutes prior to sampling and field parameters, i.e., pH, specific conductivity (SC), oxidation-reduction potential (ORP), and temperature, were recorded with a hand-held meter at the time of sampling. The groundwater analytical data to date are summarized in Table 1.

Reported constituent concentrations were below their respective RECAP screening standards (GWSS) or EPA Secondary Maximum Contaminant Limits (SMCL), with the exception of iron and manganese. Alluvial aquifers throughout South Louisiana are known to exhibit elevated concentrations of naturally occurring iron, manganese, and other metals. Industrial processes utilizing steel piping can also influence the metal concentrations reported in the water. SMCLs are non-enforceable guidelines established by the EPA based on aesthetic qualities (e.g., odor, taste, etc.).

The brine samples, previously collected, were included on Table 1 for comparison but were not evaluated with respect to the RECAP GWSS or the SMCL because the brine is a manufactured product.

The Piper diagram (Figure 4) illustrates the overall consistency of the groundwater quality. At this time, there is no indication that the groundwater at these locations has been influenced by or mixed with brine.

## 1.2 Surface Water Sampling Results

On May 22 – 25, 2023 surface water samples were collected from all active bubble sites within the Central Lake and surrounding water bodies. At each location water quality parameters (pH, SC, ORP, and temperature) were recorded using a hand-held field meter. Surface water data are summarized on Table 2.

All available surface water data are included on the Piper diagram (Figure 4). The water quality of samples collected within the Central Lake has remained consistent with the data collected during the 1<sup>st</sup> Quarter 2023, and plot tightly clustered within one area on the Piper diagram. The samples collected near Cavern 4 pad (LDNR #9 and #19) plot in different areas of the Piper diagram and are distinctly different than the Central Lake samples.

Additionally, a sample of sheen observed at bubble site LDNR #24 was collected on May 25, 2023. The sample was submitted to Alpha Analytical in Mansfield, Massachusetts for fingerprinting analysis. The results of this analysis are pending.

### 1.2.1 Central Lake Water Column Profile

On June 15, 2023 a surface water monitoring station was installed in the deepest portion of the Central Lake near bubble site LDNR # 5. The water depth was measured at 5.2 feet deep. Tubing was installed to pull water from the top, middle, and bottom portions of the water column. The

profile data collected from the new station have been added to the previous water column profile data and are shown on Table 3. Generally, the water quality is consistent throughout the water column, and consistent with parameters recorded elsewhere within the Central Lake. There is a slight change in water quality at the bottom of the water column where the pH and temperature are slightly lower, change to reducing conditions (ORP is negative), and conductivity slightly increases. The reducing conditions at the bottom are most likely attributed to decaying vegetation accumulating on the bottom.

### **1.3 Dissolved Gas Results**

Dissolved gas samples were collected from the water wells and many of the bubble sites. No additional dissolved gas data has been received at this time. Once received, the gas data will be included in a separate submittal. For completeness, the dissolved gas sampling locations are provided on Figure 2, and the dissolved gas data received to date are summarized on Table 4.

### **1.4 Gas Sampling Update**

Results from a gas sample collected from SN 209459 has been analyzed. The results are summarized on Table 4, and the laboratory report provided in Attachment 1. The isotopic composition has been plotted on Figure 5 for comparison with the bubble site dissolved gas results. Additional gas has been collected from Brine Well #2, as well as two other production wells (SN 189416 and SN 246792) on the western edge of the dome. These data are still pending and will be submitted when received. Generally, the SN 209459 gas sample has a similar isotopic signature with the cavern gas and bubble sites. The pending gas samples will be included for comparison when received.

A method has been developed to isolate the gas from the submerged bubble sites utilizing an inverted funnel and standpipe. Gas from three of the bubble sites was successfully isolated, and an attempt was made to collect gas from the land-based bubble sites. These data are still pending and will be provided in a separate submittal when received.

On June 15, 2023, A Detecto Pak-Infared (DP-IR) gas leak detector was tested at the two land-based bubble sites previously identified. The DP-IR uses a sensitive infrared detector to detect methane and is typically utilized to identify leaks in buried natural gas pipelines. A positive response at Brine Well #7B bubble site confirmed that the detector is able to detect the bubble sites. Additional areas were surveyed in the area of Brine Well #7B without any detections recorded. The bubble site located near SN 110159 was also surveyed using the DP-IR. Some very low-level methane detections were reported; however, there were no concentrated methane locations identified. The DP-IR has been shown to identify a known land-based bubble site. This instrument will be utilized for future sampling events to identify the best place to collect a gas sample.

## **2. OIL SAMPLE RESULTS**

On May 25, 2023 oil samples were collected from oil wells Cavern 4, Cavern 7B, SN 210185 and Yellow Rock's production Tank Battery. The samples were submitted to SPL for bulk/whole oil properties. The oil and gas sample locations are shown on Figure 3. The results from this sampling, along with data from previous sampling conducted by Intertek, are provided in Table 5. Based on the data comparison, the oil from Cavern 4 and 7B appears to be similar to the previous 7B oil samples and different from the Yellow Rock crude oil sample collected.

### 3. SCHEDULE

Water wells will continue to be sampled on a monthly basis. The next water well sampling event is planned for July 2023. The bubble sites will be sampled as discovered. The next full round of bubble site sampling is planned for the 3<sup>rd</sup> Quarter 2023.

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



## **FIGURES**

**Legend**

- ◆ Water Well Sample Location
- ▲ Brine Sample Location
- Westlake Property

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

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

**Legend**

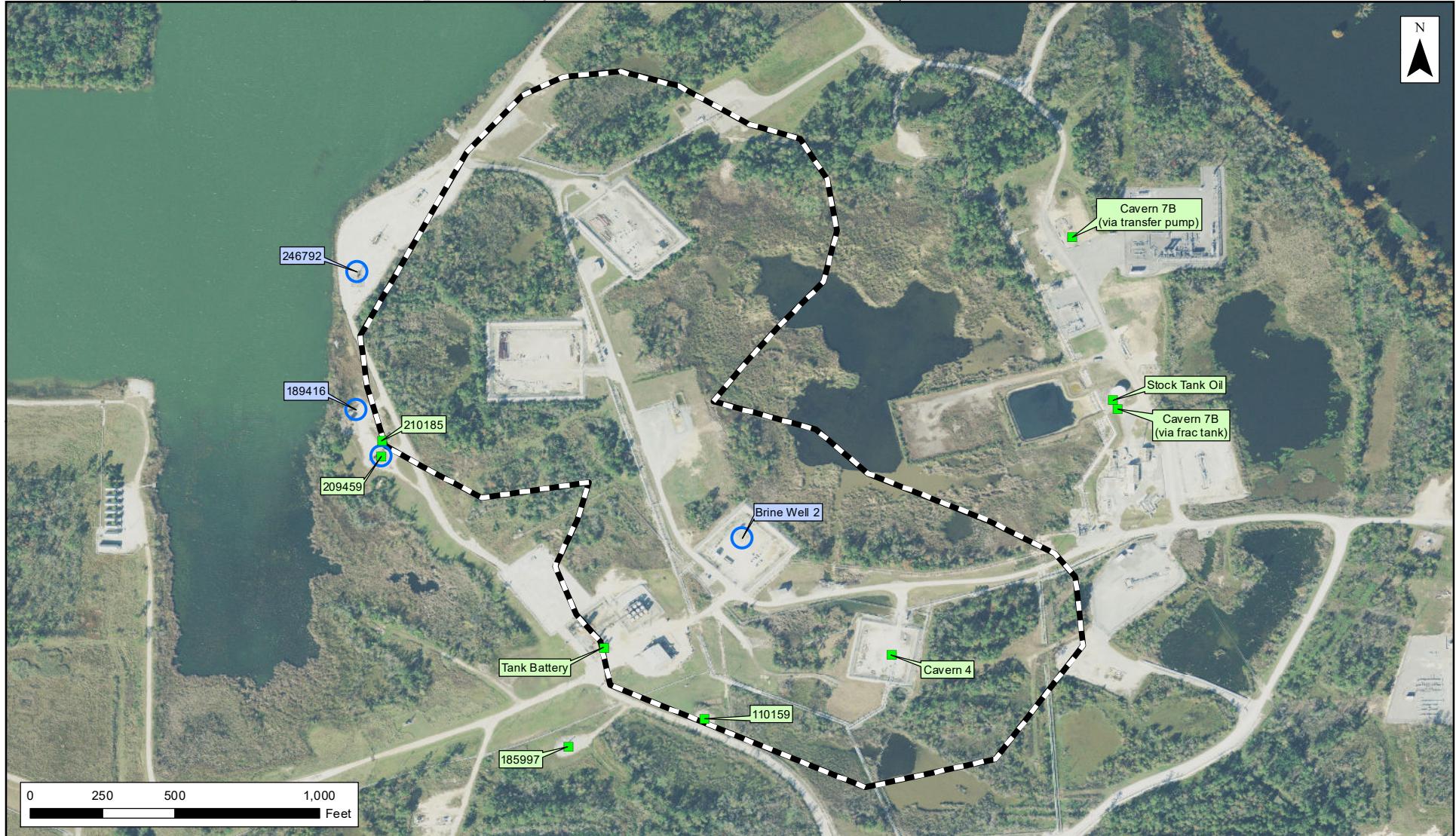
- Surface Water Sample Location (non-bubble site)
- Bubble Site Water/Gas Sample Location
- Sheen Sample Location

Westlake Property

**Notes:**

2021 Aerial imagery via USGS Earth Explorer (NAIP).

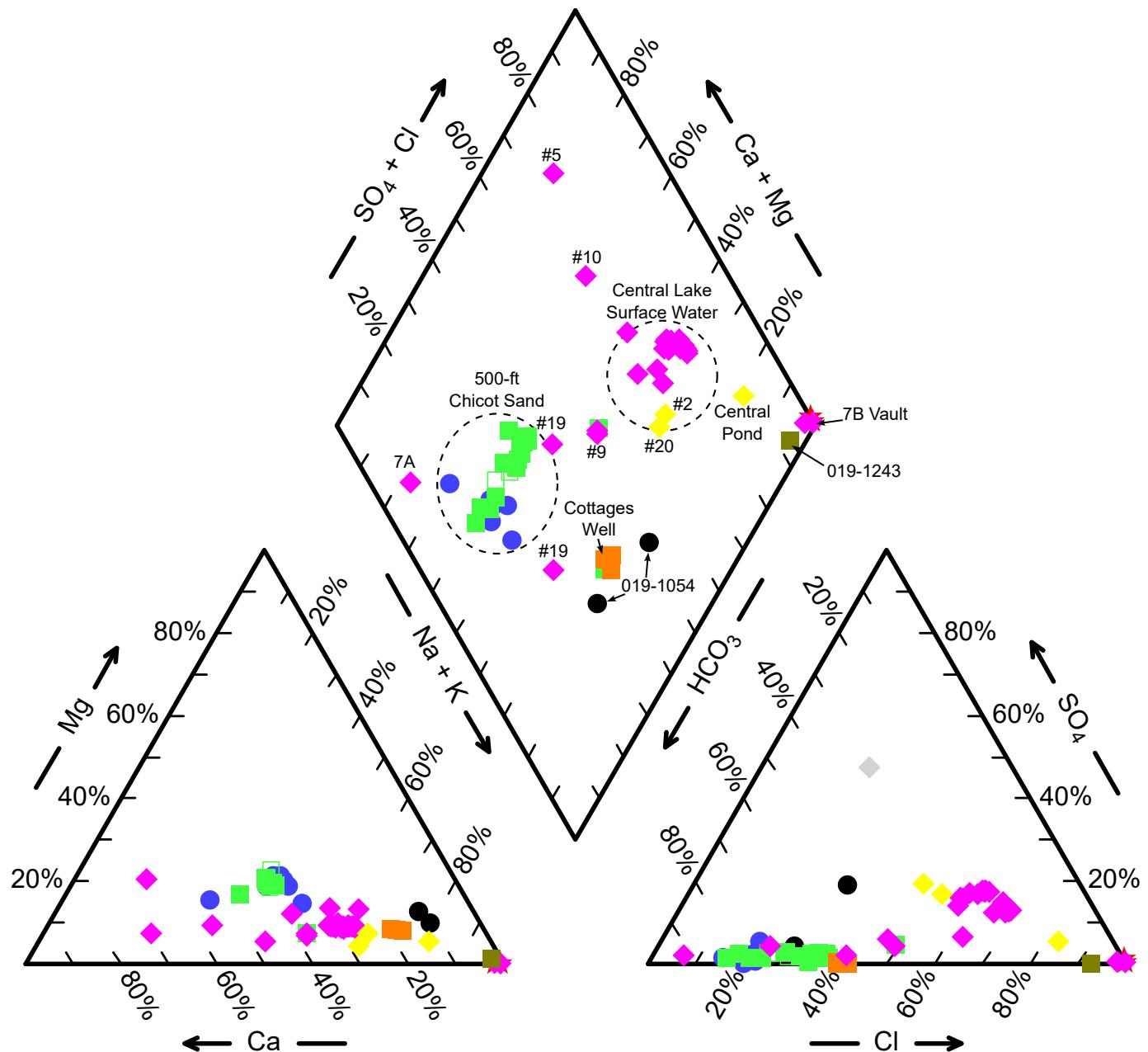
**Figure 2**  
**Surface Water Sampling Locations**  
Sulphur Dome  
Westlake US 2, LLC  
Calcasieu Parish, Louisiana

**Legend**

- Oil Sample Location
- Gas Sample Location
- Westlake Property

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

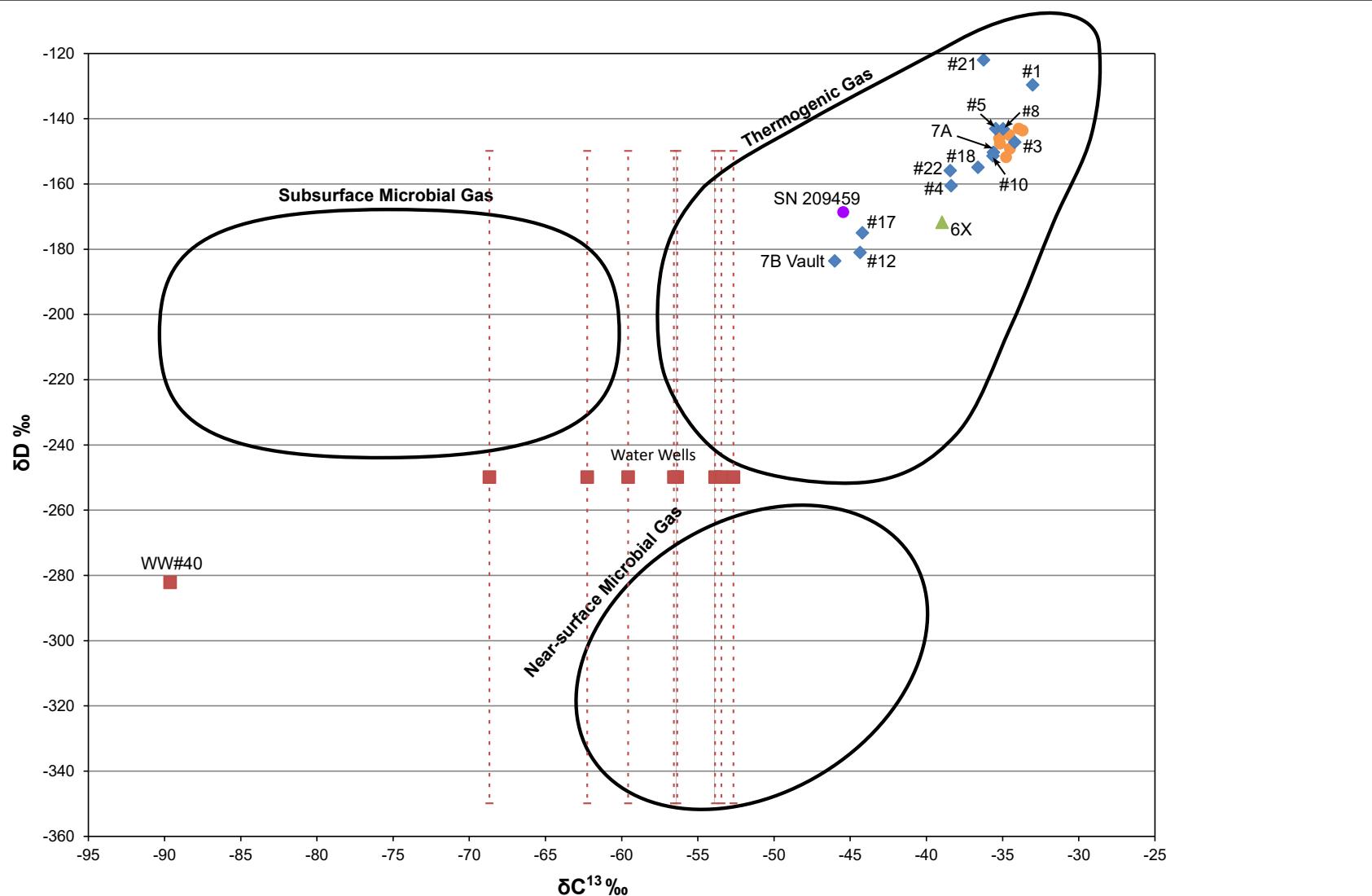
**Figure 3**  
**Oil and Gas Sampling Locations**  
Sulphur Dome  
Westlake US 2, LLC  
Calcasieu Parish, Louisiana

**Legend**

- ◆ Bubble Site & Surface Water
- ◆ Other Surface Water
- Industrial Water Well (Current)
- Industrial Water Well (Historic)
- Cottages Well
- Other Water Well

- 019-1054 (Historic)
- Evangeline Aquifer Water Well (Historic)
- ★ Brine

**Figure 4**  
**Piper Diagram**  
Sulphur Dome  
Westlake US 2, LLC  
Calcasieu Parish, Louisiana

**Legend**

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

**Notes:**

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

**Figure 5**  
**Methane Isotopes**  
Sulphur Dome  
Westlake US 2, LLC  
Calcasieu Parish, Louisiana

## **TABLES**

**Table 1 (Revised)**  
**Groundwater Data Summary**  
**Sulphur Dome**  
**Calcasieu Parish, Louisiana**

Constituent	Units	Sample ID Sample Location Sample Interval (ft) Sample Date Sampler	019-580				019-582				019-995						
			WW #11				WW #13				WW #12						
			469'				609'				485'						
			1/26/23	3/30/23	4/27/23	5/22/23	1/26/23	3/30/23	4/27/23	5/22/23	1/26/23	3/30/23	4/27/23	5/22/23			
<b>Groundwater</b>																	
<b>Total Metals</b>																	
Arsenic	mg/L	0.01	0.000477 J	<0.0004	0.000615 J	<0.0004	0.000812 J	<0.0004	0.000451 J	0.000418 J	0.000762 J	<0.0004	0.000739 J	0.000497 J			
Barium	mg/L	2	<b>0.23</b>	<b>0.235</b>	<b>0.205</b>	<b>0.216</b>	<b>0.239</b>	<b>0.221</b>	<b>0.243</b>	<b>0.232</b>	<b>0.214</b>	<b>0.234</b>	<b>0.242</b>	<b>0.207</b>			
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	<0.0002			
Calcium	mg/L	NS	<b>26.8</b>	<b>25.4</b>	<b>15.8</b>	<b>24.1</b>	<b>25.5</b>	<b>23.9</b>	<b>25.8</b>	<b>24.6</b>	<b>26.4</b>	<b>25.3</b>	<b>27.7</b>	<b>24.8</b>			
Chromium	mg/L	0.1	<0.0004	<0.0004	0.000559 J	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004			
Iron <sup>(a)</sup>	mg/L	0.3	<b>5.12</b>	<b>4.25</b>	<b>2.72</b>	<b>1.81</b>	<b>4.03</b>	<b>4.02</b>	<b>6.09</b>	<b>6.13</b>	<b>0.821</b>	<b>4.76</b>	<b>3.42</b>	<b>2.11</b>			
Lead	mg/L	0.015	0.00144 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006			
Magnesium	mg/L	NS	<b>8.03</b>	<b>8.10</b>	<b>4.32</b>	<b>7.19</b>	<b>7.81</b>	<b>7.66</b>	<b>7.58</b>	<b>7.36</b>	<b>8.02</b>	<b>7.87</b>	<b>8.14</b>	<b>7.47</b>			
Manganese <sup>(a)</sup>	mg/L	0.05	<b>0.412</b>	<b>0.413</b>	<b>0.215</b>	<b>0.317</b>	<b>0.417</b>	<b>0.388</b>	<b>0.388</b>	<b>0.408</b>	<b>0.388</b>	<b>0.403</b>	<b>0.416</b>	<b>0.403</b>			
Mercury	mg/L	0.002	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000310 J	<0.00003	<0.00003			
Nickel	mg/L	0.073	NA	NA	<b>0.00368</b>	<0.0006	NA	NA	<0.0006	<0.0006	NA	NA	<b>0.00531</b>	<0.0006			
Potassium	mg/L	NS	<b>2.93</b>	<b>2.68</b>	<b>2.42</b>	<b>2.62</b>	<b>2.94</b>	<b>2.50</b>	<b>2.70</b>	<b>2.55</b>	<b>3.00</b>	<b>2.60</b>	<b>2.79</b>	<b>2.61</b>			
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	<0.0011			
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	<0.0002			
Sodium	mg/L	NS	<b>31.9</b>	<b>27.7</b>	<b>71.5</b>	<b>27.4</b>	<b>28.0</b>	<b>26.4</b>	<b>30.2</b>	<b>27.8</b>	<b>29.9</b>	<b>30.3</b>	<b>32.2</b>	<b>30.5</b>			
Strontium	mg/L	NS	<b>0.246</b>	<b>0.228</b>	<b>0.183</b>	<b>0.212</b>	<b>0.240</b>	<b>0.208</b>	<b>0.231</b>	<b>0.218</b>	<b>0.241</b>	<b>0.221</b>	<b>0.244</b>	<b>0.223</b>			
Vanadium	mg/L	0.026	NA	NA	0.00434 J	<0.0006	NA	NA	0.00352 J	<0.0006	NA	NA	0.00299 J	<0.0006			
Zinc	mg/L	1.1	<b>0.0147</b>	<b>0.0495</b>	<b>0.350</b>	<b>0.011</b>	<b>0.0107</b>	<b>0.0166</b>	<b>0.0474</b>	<b>0.019</b>	<b>0.00426</b>	<0.002	0.00276 J	<0.002			
<b>Anions/Water Quality Parameters</b>																	
Bicarbonate Alkalinity	mg/L	NS	<b>200</b>	<b>115</b>	<b>116</b>	<b>114</b>	<b>180</b>	<b>115</b>	<b>119</b>	<b>120</b>	<b>258</b>	<b>122</b>	<b>124</b>	<b>128</b>			
Bromide	mg/L	NS	0.0992 J	<0.03	<0.03	<b>0.169</b>	0.0860 J	<0.03	<0.03	<b>0.168</b>	0.0931 J	0.0782 J	<0.03	<b>0.164</b>			
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
Chloride <sup>(a)</sup>	mg/L	250	<b>35.7</b>	<b>26.4</b>	<b>40.7</b>	<b>38.7</b>	<b>23.4</b>	<b>26.3</b>	<b>40.4</b>	<b>38.1</b>	<b>28.7</b>	<b>36.3</b>	<b>37.5</b>	<b>34.1</b>			
Sulfate <sup>(a)</sup>	mg/L	250	<b>2.91</b>	<b>3.67</b>	<b>2.21</b>	<b>3.3</b>	<b>4.11</b>	<b>3.68</b>	<b>2.69</b>	<b>2.9</b>	<b>3.63</b>	<b>2.80</b>	<b>2.12</b>	<b>2.53</b>			
Total Dissolved Solids (TDS) <sup>(a)</sup>	mg/L	500	<b>236</b>	<b>186</b>	<b>210</b>	<b>266</b>	<b>212</b>	<b>200</b>	<b>236</b>	<b>248</b>	<b>226</b>	<b>240</b>	<b>202</b>	<b>222</b>			
pH <sup>(a)</sup>	SI	6.5 - 8.5	NA	7.04 H	NA	7.30 H	NA	7.01 H	NA	7.37 H	NA	6.94 H	NA	7.55 H			
pH (field)	SI	6.5 - 8.5	<b>6.41</b>	NA	<b>5.79</b>	<b>6.68</b>	<b>6.45</b>	<b>6.53</b>	<b>5.89</b>	<b>6.42</b>	<b>6.35</b>	<b>6.53</b>	<b>5.64</b>	<b>6.18</b>			
<b>Sulfides</b>																	
Hydrogen Sulfide	mg/L	NS	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Sulfide	mg/L	NS	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1.7	<1	<1.7	<1.7	<1.7			
<b>Volatile Organic Compounds</b>																	
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			
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			
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			
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			
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			
Xylenes, Total	mg/L	10	<0.0003	<0.0003	<												

**Table 1 (Revised)  
Groundwater Data Summary  
Sulphur Dome  
Calcasieu Parish, Louisiana**

Sample ID Sample Location Sample Interval (ft) Sample Date Sampler			019-1055				019-1603			Cottages Well			6X Brine SN 57788 Brine	007-B Brine SN 67270 3,000' 1/25/23 ERM	Tank Battery Produced Water 722 1,320 0.243 0.722 0.0717 J 9.65 J 8.64 J 0.487 J 1.43			
			WW #19				WW #40			Cottages								
			520'				520'				unknown							
			1/26/23	3/30/23	4/27/23	5/18/23	3/30/23	5/18/23	3/9/23	4/27/23	5/18/23	5/18/23						
Constituent	Units	RECAP GWSS	Groundwater												Brine	Produced Water		
<b>Total Metals</b>			mg/L	0.01	0.000419 J	<0.0004	0.000461 J	<0.0004	0.000974 J	<b>0.0044</b>	<0.0004	0.000464 J	<0.0004	0.0300 J	<0.04	<0.008		
Arsenic	mg/L	0.265	<b>0.263</b>	<b>0.242</b>	<b>0.256</b>	<b>0.258</b>	<b>0.178</b>	<b>0.187</b>	<b>0.187</b>	<b>0.171</b>				<b>0.220</b>	<0.19	<b>60.1</b>		
Barium	mg/L	2	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.01	<0.02	<0.004		
Cadmium	mg/L	0.005	<b>28.7</b>	<b>27.5</b>	<b>24.7</b>	<b>25.9</b>	<b>26.9</b>	<b>56</b>	<b>13.7</b>	<b>14.5</b>	<b>14.5</b>			<b>722</b>	<b>1,320</b>	<b>2,940</b>		
Calcium	mg/L	NS																
Chromium	mg/L	0.1	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.000825 J	<0.0004	<0.0004	<0.0004	0.00103 J	<b>0.243</b>	<b>0.722</b>	0.0717 J		
Iron <sup>(a)</sup>	mg/L	0.3	<b>3.81</b>	<b>3.96</b>	<b>3.48</b>	<b>3.42</b>	<b>12.4</b>	<b>0.69</b>	<b>5.57</b>	<b>2.48</b>	<b>4.76</b>			<b>25.7</b>	9.65 J	1.94 J		
Lead	mg/L	0.015	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.000702 J	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.03	<0.06	<0.012		
Magnesium	mg/L	NS	<b>8.66</b>	<b>8.42</b>	<b>7.32</b>	<b>7.78</b>	<b>8.33</b>	<b>6.58</b>	<b>3.69</b>	<b>3.97</b>	<b>4.05</b>			8.16 J	8.64 J	<b>971</b>		
Manganese <sup>(a)</sup>	mg/L	0.05	<b>0.420</b>	<b>0.400</b>	<b>0.353</b>	<b>0.379</b>	<b>0.506</b>	<b>0.348</b>	<b>0.193</b>	<b>0.192</b>	<b>0.224</b>			<b>0.953</b>	0.487 J	1.43		
Mercury	mg/L	0.002	<0.00003	0.0000300 J	<0.00003	<0.00003	<0.00003	0.0000720 J	<0.00003	<0.00003	<0.00003	0.000117 J		<0.00003	<0.00003	<0.00003		
Nickel	mg/L	0.073	NA	NA	<0.0006	<0.0006	NA	<b>0.00202</b>	NA	<b>0.00330</b>	<b>0.00408</b>		NA	NA	<0.012			
Potassium	mg/L	NS	<b>3.10</b>	<b>2.69</b>	<b>2.54</b>	<b>2.74</b>	<b>2.81</b>	<b>2.61</b>	<b>2.03</b>	<b>2.24</b>	<b>2.31</b>			<b>14.4</b>	13.8 J	<b>185</b>		
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	<0.0550	<0.11	<0.022		
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	<0.01	<0.02	<0.004		
Sodium	mg/L	NS	<b>34.4</b>	<b>32.0</b>	<b>28.5</b>	<b>29.6</b>	<b>32.1</b>	<b>92.9</b>	<b>57.7</b>	<b>65.2</b>	<b>71.2</b>			<b>100,000</b>	<b>82,600</b>	<b>44,000</b>		
Strontium	mg/L	NS	<b>0.262</b>	<b>0.238</b>	<b>0.225</b>	<b>0.24</b>	<b>0.235</b>	<b>0.397</b>	<b>0.160</b>	<b>0.167</b>	<b>0.171</b>			<b>2.66</b>	<b>11.0</b>	<b>134</b>		
Vanadium	mg/L	0.026	NA	NA	0.00320 J	<0.0006	NA	<b>0.0136</b>	NA	0.00270 J	<b>0.0006</b>		NA	NA	<0.012			
Zinc	mg/L	1.1	<b>0.00993</b>	<b>0.0107</b>	<b>0.0163</b>	<b>0.00906</b>	<b>0.0845</b>	<b>0.0231</b>	<b>0.255</b>	<b>0.320</b>	<b>0.202</b>			<b>0.481</b>	<b>1.70</b>	0.0695 J		
<b>Anions/Water Quality Parameters</b>																		
Bicarbonate Alkalinity	mg/L	NS	<b>250</b>	<b>123</b>	<b>119</b>	<b>118</b>	<b>125</b>	<b>183</b>	<b>139</b>	<b>134</b>	<b>139</b>			<b>159</b>	<b>140</b>	<b>204</b>		
Bromide	mg/L	NS	0.0982 J	<0.03	<0.03	<b>0.167</b>	<b>0.101</b>	<0.03	<b>0.102</b>	<b>0.105</b>	<b>0.19</b>			<3	<7.5	<b>79.5</b>		
Carbonate Alkalinity	mg/L	NS	<5	<5	<5	<5	<5	<5	<5	<5	<5			<5	<5	<5		
Chloride <sup>(a)</sup>	mg/L	250	<b>38.3</b>	<b>36.8</b>	<b>40.6</b>	<b>37.6</b>	<b>36.6</b>	<b>115</b>	<b>52.8</b>	<b>55.6</b>	<b>52.8</b>			<b>213,000</b>	<b>201,000</b>	<b>79,900</b>		
Sulfate <sup>(a)</sup>	mg/L	250	<b>3.51</b>	<b>3.39</b>	<b>3.55</b>	<b>3.85</b>	0.426 J	<b>14.5</b>	<0.2	0.286 J	<b>0.574</b>			<b>1,380</b>	<b>3,060</b>	<b>1,340</b>		
Total Dissolved Solids (TDS) <sup>(a)</sup>	mg/L	500	<b>244</b>	<b>230</b>	<b>220</b>	<b>274</b>	<b>206</b>	<b>446</b>	<b>274</b>	<b>250</b>	<b>284</b>			<b>239,000</b>	<b>300,000</b>	<b>161,000</b>		
pH <sup>(a)</sup>	SI	6.5 - 8.5	NA	7.16 H	NA	7.14 H	7.23 H	8.02 H	NA	NA	7.63 H			NA	NA	6.97 H		
pH (field)	SI	6.5 - 8.5	<b>6.82</b>	<b>6.53</b>	<b>5.84</b>	<b>6.46</b>	<b>6.68</b>	<b>6.65</b>		<b>5.73</b>	<b>7.06</b>			NA	NA	NA		
<b>Sulfides</b>																		
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	1.7		
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	<1	<1.7		
<b>Volatile Organic Compounds</b>																		
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	<b>0.170</b>	<b>0.092</b>	<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	0.0075 J	<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	<b>0.110</b>	<b>0.025</b>	<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	0.013 J	<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	0.0091 J	<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	<b>0.022</b>	<0.0003	<0.0003		
<b>TPH Fractions</b>																		
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	<b>0.0997</b>	<b>0.0803</b>	0.144		
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	<b>0.107</b>	<b>0.0131</b>		
Aliphatics >C10-C12	mg/L	0.15	<0.															

## 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 (Revised)  
Surface Water Data Summary  
Sulphur Dome  
Calcasieu Parish, Louisiana**

LDNR Sample No.	#1	#3		#4		#5		#6		#7		#8		#9		#10	#12		
	Brine Well 22 BS	BS 1	CP BS 1	BS-3	CP BS 2	BS 4	CP BS 3	BS 5	BS 6	BS 7	BS 8	Brine Pond 4 BS		1101529-BS	BS 12				
	Sample ID	1/25/23	5/18/23	1/30/23	5/22/23	1/30/23	5/22/23	1/30/23	5/17/23	2/28/23	5/18/23	2/28/23	5/17/23	2/28/23	5/18/23	2/10/23	5/18/23		
	Sample Date	1/25/23	5/18/23	1/30/23	5/22/23	1/30/23	5/22/23	1/30/23	5/17/23	2/28/23	5/18/23	2/28/23	5/17/23	2/28/23	5/18/23	2/10/23	5/18/23		
Constituent	Sampler Units	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM		
<b>Bubble Site (Surface Water)</b>																			
<b>Total Metals</b>																			
Arsenic	mg/L	0.00149 J	<b>0.00594</b>	0.000862 J	0.00113 J	0.000868 J	0.00110 J	0.000769 J	0.00139 J	0.000784 J	0.00108 J	0.000886 J	0.00118 J	0.000975 J	0.00150 J	0.00176 J	<b>0.00419</b>		
Barium	mg/L	<b>0.300</b>	<b>0.317</b>	<b>0.160</b>	<b>0.156</b>	<b>0.367</b>	<b>0.276</b>	<b>0.155</b>	<b>0.216</b>	<b>0.116</b>	<b>0.152</b>	<b>0.119</b>	<b>0.194</b>	<b>0.127</b>	<b>0.224</b>	<b>0.118</b>	<b>0.168</b>		
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		
Calcium	mg/L	<b>71.2</b>	<b>83.5</b>	<b>75.3</b>	<b>65.9</b>	<b>64.2</b>	<b>69.6</b>	<b>77.7</b>	<b>73.3</b>	<b>66.3</b>	<b>66.3</b>	<b>65.8</b>	<b>66.3</b>	<b>68.1</b>	<b>74</b>	<b>38.6</b>	<b>50.2</b>	<b>55.8</b>	
Chromium	mg/L	0.000847 J	0.00159 J	<0.0004	0.00201 J	<0.0004	<0.0004	<0.0004	0.000998 J	<0.0004	0.000731 J	<0.0004	0.000695 J	<0.0004	0.000627 J	<0.0004	0.000513 J	<0.0004	
Iron	mg/L	<b>1.14</b>	<b>3.04</b>	0.132 J	0.118 J	0.0258 J	0.0647 J	0.125 J	0.160 J	0.0485 J	0.0249 J	0.0546 J	0.0565 J	0.166 J	<b>0.27</b>	<b>0.609</b>	0.0432 J	0.0570 J	
Lead	mg/L	<b>0.00208</b>	<b>0.00466</b>	<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	<b>19.8</b>	<b>16.1</b>	<b>15.0</b>	<b>12.0</b>	<b>12.6</b>	<b>13.6</b>	<b>15.0</b>	<b>14.7</b>	<b>11.7</b>	<b>12.4</b>	<b>11.5</b>	<b>13.2</b>	<b>12</b>	<b>14.7</b>	<b>4.2</b>	<b>5.93</b>	<b>5.64</b>	
Manganese	mg/L	<b>0.797</b>	<b>1.75</b>	<b>0.266</b>	<b>0.389</b>	<b>0.458</b>	<b>0.747</b>	<b>0.232</b>	<b>2.28</b>	<b>0.813</b>	<b>0.645</b>	<b>1.03</b>	<b>2.36</b>	<b>0.972</b>	<b>2.15</b>	<b>0.204</b>	<b>0.614</b>	<b>0.0295</b>	<b>0.885</b>
Nickel	mg/L	NA	<b>0.00641</b>	NA	0.00114 J	NA	<b>0.00385</b>	NA	0.00168 J	NA	0.00124 J	NA	0.00130 J	NA	0.00179 J	NA	0.00192 J	NA	
Mercury	mg/L	<0.00003	0.0000990 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	0.0000670 J	<0.00003	0.000133 J	<0.00003	0.000109 J	<0.00003	<0.00003	<0.00003	
Potassium	mg/L	<b>2.57</b>	<b>2.83</b>	<b>2.90</b>	<b>2.17</b>	<b>2.58</b>	<b>2.34</b>	<b>2.86</b>	<b>2.53</b>	<b>2.31</b>	<b>2.18</b>	<b>2.36</b>	<b>2.19</b>	<b>2.39</b>	<b>2.54</b>	<b>1.17</b>	<b>2.39</b>	<b>2.44</b>	
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	<b>156</b>	<b>123</b>	<b>174</b>	<b>155</b>	<b>166</b>	<b>176</b>	<b>19.1</b>	<b>203</b>	<b>142</b>	<b>161</b>	<b>140</b>	<b>171</b>	<b>144</b>	<b>196</b>	<b>64.6</b>	<b>83.4</b>	<b>37.6</b>	
Strontium	mg/L	<b>0.619</b>	<b>0.598</b>	<b>0.556</b>	<b>0.479</b>	<b>0.482</b>	<b>0.532</b>	<b>0.578</b>	<b>0.552</b>	<b>0.441</b>	<b>0.496</b>	<b>0.426</b>	<b>0.509</b>	<b>0.457</b>	<b>0.56</b>	<b>0.243</b>	<b>0.35</b>	<b>0.237</b>	
Vanadium	mg/L	NA	<b>0.00639</b>	NA	0.00324 J	NA	0.00181 J	NA	0.00207 J	NA	0.00171 J	NA	0.00226 J	NA	0.00434 J	NA	<b>0.0105</b>	NA	
Zinc	mg/L	<b>0.00857</b>	<b>0.0179</b>	<b>0.00452</b>	<b>0.0448</b>	0.00213 J	0.00289 J	<b>0.00748</b>	0.00250 J	<0.002	0.00307 J	<0.002	<b>0.0171</b>	<b>0.0658</b>	<b>0.0171</b>	0.00496	<b>0.0221</b>	<b>0.00654</b>	<b>0.0445</b>
<b>Anions/Water Quality Parameters</b>																			
Bicarbonate Alkalinity	mg/L	<b>269</b>	<b>178</b>	<b>241</b>	<b>149</b>	<b>238</b>	<b>164</b>	<b>245</b>	<b>150</b>	<b>148</b>	<b>143</b>	<b>162</b>	<b>147</b>	<b>144</b>	<b>148</b>	<b>163</b>	<b>188</b>	<b>107</b>	
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	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Chloride	mg/L	<b>317</b>	<b>213</b>	<b>308</b>	<b>322</b>	<b>296</b>	<b>340</b>	<b>343</b>	<b>332</b>	<b>253</b>	<b>302</b>	<b>253</b>	<b>333</b>	<b>251</b>	<b>333</b>	<b>95.8</b>	<b>117</b>	<b>47</b>	
Sulfate	mg/L	<b>45.2</b>	<b>70.3</b>	<b>113</b>	<b>89.6</b>	<b>111</b>	<b>83.5</b>	<b>135</b>	<b>82.9</b>	<b>96.8</b>	<b>90.7</b>	<b>95.1</b>	<b>85.7</b>	<b>96.2</b>	<b>84.9</b>	<b>16.5</b>	<b>13.3</b>	<b>133</b>	
Total Dissolved Solids (TDS)	mg/L	<b>676</b>	<b>760.0</b>	<b>80.0</b>	<b>880.0</b>	<b>512</b>	<b>864</b>	<b>892</b>	<b>792</b>	<b>710</b>	<b>784</b>	<b>712</b>	<b>832</b>	<b>748</b>	<b>836</b>	<b>290</b>	<b>416</b>	<b>412</b>	
pH	SI	NA	7.20 H	NA	7.75 H	NA	7.66 H	NA	7.79 H	NA	7.96 H	NA	7.95 H	NA	8.00 H	NA	8.09 H	NA	
<b>Sulfides</b>																			
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	<b>23.9</b>	<0.5	
Sulfide	mg/L	<1	<1.7	<1	<1.7	<1	<1.7	&											

## 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.

Table 2 (Revised)  
**Surface Water Data Summary**  
 Sulphur Dome  
 Calcasieu Parish, Louisiana

LDNR Sample No.	Sample ID	#17		#18		#19		#21		#22		#23		#24		WPB PPB No.7A		WPB PPB No.7B		#2	#20	
		BS 17		BS 18		BS 19		No. 21		No. 22		No. 23		BS 24		Brine Well 7A BS		Brine Well 7B BS				
		Sample Date	2/28/23	5/17/23	2/28/23	5/17/23	2/28/23	5/18/23	3/30/23	5/17/23	3/30/23	5/17/23	3/30/23	5/18/23	5/22/23	1/25/23	2/16/23	5/18/23				
		Sampler	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM				
Constituent Units	Bubble Site (Surface Water)																					
<b>Total Metals</b>																						
Arsenic mg/L	0.000797 J	0.00130 J	0.000916 J	0.00124 J	<b>0.00355</b>	<0.0004	0.000855 J	0.00115 J	0.000998 J	0.00120 J	0.000930 J	0.00126 J	0.00124 J	0.000767 J	0.0202 J	<0.0004	0.00141 J	0.00192 J	0.00109 J			
Barium mg/L	<b>0.118</b>	<b>0.188</b>	<b>0.125</b>	<b>0.183</b>	<b>0.127</b>	<b>0.149</b>	<b>0.116</b>	<b>0.163</b>	<b>0.135</b>	<b>0.175</b>	<b>0.132</b>	<b>0.18</b>	<b>0.226</b>	<b>0.232</b>	<b>1.23</b>	<b>0.118</b>	<b>0.0832</b>	<b>0.146</b>	<b>0.43</b>			
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	<0.01	<0.0002	<0.0002	<0.0002			
Calcium mg/L	<b>65.8</b>	<b>71.3</b>	<b>68.6</b>	<b>70.1</b>	<b>62</b>	<b>19.8</b>	<b>78.4</b>	<b>65.5</b>	<b>89.2</b>	<b>71.9</b>	<b>84.1</b>	<b>73.1</b>	<b>71.8</b>	<b>24.5</b>	<b>141</b>	<b>23.8</b>	<b>58.2</b>	<b>149</b>	<b>8.98</b>			
Chromium mg/L	<0.0004	0.00127 J	<0.0004	0.000762 J	<0.0004	0.000530 J	<0.0004	0.000779 J	<0.0004	0.000811 J	<0.0004	0.000789 J	<0.0004	0.000474 J	0.114 J	0.00175 J	0.00101 J	0.00458 J	<0.0004			
Iron mg/L	0.0795 J	0.0852 J	0.0686 J	0.0526 J	0.102 J	<b>2.43</b>	0.0273 J	0.0315 J	0.0375 J	0.0302 J	0.0270 J	0.0654 J	<b>0.327</b>	0.0406 J	3.34 J	<b>0.98</b>	<b>0.207</b>	<b>2.07</b>	0.148 J			
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	<0.03	<b>0.00245</b>	<0.0006	<0.0006			
Magnesium mg/L	<b>11.5</b>	<b>14.1</b>	<b>12</b>	<b>14</b>	<b>4.36</b>	<b>6.72</b>	<b>13.9</b>	<b>13.1</b>	<b>15.9</b>	<b>14.4</b>	<b>14.8</b>	<b>13.7</b>	<b>12.5</b>	<b>1.54</b>	2.85 J	<b>1.73</b>	<b>5.44</b>	<b>37.8</b>	<b>1.6</b>			
Manganese mg/L	<b>1</b>	<b>1.29</b>	<b>1.03</b>	<b>1.43</b>	<b>0.24</b>	<b>0.314</b>	<b>0.445</b>	<b>0.99</b>	<b>0.43</b>	<b>1.04</b>	<b>0.379</b>	<b>1.08</b>	<b>0.574</b>	<b>0.0215</b>	<b>0.509</b>	<b>0.161</b>	<b>0.00934</b>	<b>0.847</b>	<b>0.0163</b>			
Nickel mg/L	NA	0.00159 J	NA	0.00144 J	NA	<0.0006	NA	0.00143 J	NA	0.00142 J	NA	0.00147 J	0.000869 J	NA	NA	<b>0.000358</b>	NA	NA	NA			
Mercury mg/L	<0.00003	<b>0.000338</b>	<0.00003	0.000970 J	<0.00003	<b>0.000407</b>	<0.00003	0.000151 J	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003			
Potassium mg/L	<b>2.36</b>	<b>2.42</b>	<b>2.42</b>	<b>2.35</b>	<b>0.962</b>	<b>3.03</b>	<b>2.15</b>	<b>2.21</b>	<b>2.45</b>	<b>2.37</b>	<b>2.33</b>	<b>2.51</b>	<b>2.6</b>	<b>1.02</b>	1.78 J	<b>1.3</b>	<b>2.86</b>	<b>3.22</b>	<b>1.2</b>			
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	<0.055	<0.0011	<0.0002	<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	<0.0002			
Sodium mg/L	<b>137</b>	<b>197</b>	<b>143</b>	<b>189</b>	<b>71.2</b>	<b>58.3</b>	<b>186</b>	<b>169</b>	<b>211</b>	<b>195</b>	<b>205</b>	<b>175</b>	<b>161</b>	<b>8.45</b>	<b>26,400</b>	<b>1,390</b>	<b>158</b>	<b>1080</b>	<b>27.5</b>			
Strontium mg/L	<b>0.435</b>	<b>0.54</b>	<b>0.452</b>	<b>0.536</b>	<b>0.338</b>	<b>0.17</b>	<b>0.495</b>	<b>0.501</b>	<b>0.559</b>	<b>0.545</b>	<b>0.542</b>	<b>0.546</b>	<b>0.519</b>	<b>0.167</b>	<b>0.678</b>	<b>0.16</b>	<b>0.341</b>	<b>0.941</b>	<b>0.134</b>			
Vanadium mg/L	NA	0.00221 J	NA	0.00207 J	NA	<0.0006	NA	0.00184 J	NA	0.00197 J	NA	0.00167 J	0.00246 J	NA	NA	0.00113 J	NA	NA	NA			
Zinc mg/L	<b>0.0119</b>	<0.002	<0.002	<b>0.00659</b>	<b>0.00535</b>	<b>0.132</b>	<0.002	<b>0.0657</b>	<b>0.00431</b>	<b>0.0368</b>	0.00291 J	<b>0.0588</b>	0.00278 J	<b>0.0466</b>	<b>1.97</b>	<b>0.451</b>	<b>0.0153</b>	<b>0.0258</b>	<0.002			
<b>Anions/Water Quality Parameters</b>																						
Bicarbonate Alkalinity mg/L	<b>144</b>	<b>149</b>	<b>148</b>	<b>146</b>	<b>240</b>	<b>159</b>	<b>162</b>	<b>147</b>	<b>162</b>	<b>148</b>	<b>162</b>	<b>148</b>	<b>176</b>	<b>159</b>	<b>128</b>	<b>78.4</b>	<b>210</b>	<b>495</b>	<b>37.4</b>			
Bromide mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<b>0.144</b>	<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	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
Chloride mg/L	<b>248</b>	<b>328</b>	<b>248</b>	<b>331</b>	<b>98.4</b>	<b>30.1</b>	<b>342</b>	<b>334</b>	<b>343</b>	<b>330</b>	<b>346</b>	<b>312</b>	<b>314</b>	<b>6.45</b>	<b>55,900</b>	<b>2,400</b>	<b>215</b> </					

**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	NM
2.55	6.3	1321	-4	17.1	NM

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

Notes:

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

Table 4  
**Gas Data Summary**  
 Sulphur Dome  
 Calcasieu Parish, Louisiana

Component	Sample Location Sample ID Sample Date Sampler	LDNR #1	LDNR #3	LDNR #4	LDNR #5	LDNR #6	LDNR #7	LDNR #8	LDNR #9	LDNR #10
		Brine Well 22 BS	CP BS 1	CP BS 2	CP BS 3	BS 06	BS 07	BS 08	Brine Pond 4	1101529-BS
		1/25/23	1/30/23	1/30/23	1/30/23	2/28/23	2/28/23	2/28/23	2/10/23	2/10/23
		ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Surface Water (Bubble Site)										
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND	ND	0.034	ND
Helium	mol%	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrogen	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND
Argon	mol%	1.35	1.04	0.905	1.54	1.68	1.66	1.31	1.14	0.837
Oxygen	mol%	0.47	8.91	15.5	21.68	21.86	22.94	16.43	22.32	14.68
Nitrogen	mol%	61.78	45.65	65.33	69.85	72.96	71.73	57.26	75.05	59.75
Carbon Dioxide	mol%	7.47	3.58	1.29	2.47	3.22	3.27	2.88	0.61	1.04
Methane	mol%	28.45	40.41	16.69	4.39	0.278	0.398	21.89	0.845	23.55
Ethane	mol%	0.287	0.261	0.209	0.0472	0.0042	0.0050	0.146	0.0022	0.12
Ethylene	mol%	ND	0.0097	0.0067	0.0022	ND	ND	0.0044	ND	ND
Propane	mol%	0.0926	0.0702	0.0445	0.0128	ND	0.0006	0.0482	0.0004	0.0084
Propylene	mol%	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iso-butane	mol%	0.0216	0.0259	0.0115	0.0033	ND	ND	0.0158	ND	0.0112
N-butane	mol%	0.0216	0.0189	0.0091	0.0028	ND	ND	0.0108	ND	ND
Iso-pentane	mol%	0.0083	0.0083	0.0032	0.0006	ND	ND	0.0034	ND	0.0019
N-pentane	mol%	0.0055	0.0051	0.0019	ND	ND	ND	0.0015	ND	ND
Hexanes +	mol%	0.0449	0.0083	0.0029	0.0039	0.0012	0.0013	0.0030	0.0007	0.0012
<b>Methane Stable Isotopes</b>										
$\delta^{13}\text{C}$	‰	-33.03	-34.2	-38.37	-35.45	NA	-36.7	-34.96	-33.1	-35.63
$\delta\text{D}$	‰	-129.6	-147.2	-160.5	-143	NA	NA	-143.1	-81	-151.4

Notes

**Bolded** values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

Table 4  
**Gas Data Summary**  
 Sulphur Dome  
 Calcasieu Parish, Louisiana

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

Notes

**Bolded** values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

Table 4  
**Gas Data Summary**  
 Sulphur Dome  
 Calcasieu Parish, Louisiana

Component	Units	Sample Location	Sulphur Dome	LDNR #20	WW #11			WW #13			WW #12		
			Central Pond	No. 20	019-580			019-582			019-995		
		Sampler	1/25/23	3/9/23	1/26/23	3/30/23	4/27/23	1/26/23	3/30/23	4/27/23	1/26/23	3/30/23	4/27/23
			ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM
Surface Water			Water Well										
Carbon Monoxide	mol%	0.26	0.023	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Helium	mol%	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
Argon	mol%	1.98	1.01	1.64	1.17	1.66	1.76	1.27	1.61	1.75	1.29	1.61	
Oxygen	mol%	0.41	22.40	5.59	14.38	9.66	5.03	13.10	8.07	6.3	11.66	11.53	
Nitrogen	mol%	84.79	76.38	79.08	80.66	76.17	82.36	80.92	80.13	80.84	81.99	77.35	
Carbon Dioxide	mol%	12.25	0.16	13.23	3.75	11.99	10.83	4.66	9.64	10.81	4.83	9.19	
Methane	mol%	0.302	0.0245	0.456	0.0421	0.517	0.0186	0.0516	0.547	0.294	0.231	0.313	
Ethane	mol%	0.0015	ND	ND	ND	0.0007	ND	ND	0.0022	ND	0.0005	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%	0.0037	0.005	0.0042	0.0008	0.0039	0.0018	0.0007	0.0027	0.0019	0.0018	0.0034	
<b>Methane Stable Isotopes</b>													
$\delta^{13}\text{C}$	‰	NA	NA	-56.4	NA	-59.6	NA	NA	-62.3	NA	-56.6	-68.7	
$\delta\text{D}$	‰	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)

Table 4  
**Gas Data Summary**  
 Sulphur Dome  
 Calcasieu Parish, Louisiana

Component	Units	WW #19		WW #40	Cottages Well	SN 57788 6X Brine 1/25/23 Brine	SN 209459 Fee 1012 1/25/23 ERM Gas
		019-1055		019-1603			
		Sample Date	Sampler	1/26/23 ERM	3/30/23 ERM	4/27/23 ERM	3/30/23 ERM
		Water Well					
Carbon Monoxide	mol%	ND	ND	ND	ND	ND	ND
Helium	mol%	NA	NA	NA	NA	NA	ND
Hydrogen	mol%	ND	ND	ND	ND	ND	1.40
Argon	mol%	1.39	1.23	1.68	1.26	1.43	1.91
Oxygen	mol%	9.78	13.74	9.15	11.67	20.30	0.74
Nitrogen	mol%	82	80.18	78.32	82.50	70.51	79.17
Carbon Dioxide	mol%	6.53	4.67	10.43	3.77	7.28	5.31
Methane	mol%	0.3	0.180	0.411	0.802	0.476	11.72
Ethane	mol%	0.0013	0.0007	0.0017	0.0009	ND	0.462
Ethylene	mol%	ND	ND	ND	ND	ND	0.0193
Propane	mol%	ND	ND	ND	ND	ND	0.389
Propylene	mol%	ND	ND	ND	ND	ND	0.0006
Iso-butane	mol%	ND	ND	ND	ND	ND	0.0312
N-butane	mol%	ND	ND	ND	ND	ND	0.0893
Iso-pentane	mol%	ND	ND	ND	ND	ND	0.0162
N-pentane	mol%	ND	ND	ND	ND	ND	0.0193
Hexanes +	mol%	0.002	0.0015	0.0034	0.0013	0.0015	0.12
<b>Methane Stable Isotopes</b>							
$\delta^{13}\text{C}$	‰	-53.9	-53.5	-52.7	-89.5	-76.1	-38.98
$\delta\text{D}$	‰	NA	NA	NA	-282	NA	-171.7
							-45.41
							-168.6

Notes

**Bolded** values detected in the sample.

ND - Not Detected

NA - Not Analyzed (insufficient volume)

**Table 5**  
**Oil Data Summary**  
**Sulphur Dome**  
**Calcasieu Parish, Louisiana**

Constituent	Cavern Oil								Produced Oil					Stock Tank	
	Sample ID	Westlake 7B	Westlake 7B	Westlake 7B	Westlake 7B	7B Oil	Cavern 7B	Cavern 4	Yellowrock 969	209459	185997	210185	Tank Battery	Pad Oil	
	Sample Date	5/11/22	6/14/22	8/16/22	11/2/22	1/18/23	3/30/23	5/25/23	5/25/23	11/2/22	5/2/23	5/2/23	5/25/23	5/25/23	1/18/23
	Location	Shore Tank @ Boardwalk Composite	Shore Tank @ Boardwalk Composite	Cavern 7	Cavern 7	Cavern 7 frac tank	Cavern 7	Cavern 4	SN 189416 Well Sample	SN 209459 Well Sample	SN 185997 Well Sample	SN 210185 Well Sample	Tank Battery	Pad Oil Pump Oil	
	Sampler Units	Intertek	Intertek	Intertek	Intertek	ERM	ERM	ERM	Intertek	ERM	ERM	ERM	ERM	Intertek	
Average API Gravity	°	30.3	32.8	34.1	32.8	34.0	33.6	33.52	31.21	26.0	22.81	21.53	22.79	26.95	29.1
Sulfur	Wt %	1.48	1.3788	1.36	1.38	1.4	1.37	1.401	1.548	0.302	0.435	0.407	0.476	0.327	1.17
Vanadium	mg/kg	20.6	4.035	2.85	22.8	100	23	42	1.23	2	2	2	1	19	
Nickel	mg/kg	26.2	1.401	0.986	6.11	5.88	26	6	9	7.04	8	9	10	6	4.94
Iron	mg/kg	<0.1	2.304	0.014	0.002	0	12	<1	4	6.57	13	6	59	15	24.5
Salt	lb/1000 bbl	<1.0	0.57	5	<1.0	2.1	18	5.0	10.4	363.36	1,290	1,015	9.8	32.0	46.7
Organic Chloride	mg/kg	5.1	4.5	6.9	4.8	2.5	<1.0	<1.0	<1.0	89.0	<1	<1	<1.0	<1.0	63.7
Total Chloride	mg/kg	5.5	5.19	10.5	5.5	9.7	NA	NA	NA	146.1	NA	NA	NA	NA	202.9
Inorganic Chloride	mg/kg	0.4	0.69	3.7	0.7	7.2	NA	NA	NA	57.1	NA	NA	NA	NA	139.2
Specific Gravity	°	NA	NA	NA	NA	NA	0.8571	0.8575	0.8696	NA	0.917	0.9246	0.9171	0.893	NA
Density	g/ml	NA	NA	NA	NA	NA	0.8562	0.8566	0.8688	NA	0.9161	0.9237	0.9162	0.8921	NA

Notes:

< Not detected at the reporting limit shown.

**Bolded** values detected in sample

NA - Not Analyzed

**ATTACHMENT 1:            LABORATORY REPORTS**



right solutions.  
right partner.

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10450 Stancliff Rd. Suite 210  
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June 06, 2023

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

Work Order: **HS23051456**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 17 sample(s) on May 19, 2023 for the analysis presented in the following report.

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

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

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

Sincerely,

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

Generated By: JUMOKE.LAWAL

Bernadette A. Fini  
Project Manager

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**Work Order:** HS23051456

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23051456-01	BS-17	Water		17-May-2023 10:45	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-02	BS-5	Water		17-May-2023 11:45	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-03	BS-18	Water		17-May-2023 12:15	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-04	BS-21	Water		17-May-2023 14:15	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-05	BS-22	Water		17-May-2023 14:35	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-06	BS-7	Water		17-May-2023 15:00	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-07	BS-23	Water		18-May-2023 08:15	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-08	BS-6	Water		18-May-2023 08:40	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-09	BS-12	Water		18-May-2023 09:00	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-10	BS-8	Water		18-May-2023 09:30	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-11	BS-9	Water		18-May-2023 10:20	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-12	BS-19	Water		18-May-2023 11:00	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-13	BS-1	Water		18-May-2023 13:30	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-14	MW 019-1603	Water		18-May-2023 13:00	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-15	BS-7B- Brine	Water		18-May-2023 14:45	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-16	Cottages	Water		18-May-2023 15:50	19-May-2023 14:20	<input type="checkbox"/>
HS23051456-17	MW 019-1055	Water		18-May-2023 16:30	19-May-2023 14:20	<input type="checkbox"/>

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**Work Order:** HS23051456

**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: 194516**

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

**GC Volatiles by Method MA VPH****Batch ID: R436073,R436085**

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

**GCMS Volatiles by Method SW8260****Batch ID: R436083,R436208**

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

**Metals by Method SW7470A****Batch ID: 194749,194750**

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

**Metals by Method SW6020A****Batch ID: 194591****Sample ID: BS-17 (HS23051456-01MS)**

- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount. Manganese, Strontium.

**Sample ID: BS-17 (HS23051456-01PDS)**

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

**WetChemistry by Method SM2320B****Batch ID: R436440,R436614**

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

**WetChemistry by Method SM4500H+ B****Batch ID: R436676,R436971,R437077**

- 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:** HS23051456

**CASE NARRATIVE****WetChemistry by Method SW9056****Batch ID: R436744****Sample ID: BS-17 (HS23051456-01MS)**

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

**Batch ID: R436739****Sample ID: BS-7B- Brine (HS23051456-15)**

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

**WetChemistry by Method M2540C****Batch ID: R436139,R436316,R436318**

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

**WetChemistry by Method E376.1****Batch ID: R436097**

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

**WetChemistry by Method SM4500 S2-F****Batch ID: R436054**

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-17  
 Collection Date: 17-May-2023 10:45

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 04:57
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 04:57
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 04:57
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 04:57
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 04:57
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 04:57
<i>Surr: 1,2-Dichloroethane-d4</i>	90.1			70-126	%REC	1	24-May-2023 04:57
<i>Surr: 4-Bromofluorobenzene</i>	96.9			77-113	%REC	1	24-May-2023 04:57
<i>Surr: Dibromofluoromethane</i>	89.1			77-123	%REC	1	24-May-2023 04:57
<i>Surr: Toluene-d8</i>	98.7			82-127	%REC	1	24-May-2023 04:57
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 15:16
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 15:16
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 15:16
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	23-May-2023 15:16
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	23-May-2023 15:16
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	31-May-2023 22:29
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	31-May-2023 22:29
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	31-May-2023 22:29
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	31-May-2023 22:29
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	31-May-2023 22:29
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	31-May-2023 22:29
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	31-May-2023 22:29
<i>Surr: 1-Chlorooctadecane</i>	66.8			40-140	%REC	1	31-May-2023 22:29
<i>Surr: 2-Bromonaphthalene</i>	81.4			40-140	%REC	1	31-May-2023 22:29
<i>Surr: 2-Fluorobiphenyl</i>	53.2			40-140	%REC	1	31-May-2023 22:29
<i>Surr: o-Terphenyl</i>	78.5			40-140	%REC	1	31-May-2023 22:29

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-17  
 Collection Date: 17-May-2023 10:45

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00130	J	0.000400	0.00200	mg/L	1	01-Jun-2023 17:50
Barium	0.188		0.00190	0.00400	mg/L	1	01-Jun-2023 17:50
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 17:50
Calcium	71.3		0.0340	0.500	mg/L	1	01-Jun-2023 17:50
Chromium	0.00127	J	0.000400	0.00400	mg/L	1	01-Jun-2023 17:50
Iron	0.0852	J	0.0120	0.200	mg/L	1	01-Jun-2023 17:50
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 17:50
Magnesium	14.1		0.0100	0.200	mg/L	1	01-Jun-2023 17:50
Manganese	1.29		0.000700	0.00500	mg/L	1	01-Jun-2023 17:50
Nickel	0.00159	J	0.000600	0.00200	mg/L	1	01-Jun-2023 17:50
Potassium	2.42		0.0180	0.200	mg/L	1	01-Jun-2023 17:50
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 17:50
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 17:50
Sodium	197		0.280	4.00	mg/L	20	02-Jun-2023 12:42
Strontium	0.540		0.000200	0.00500	mg/L	1	01-Jun-2023 17:50
Vanadium	0.00221	J	0.000600	0.00500	mg/L	1	01-Jun-2023 17:50
Zinc	U		0.00200	0.00400	mg/L	1	01-Jun-2023 17:50
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000338		0.0000300	0.000200	mg/L	1	05-Jun-2023 15:51
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	928		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	149		5.00	5.00	mg/L	1	26-May-2023 15:18
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:18
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.84	H	0.100	0.100	pH Units	1	03-Jun-2023 11:38
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:38
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 12:07
Chloride	328		2.00	5.00	mg/L	10	31-May-2023 12:24
Sulfate	84.7		0.200	0.500	mg/L	1	31-May-2023 12:07

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-5  
 Collection Date: 17-May-2023 11:45

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 05:20
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 05:20
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 05:20
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 05:20
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 05:20
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 05:20
<i>Surr: 1,2-Dichloroethane-d4</i>	91.9			70-126	%REC	1	24-May-2023 05:20
<i>Surr: 4-Bromofluorobenzene</i>	96.5			77-113	%REC	1	24-May-2023 05:20
<i>Surr: Dibromofluoromethane</i>	90.6			77-123	%REC	1	24-May-2023 05:20
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	24-May-2023 05:20
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 15:54
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 15:54
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 15:54
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	23-May-2023 15:54
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	23-May-2023 15:54
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 00:04
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 00:04
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 00:04
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 00:04
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 00:04
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 00:04
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 00:04
<i>Surr: 1-Chlorooctadecane</i>	68.6			40-140	%REC	1	01-Jun-2023 00:04
<i>Surr: 2-Bromonaphthalene</i>	75.4			40-140	%REC	1	01-Jun-2023 00:04
<i>Surr: 2-Fluorobiphenyl</i>	45.1			40-140	%REC	1	01-Jun-2023 00:04
<i>Surr: o-Terphenyl</i>	82.2			40-140	%REC	1	01-Jun-2023 00:04

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-5  
 Collection Date: 17-May-2023 11:45

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00139	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:08
Barium	0.216		0.00190	0.00400	mg/L	1	01-Jun-2023 18:08
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:08
Calcium	73.3		0.0340	0.500	mg/L	1	01-Jun-2023 18:08
Chromium	0.000998	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:08
Iron	0.160	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:08
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:08
Magnesium	14.7		0.0100	0.200	mg/L	1	01-Jun-2023 18:08
Manganese	2.28		0.0140	0.100	mg/L	20	02-Jun-2023 12:48
Nickel	0.00168	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:08
Potassium	2.53		0.0180	0.200	mg/L	1	01-Jun-2023 18:08
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:08
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:08
Sodium	203		0.280	4.00	mg/L	20	02-Jun-2023 12:48
Strontium	0.552		0.000200	0.00500	mg/L	1	01-Jun-2023 18:08
Vanadium	0.00207	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:08
Zinc	0.00250	J	0.00200	0.00400	mg/L	1	01-Jun-2023 18:08
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	05-Jun-2023 15:53
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	792		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	150		5.00	5.00	mg/L	1	26-May-2023 15:23
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:23
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.79	H	0.100	0.100	pH Units	1	03-Jun-2023 11:41
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:41
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 12:30
Chloride	332		2.00	5.00	mg/L	10	31-May-2023 12:36
Sulfate	82.9		0.200	0.500	mg/L	1	31-May-2023 12:30

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-18  
 Collection Date: 17-May-2023 12:15

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 05:42
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 05:42
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 05:42
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 05:42
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 05:42
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 05:42
<i>Surr: 1,2-Dichloroethane-d4</i>	91.1			70-126	%REC	1	24-May-2023 05:42
<i>Surr: 4-Bromofluorobenzene</i>	97.7			77-113	%REC	1	24-May-2023 05:42
<i>Surr: Dibromofluoromethane</i>	91.2			77-123	%REC	1	24-May-2023 05:42
<i>Surr: Toluene-d8</i>	99.6			82-127	%REC	1	24-May-2023 05:42
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 16:32
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 16:32
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 16:32
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 16:32
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	23-May-2023 16:32
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 00:36
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 00:36
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 00:36
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 00:36
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 00:36
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 00:36
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 00:36
<i>Surr: 1-Chlorooctadecane</i>	97.1			40-140	%REC	1	01-Jun-2023 00:36
<i>Surr: 2-Bromonaphthalene</i>	89.0			40-140	%REC	1	01-Jun-2023 00:36
<i>Surr: 2-Fluorobiphenyl</i>	57.7			40-140	%REC	1	01-Jun-2023 00:36
<i>Surr: o-Terphenyl</i>	89.6			40-140	%REC	1	01-Jun-2023 00:36

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-18  
 Collection Date: 17-May-2023 12:15

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00124	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:10
Barium	0.183		0.00190	0.00400	mg/L	1	01-Jun-2023 18:10
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:10
Calcium	70.1		0.0340	0.500	mg/L	1	01-Jun-2023 18:10
Chromium	0.000762	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:10
Iron	0.0526	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:10
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:10
Magnesium	14.0		0.0100	0.200	mg/L	1	01-Jun-2023 18:10
Manganese	1.43		0.000700	0.00500	mg/L	1	01-Jun-2023 18:10
Nickel	0.00144	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:10
Potassium	2.35		0.0180	0.200	mg/L	1	01-Jun-2023 18:10
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:10
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:10
Sodium	189		0.280	4.00	mg/L	20	02-Jun-2023 12:50
Strontium	0.536		0.000200	0.00500	mg/L	1	01-Jun-2023 18:10
Vanadium	0.00207	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:10
Zinc	0.00659		0.00200	0.00400	mg/L	1	01-Jun-2023 18:10
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.0000970	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 15:55
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	748		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	146		5.00	5.00	mg/L	1	26-May-2023 15:29
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:29
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.94	H	0.100	0.100	pH Units	1	03-Jun-2023 11:48
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:48
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 13:05
Chloride	331		2.00	5.00	mg/L	10	31-May-2023 13:11
Sulfate	83.8		0.200	0.500	mg/L	1	31-May-2023 13:05

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-21  
 Collection Date: 17-May-2023 14:15

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 06:05
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 06:05
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 06:05
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 06:05
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 06:05
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 06:05
<i>Surr: 1,2-Dichloroethane-d4</i>	89.4			70-126	%REC	1	24-May-2023 06:05
<i>Surr: 4-Bromofluorobenzene</i>	97.5			77-113	%REC	1	24-May-2023 06:05
<i>Surr: Dibromofluoromethane</i>	90.4			77-123	%REC	1	24-May-2023 06:05
<i>Surr: Toluene-d8</i>	99.0			82-127	%REC	1	24-May-2023 06:05
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 17:10
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 17:10
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 17:10
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	23-May-2023 17:10
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	23-May-2023 17:10
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 01:08
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 01:08
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 01:08
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 01:08
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 01:08
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 01:08
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 01:08
<i>Surr: 1-Chlorooctadecane</i>	88.8			40-140	%REC	1	01-Jun-2023 01:08
<i>Surr: 2-Bromonaphthalene</i>	67.5			40-140	%REC	1	01-Jun-2023 01:08
<i>Surr: 2-Fluorobiphenyl</i>	46.6			40-140	%REC	1	01-Jun-2023 01:08
<i>Surr: o-Terphenyl</i>	81.3			40-140	%REC	1	01-Jun-2023 01:08

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-21  
 Collection Date: 17-May-2023 14:15

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00115	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:12
Barium	0.163		0.00190	0.00400	mg/L	1	01-Jun-2023 18:12
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:12
Calcium	65.5		0.0340	0.500	mg/L	1	01-Jun-2023 18:12
Chromium	0.000779	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:12
Iron	0.0315	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:12
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:12
Magnesium	13.1		0.0100	0.200	mg/L	1	01-Jun-2023 18:12
Manganese	0.990		0.000700	0.00500	mg/L	1	01-Jun-2023 18:12
Nickel	0.00143	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:12
Potassium	2.21		0.0180	0.200	mg/L	1	01-Jun-2023 18:12
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:12
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:12
Sodium	169		0.0140	0.200	mg/L	1	01-Jun-2023 18:12
Strontium	0.501		0.000200	0.00500	mg/L	1	01-Jun-2023 18:12
Vanadium	0.00184	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:12
Zinc	0.0657		0.00200	0.00400	mg/L	1	01-Jun-2023 18:12
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000151	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 15:57
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	776		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	147		5.00	5.00	mg/L	1	26-May-2023 15:34
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:34
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.88	H	0.100	0.100	pH Units	1	03-Jun-2023 11:50
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:50
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 13:17
Chloride	334		2.00	5.00	mg/L	10	31-May-2023 13:23
Sulfate	83.6		0.200	0.500	mg/L	1	31-May-2023 13:17

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-22  
 Collection Date: 17-May-2023 14:35

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 06:27
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 06:27
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 06:27
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 06:27
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 06:27
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 06:27
<i>Surr: 1,2-Dichloroethane-d4</i>	91.2			70-126	%REC	1	24-May-2023 06:27
<i>Surr: 4-Bromofluorobenzene</i>	95.7			77-113	%REC	1	24-May-2023 06:27
<i>Surr: Dibromofluoromethane</i>	90.7			77-123	%REC	1	24-May-2023 06:27
<i>Surr: Toluene-d8</i>	98.6			82-127	%REC	1	24-May-2023 06:27
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 17:49
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 17:49
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 17:49
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 17:49
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	23-May-2023 17:49
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 01:39
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 01:39
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 01:39
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 01:39
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 01:39
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 01:39
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 01:39
<i>Surr: 1-Chlorooctadecane</i>	80.3			40-140	%REC	1	01-Jun-2023 01:39
<i>Surr: 2-Bromonaphthalene</i>	74.5			40-140	%REC	1	01-Jun-2023 01:39
<i>Surr: 2-Fluorobiphenyl</i>	41.2			40-140	%REC	1	01-Jun-2023 01:39
<i>Surr: o-Terphenyl</i>	79.6			40-140	%REC	1	01-Jun-2023 01:39

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-22  
 Collection Date: 17-May-2023 14:35

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00120	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:22
Barium	0.175		0.00190	0.00400	mg/L	1	01-Jun-2023 18:22
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:22
Calcium	71.9		0.0340	0.500	mg/L	1	01-Jun-2023 18:22
Chromium	0.000811	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:22
Iron	0.0302	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:22
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:22
Magnesium	14.4		0.0100	0.200	mg/L	1	01-Jun-2023 18:22
Manganese	1.04		0.000700	0.00500	mg/L	1	01-Jun-2023 18:22
Nickel	0.00142	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:22
Potassium	2.37		0.0180	0.200	mg/L	1	01-Jun-2023 18:22
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:22
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:22
Sodium	195		0.280	4.00	mg/L	20	02-Jun-2023 12:52
Strontium	0.545		0.000200	0.00500	mg/L	1	01-Jun-2023 18:22
Vanadium	0.00197	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:22
Zinc	0.0368		0.00200	0.00400	mg/L	1	01-Jun-2023 18:22
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	05-Jun-2023 15:58
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	812		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	148		5.00	5.00	mg/L	1	26-May-2023 15:40
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:40
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.98	H	0.100	0.100	pH Units	1	03-Jun-2023 11:52
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:52
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 13:28
Chloride	330		2.00	5.00	mg/L	10	31-May-2023 13:34
Sulfate	83.7		0.200	0.500	mg/L	1	31-May-2023 13:28

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-7  
 Collection Date: 17-May-2023 15:00

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 06:49
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 06:49
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 06:49
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 06:49
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 06:49
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 06:49
<i>Surr: 1,2-Dichloroethane-d4</i>	91.0			70-126	%REC	1	24-May-2023 06:49
<i>Surr: 4-Bromofluorobenzene</i>	96.7			77-113	%REC	1	24-May-2023 06:49
<i>Surr: Dibromofluoromethane</i>	91.2			77-123	%REC	1	24-May-2023 06:49
<i>Surr: Toluene-d8</i>	99.8			82-127	%REC	1	24-May-2023 06:49
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 19:44
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 19:44
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 19:44
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	23-May-2023 19:44
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	121			70-130	%REC	1	23-May-2023 19:44
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 02:11
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 02:11
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 02:11
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 02:11
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 02:11
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 02:11
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 02:11
<i>Surr: 1-Chlorooctadecane</i>	54.6			40-140	%REC	1	01-Jun-2023 02:11
<i>Surr: 2-Bromonaphthalene</i>	72.7			40-140	%REC	1	01-Jun-2023 02:11
<i>Surr: 2-Fluorobiphenyl</i>	41.8			40-140	%REC	1	01-Jun-2023 02:11
<i>Surr: o-Terphenyl</i>	59.3			40-140	%REC	1	01-Jun-2023 02:11

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-7  
 Collection Date: 17-May-2023 15:00

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00118	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:23
Barium	0.194		0.00190	0.00400	mg/L	1	01-Jun-2023 18:23
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:23
Calcium	66.3		0.0340	0.500	mg/L	1	01-Jun-2023 18:23
Chromium	0.000695	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:23
Iron	0.0565	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:23
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:23
Magnesium	13.2		0.0100	0.200	mg/L	1	01-Jun-2023 18:23
Manganese	2.36		0.0140	0.100	mg/L	20	02-Jun-2023 12:53
Nickel	0.00130	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:23
Potassium	2.19		0.0180	0.200	mg/L	1	01-Jun-2023 18:23
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:23
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:23
Sodium	171		0.0140	0.200	mg/L	1	01-Jun-2023 18:23
Strontium	0.509		0.000200	0.00500	mg/L	1	01-Jun-2023 18:23
Vanadium	0.00226	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:23
Zinc	0.0171		0.00200	0.00400	mg/L	1	01-Jun-2023 18:23
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000133	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 16:00
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	832		5.00	10.0	mg/L	1	23-May-2023 15:03
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	147		5.00	5.00	mg/L	1	26-May-2023 15:58
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 15:58
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.95	H	0.100	0.100	pH Units	1	03-Jun-2023 11:54
Temp Deg C @pH	22.5	H	0	0	°C	1	03-Jun-2023 11:54
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 13:40
Chloride	333		2.00	5.00	mg/L	10	31-May-2023 13:46
Sulfate	85.7		0.200	0.500	mg/L	1	31-May-2023 13:40

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-23  
 Collection Date: 18-May-2023 08:15

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 07:12
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 07:12
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 07:12
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 07:12
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 07:12
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 07:12
<i>Surr: 1,2-Dichloroethane-d4</i>	90.9			70-126	%REC	1	24-May-2023 07:12
<i>Surr: 4-Bromofluorobenzene</i>	97.4			77-113	%REC	1	24-May-2023 07:12
<i>Surr: Dibromofluoromethane</i>	91.7			77-123	%REC	1	24-May-2023 07:12
<i>Surr: Toluene-d8</i>	98.5			82-127	%REC	1	24-May-2023 07:12
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 20:22
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 20:22
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 20:22
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 20:22
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	121			70-130	%REC	1	23-May-2023 20:22
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 02:43
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 02:43
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 02:43
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 02:43
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 02:43
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 02:43
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 02:43
<i>Surr: 1-Chlorooctadecane</i>	61.3			40-140	%REC	1	01-Jun-2023 02:43
<i>Surr: 2-Bromonaphthalene</i>	80.4			40-140	%REC	1	01-Jun-2023 02:43
<i>Surr: 2-Fluorobiphenyl</i>	45.5			40-140	%REC	1	01-Jun-2023 02:43
<i>Surr: o-Terphenyl</i>	69.3			40-140	%REC	1	01-Jun-2023 02:43

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-23  
 Collection Date: 18-May-2023 08:15

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-07  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00126	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:25
Barium	0.180		0.00190	0.00400	mg/L	1	01-Jun-2023 18:25
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:25
Calcium	73.1		0.0340	0.500	mg/L	1	01-Jun-2023 18:25
Chromium	0.000789	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:25
Iron	0.0654	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:25
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:25
Magnesium	13.7		0.0100	0.200	mg/L	1	01-Jun-2023 18:25
Manganese	1.08		0.000700	0.00500	mg/L	1	01-Jun-2023 18:25
Nickel	0.00147	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:25
Potassium	2.51		0.0180	0.200	mg/L	1	01-Jun-2023 18:25
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:25
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:25
Sodium	175		0.0140	0.200	mg/L	1	01-Jun-2023 18:25
Strontium	0.546		0.000200	0.00500	mg/L	1	01-Jun-2023 18:25
Vanadium	0.00167	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:25
Zinc	0.0588		0.00200	0.00400	mg/L	1	01-Jun-2023 18:25
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000124	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 16:02
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	1,540		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	148		5.00	5.00	mg/L	1	26-May-2023 16:04
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:04
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.79	H	0.100	0.100	pH Units	1	03-Jun-2023 11:56
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 11:56
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 13:52
Chloride	312		2.00	5.00	mg/L	10	31-May-2023 13:58
Sulfate	89.1		0.200	0.500	mg/L	1	31-May-2023 13:52

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-6  
 Collection Date: 18-May-2023 08:40

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 07:34
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 07:34
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 07:34
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 07:34
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 07:34
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 07:34
<i>Surr: 1,2-Dichloroethane-d4</i>	93.3			70-126	%REC	1	24-May-2023 07:34
<i>Surr: 4-Bromofluorobenzene</i>	96.6			77-113	%REC	1	24-May-2023 07:34
<i>Surr: Dibromofluoromethane</i>	92.3			77-123	%REC	1	24-May-2023 07:34
<i>Surr: Toluene-d8</i>	99.5			82-127	%REC	1	24-May-2023 07:34
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 21:00
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 21:00
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 21:00
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 21:00
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	23-May-2023 21:00
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 03:15
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 03:15
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 03:15
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 03:15
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 03:15
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 03:15
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 03:15
<i>Surr: 1-Chlorooctadecane</i>	68.8			40-140	%REC	1	01-Jun-2023 03:15
<i>Surr: 2-Bromonaphthalene</i>	77.9			40-140	%REC	1	01-Jun-2023 03:15
<i>Surr: 2-Fluorobiphenyl</i>	42.6			40-140	%REC	1	01-Jun-2023 03:15
<i>Surr: o-Terphenyl</i>	72.0			40-140	%REC	1	01-Jun-2023 03:15

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-6  
 Collection Date: 18-May-2023 08:40

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-08  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00108	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:27
Barium	0.152		0.00190	0.00400	mg/L	1	01-Jun-2023 18:27
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:27
Calcium	66.3		0.0340	0.500	mg/L	1	01-Jun-2023 18:27
Chromium	0.000731	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:27
Iron	0.0249	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:27
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:27
Magnesium	12.4		0.0100	0.200	mg/L	1	01-Jun-2023 18:27
Manganese	0.645		0.000700	0.00500	mg/L	1	01-Jun-2023 18:27
Nickel	0.00124	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:27
Potassium	2.18		0.0180	0.200	mg/L	1	01-Jun-2023 18:27
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:27
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:27
Sodium	161		0.0140	0.200	mg/L	1	01-Jun-2023 18:27
Strontium	0.496		0.000200	0.00500	mg/L	1	01-Jun-2023 18:27
Vanadium	0.00171	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:27
Zinc	0.00307	J	0.00200	0.00400	mg/L	1	01-Jun-2023 18:27
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.0000670	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 16:03
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	784		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	143		5.00	5.00	mg/L	1	26-May-2023 16:09
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:09
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.96	H	0.100	0.100	pH Units	1	03-Jun-2023 11:58
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 11:58
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 14:27
Chloride	302		2.00	5.00	mg/L	10	31-May-2023 14:32
Sulfate	90.7		0.200	0.500	mg/L	1	31-May-2023 14:27

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-12  
 Collection Date: 18-May-2023 09:00

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	24-May-2023 07:57
Ethylbenzene	U		0.30	1.0	ug/L	1	24-May-2023 07:57
m,p-Xylene	U		0.50	2.0	ug/L	1	24-May-2023 07:57
o-Xylene	U		0.30	1.0	ug/L	1	24-May-2023 07:57
Toluene	U		0.20	1.0	ug/L	1	24-May-2023 07:57
Xylenes, Total	U		0.30	1.0	ug/L	1	24-May-2023 07:57
<i>Surr: 1,2-Dichloroethane-d4</i>	90.9			70-126	%REC	1	24-May-2023 07:57
<i>Surr: 4-Bromofluorobenzene</i>	94.6			77-113	%REC	1	24-May-2023 07:57
<i>Surr: Dibromofluoromethane</i>	92.0			77-123	%REC	1	24-May-2023 07:57
<i>Surr: Toluene-d8</i>	99.1			82-127	%REC	1	24-May-2023 07:57
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 21:39
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 21:39
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 21:39
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 21:39
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	23-May-2023 21:39
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 03:46
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 03:46
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 03:46
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 03:46
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 03:46
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 03:46
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 03:46
<i>Surr: 1-Chlorooctadecane</i>	76.4			40-140	%REC	1	01-Jun-2023 03:46
<i>Surr: 2-Bromonaphthalene</i>	88.6			40-140	%REC	1	01-Jun-2023 03:46
<i>Surr: 2-Fluorobiphenyl</i>	43.5			40-140	%REC	1	01-Jun-2023 03:46
<i>Surr: o-Terphenyl</i>	76.4			40-140	%REC	1	01-Jun-2023 03:46

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-12  
 Collection Date: 18-May-2023 09:00

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-09  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00121	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:29
Barium	0.168		0.00190	0.00400	mg/L	1	01-Jun-2023 18:29
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:29
Calcium	70.2		0.0340	0.500	mg/L	1	01-Jun-2023 18:29
Chromium	0.000565	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:29
Iron	0.0237	J	0.0120	0.200	mg/L	1	01-Jun-2023 18:29
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:29
Magnesium	14.2		0.0100	0.200	mg/L	1	01-Jun-2023 18:29
Manganese	0.732		0.000700	0.00500	mg/L	1	01-Jun-2023 18:29
Nickel	0.00126	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:29
Potassium	2.33		0.0180	0.200	mg/L	1	01-Jun-2023 18:29
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:29
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:29
Sodium	194		0.280	4.00	mg/L	20	02-Jun-2023 12:55
Strontium	0.533		0.000200	0.00500	mg/L	1	01-Jun-2023 18:29
Vanadium	0.00202	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:29
Zinc	0.00299	J	0.00200	0.00400	mg/L	1	01-Jun-2023 18:29
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000206		0.0000300	0.000200	mg/L	1	05-Jun-2023 16:05
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	802		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	146		5.00	5.00	mg/L	1	26-May-2023 16:14
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:14
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	8.07	H	0.100	0.100	pH Units	1	03-Jun-2023 12:00
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 12:00
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	31-May-2023 14:38
Chloride	327		2.00	5.00	mg/L	10	31-May-2023 14:44
Sulfate	84.9		0.200	0.500	mg/L	1	31-May-2023 14:38

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-8  
 Collection Date: 18-May-2023 09:30

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 03:22
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 03:22
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 03:22
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 03:22
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 03:22
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 03:22
<i>Surr: 1,2-Dichloroethane-d4</i>	89.7			70-126	%REC	1	25-May-2023 03:22
<i>Surr: 4-Bromofluorobenzene</i>	93.0			77-113	%REC	1	25-May-2023 03:22
<i>Surr: Dibromofluoromethane</i>	90.0			77-123	%REC	1	25-May-2023 03:22
<i>Surr: Toluene-d8</i>	101			82-127	%REC	1	25-May-2023 03:22
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 22:17
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 22:17
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 22:17
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 22:17
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	23-May-2023 22:17
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 04:18
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 04:18
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 04:18
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 04:18
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 04:18
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 04:18
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 04:18
<i>Surr: 1-Chlorooctadecane</i>	60.7			40-140	%REC	1	01-Jun-2023 04:18
<i>Surr: 2-Bromonaphthalene</i>	73.5			40-140	%REC	1	01-Jun-2023 04:18
<i>Surr: 2-Fluorobiphenyl</i>	41.0			40-140	%REC	1	01-Jun-2023 04:18
<i>Surr: o-Terphenyl</i>	66.9			40-140	%REC	1	01-Jun-2023 04:18

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-8  
 Collection Date: 18-May-2023 09:30

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-10  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 01-Jun-2023			Analyst: JC
Arsenic	0.00150	J	0.000400	0.00200	mg/L	1	01-Jun-2023 18:31
Barium	0.224		0.00190	0.00400	mg/L	1	01-Jun-2023 18:31
Cadmium		U	0.000200	0.00200	mg/L	1	01-Jun-2023 18:31
Calcium	74.0		0.0340	0.500	mg/L	1	01-Jun-2023 18:31
Chromium	0.000627	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:31
Iron	0.270		0.0120	0.200	mg/L	1	01-Jun-2023 18:31
Lead	0.000694	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:31
Magnesium	14.7		0.0100	0.200	mg/L	1	01-Jun-2023 18:31
Manganese	2.15		0.0140	0.100	mg/L	20	02-Jun-2023 12:57
Nickel	0.00179	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:31
Potassium	2.54		0.0180	0.200	mg/L	1	01-Jun-2023 18:31
Selenium		U	0.00110	0.00200	mg/L	1	01-Jun-2023 18:31
Silver		U	0.000200	0.00200	mg/L	1	01-Jun-2023 18:31
Sodium	196		0.280	4.00	mg/L	20	02-Jun-2023 12:57
Strontium	0.560		0.000200	0.00500	mg/L	1	01-Jun-2023 18:31
Vanadium	0.00434	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:31
Zinc	0.0171		0.00200	0.00400	mg/L	1	01-Jun-2023 18:31
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 05-Jun-2023			Analyst: JS
Mercury	0.000109	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 16:07
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide		U	0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	836		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	148		5.00	5.00	mg/L	1	26-May-2023 16:19
Alkalinity, Carbonate (As CaCO <sub>3</sub> )		U	5.00	5.00	mg/L	1	26-May-2023 16:19
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide		U	1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	8.00	H	0.100	0.100	pH Units	1	03-Jun-2023 12:02
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 12:02
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide		U	0.0300	0.100	mg/L	1	31-May-2023 14:50
Chloride	333		2.00	5.00	mg/L	10	31-May-2023 14:56
Sulfate	84.9		0.200	0.500	mg/L	1	31-May-2023 14:50

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-9  
 Collection Date: 18-May-2023 10:20

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 01:08
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 01:08
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 01:08
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 01:08
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 01:08
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 01:08
<i>Surr: 1,2-Dichloroethane-d4</i>	89.4			70-126	%REC	1	25-May-2023 01:08
<i>Surr: 4-Bromofluorobenzene</i>	92.6			77-113	%REC	1	25-May-2023 01:08
<i>Surr: Dibromofluoromethane</i>	90.3			77-123	%REC	1	25-May-2023 01:08
<i>Surr: Toluene-d8</i>	99.2			82-127	%REC	1	25-May-2023 01:08
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 22:55
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 22:55
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 22:55
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	23-May-2023 22:55
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	124			70-130	%REC	1	23-May-2023 22:55
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 04:50
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 04:50
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 04:50
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 04:50
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 04:50
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 04:50
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 04:50
<i>Surr: 1-Chlorooctadecane</i>	75.2			40-140	%REC	1	01-Jun-2023 04:50
<i>Surr: 2-Bromonaphthalene</i>	64.7			40-140	%REC	1	01-Jun-2023 04:50
<i>Surr: 2-Fluorobiphenyl</i>	41.3			40-140	%REC	1	01-Jun-2023 04:50
<i>Surr: o-Terphenyl</i>	83.0			40-140	%REC	1	01-Jun-2023 04:50

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-9  
 Collection Date: 18-May-2023 10:20

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-11  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	0.00419		0.000400	0.00200	mg/L	1	01-Jun-2023 18:33
Barium	0.168		0.00190	0.00400	mg/L	1	01-Jun-2023 18:33
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:33
Calcium	50.2		0.0340	0.500	mg/L	1	01-Jun-2023 18:33
Chromium	0.000513	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:33
Iron	0.694		0.0120	0.200	mg/L	1	01-Jun-2023 18:33
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:33
Magnesium	5.93		0.0100	0.200	mg/L	1	01-Jun-2023 18:33
Manganese	0.614		0.000700	0.00500	mg/L	1	01-Jun-2023 18:33
Nickel	0.00192	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:33
Potassium	2.39		0.0180	0.200	mg/L	1	01-Jun-2023 18:33
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:33
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:33
Sodium	83.4		0.0140	0.200	mg/L	1	01-Jun-2023 18:33
Strontium	0.350		0.000200	0.00500	mg/L	1	01-Jun-2023 18:33
Vanadium	0.0105		0.000600	0.00500	mg/L	1	01-Jun-2023 18:33
Zinc	0.0221		0.00200	0.00400	mg/L	1	01-Jun-2023 18:33
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	05-Jun-2023 16:14
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	416		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	188		5.00	5.00	mg/L	1	26-May-2023 16:24
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:24
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	8.09	H	0.100	0.100	pH Units	1	03-Jun-2023 12:05
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 12:05
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	01-Jun-2023 05:06
Chloride	117		1.00	2.50	mg/L	5	01-Jun-2023 05:12
Sulfate	13.3		0.200	0.500	mg/L	1	01-Jun-2023 05:06

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-19  
 Collection Date: 18-May-2023 11:00

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 03:45
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 03:45
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 03:45
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 03:45
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 03:45
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 03:45
<i>Surr: 1,2-Dichloroethane-d4</i>	87.3			70-126	%REC	1	25-May-2023 03:45
<i>Surr: 4-Bromofluorobenzene</i>	91.6			77-113	%REC	1	25-May-2023 03:45
<i>Surr: Dibromofluoromethane</i>	90.0			77-123	%REC	1	25-May-2023 03:45
<i>Surr: Toluene-d8</i>	101			82-127	%REC	1	25-May-2023 03:45
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	23-May-2023 23:34
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 23:34
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	23-May-2023 23:34
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	23-May-2023 23:34
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	23-May-2023 23:34
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 06:25
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 06:25
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 06:25
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 06:25
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 06:25
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 06:25
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 06:25
<i>Surr: 1-Chlorooctadecane</i>	76.2			40-140	%REC	1	01-Jun-2023 06:25
<i>Surr: 2-Bromonaphthalene</i>	84.2			40-140	%REC	1	01-Jun-2023 06:25
<i>Surr: 2-Fluorobiphenyl</i>	47.8			40-140	%REC	1	01-Jun-2023 06:25
<i>Surr: o-Terphenyl</i>	78.8			40-140	%REC	1	01-Jun-2023 06:25

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-19  
 Collection Date: 18-May-2023 11:00

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-12  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	01-Jun-2023 18:35
<b>Barium</b>	<b>0.149</b>		<b>0.00190</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:35
<b>Calcium</b>	<b>19.8</b>		<b>0.0340</b>	<b>0.500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
<b>Chromium</b>	<b>0.000530</b>	J	<b>0.000400</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
<b>Iron</b>	<b>2.43</b>		<b>0.0120</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:35
<b>Magnesium</b>	<b>6.72</b>		<b>0.0100</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
<b>Manganese</b>	<b>0.314</b>		<b>0.000700</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
Nickel	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:35
<b>Potassium</b>	<b>3.03</b>		<b>0.0180</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:35
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:35
<b>Sodium</b>	<b>58.3</b>		<b>0.0140</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
<b>Strontium</b>	<b>0.170</b>		<b>0.000200</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
Vanadium	U		0.000600	0.00500	mg/L	1	01-Jun-2023 18:35
<b>Zinc</b>	<b>0.132</b>		<b>0.00200</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:35</b>
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
<b>Mercury</b>	<b>0.000407</b>		<b>0.0000300</b>	<b>0.000200</b>	<b>mg/L</b>	<b>1</b>	<b>05-Jun-2023 16:16</b>
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	286		5.00	10.0	mg/L	1	24-May-2023 03:30
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	159		5.00	5.00	mg/L	1	26-May-2023 16:30
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:30
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	8.03	H	0.100	0.100	pH Units	1	03-Jun-2023 12:07
Temp Deg C @pH	22.6	H	0	0	°C	1	03-Jun-2023 12:07
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	0.144		0.0300	0.100	mg/L	1	01-Jun-2023 05:17
Chloride	30.1		0.200	0.500	mg/L	1	01-Jun-2023 05:17
Sulfate	7.50		0.200	0.500	mg/L	1	01-Jun-2023 05:17

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-1  
 Collection Date: 18-May-2023 13:30

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>							
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 04:07
<b>Ethylbenzene</b>	<b>0.58</b>	J	<b>0.30</b>	<b>1.0</b>	<b>ug/L</b>	<b>1</b>	<b>25-May-2023 04:07</b>
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 04:07
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 04:07
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 04:07
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 04:07
<i>Surr: 1,2-Dichloroethane-d4</i>	87.6			70-126	%REC	1	25-May-2023 04:07
<i>Surr: 4-Bromofluorobenzene</i>	94.6			77-113	%REC	1	25-May-2023 04:07
<i>Surr: Dibromofluoromethane</i>	88.6			77-123	%REC	1	25-May-2023 04:07
<i>Surr: Toluene-d8</i>	103			82-127	%REC	1	25-May-2023 04:07
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>							
			<b>Method:MA VPH</b>				Analyst: PJM
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 00:12
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 00:12
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 00:12
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	24-May-2023 00:12
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	24-May-2023 00:12
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>							
			<b>Method:MA EPH</b>		Prep:SW3510 / 31-May-2023		Analyst: PPM
Aliphatics >C10 - C12	0.0202		0.00100	0.00100	mg/L	1	01-Jun-2023 08:59
Aliphatics >C12 - C16	0.234		0.00200	0.00200	mg/L	1	01-Jun-2023 08:59
Aliphatics >C16 - C35	0.876		0.00800	0.00800	mg/L	1	01-Jun-2023 08:59
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 08:59
<b>Aromatics &gt;C12 - C16</b>	<b>0.0179</b>		<b>0.00400</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 08:59</b>
<b>Aromatics &gt;C16 - C21</b>	<b>0.0535</b>		<b>0.00300</b>	<b>0.00300</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 08:59</b>
<b>Aromatics &gt;C21 - C35</b>	<b>0.0511</b>		<b>0.00900</b>	<b>0.00900</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 08:59</b>
<i>Surr: 1-Chlorooctadecane</i>	109			40-140	%REC	1	01-Jun-2023 08:59
<i>Surr: 2-Bromonaphthalene</i>	73.0			40-140	%REC	1	01-Jun-2023 08:59
<i>Surr: 2-Fluorobiphenyl</i>	40.8			40-140	%REC	1	01-Jun-2023 08:59
<i>Surr: o-Terphenyl</i>	83.1			40-140	%REC	1	01-Jun-2023 08:59

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-1  
 Collection Date: 18-May-2023 13:30

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-13  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	0.00594		0.000400	0.00200	mg/L	1	01-Jun-2023 18:37
Barium	0.317		0.00190	0.00400	mg/L	1	01-Jun-2023 18:37
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:37
Calcium	83.5		0.0340	0.500	mg/L	1	01-Jun-2023 18:37
Chromium	0.00159	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:37
Iron	3.04		0.0120	0.200	mg/L	1	01-Jun-2023 18:37
Lead	0.00466		0.000600	0.00200	mg/L	1	01-Jun-2023 18:37
Magnesium	16.1		0.0100	0.200	mg/L	1	01-Jun-2023 18:37
Manganese	1.75		0.000700	0.00500	mg/L	1	01-Jun-2023 18:37
Nickel	0.00641		0.000600	0.00200	mg/L	1	01-Jun-2023 18:37
Potassium	2.83		0.0180	0.200	mg/L	1	01-Jun-2023 18:37
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:37
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:37
Sodium	123		0.0140	0.200	mg/L	1	01-Jun-2023 18:37
Strontium	0.598		0.000200	0.00500	mg/L	1	01-Jun-2023 18:37
Vanadium	0.00639		0.000600	0.00500	mg/L	1	01-Jun-2023 18:37
Zinc	0.0179		0.00200	0.00400	mg/L	1	01-Jun-2023 18:37
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
Mercury	0.0000990	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 16:18
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	760		5.00	10.0	mg/L	1	24-May-2023 04:00
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	178		5.00	5.00	mg/L	1	26-May-2023 16:35
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	26-May-2023 16:35
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: CD
pH	7.20	H	0.100	0.100	pH Units	1	05-Jun-2023 16:26
Temp Deg C @pH	22.1	H	0	0	°C	1	05-Jun-2023 16:26
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	01-Jun-2023 05:29
Chloride	213		1.00	2.50	mg/L	5	01-Jun-2023 05:35
Sulfate	70.3		0.200	0.500	mg/L	1	01-Jun-2023 05:29

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: MW 019-1603  
 Collection Date: 18-May-2023 13:00

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 04:29
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 04:29
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 04:29
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 04:29
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 04:29
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 04:29
<i>Surr: 1,2-Dichloroethane-d4</i>	90.8			70-126	%REC	1	25-May-2023 04:29
<i>Surr: 4-Bromofluorobenzene</i>	92.6			77-113	%REC	1	25-May-2023 04:29
<i>Surr: Dibromofluoromethane</i>	91.9			77-123	%REC	1	25-May-2023 04:29
<i>Surr: Toluene-d8</i>	102			82-127	%REC	1	25-May-2023 04:29
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 00:50
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 00:50
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 00:50
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	24-May-2023 00:50
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	24-May-2023 00:50
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 09:31
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 09:31
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 09:31
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 09:31
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 09:31
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 09:31
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 09:31
<i>Surr: 1-Chlorooctadecane</i>	56.2			40-140	%REC	1	01-Jun-2023 09:31
<i>Surr: 2-Bromonaphthalene</i>	107			40-140	%REC	1	01-Jun-2023 09:31
<i>Surr: 2-Fluorobiphenyl</i>	60.4			40-140	%REC	1	01-Jun-2023 09:31
<i>Surr: o-Terphenyl</i>	98.3			40-140	%REC	1	01-Jun-2023 09:31

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: MW 019-1603  
 Collection Date: 18-May-2023 13:00

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-14  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	0.00440		0.000400	0.00200	mg/L	1	01-Jun-2023 18:39
Barium	0.178		0.00190	0.00400	mg/L	1	01-Jun-2023 18:39
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:39
Calcium	56.0		0.0340	0.500	mg/L	1	01-Jun-2023 18:39
Chromium	0.000825	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:39
Iron	0.690		0.0120	0.200	mg/L	1	01-Jun-2023 18:39
Lead	0.000702	J	0.000600	0.00200	mg/L	1	01-Jun-2023 18:39
Magnesium	6.58		0.0100	0.200	mg/L	1	01-Jun-2023 18:39
Manganese	0.348		0.000700	0.00500	mg/L	1	01-Jun-2023 18:39
Nickel	0.00202		0.000600	0.00200	mg/L	1	01-Jun-2023 18:39
Potassium	2.61		0.0180	0.200	mg/L	1	01-Jun-2023 18:39
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:39
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:39
Sodium	92.9		0.0140	0.200	mg/L	1	01-Jun-2023 18:39
Strontium	0.397		0.000200	0.00500	mg/L	1	01-Jun-2023 18:39
Vanadium	0.0136		0.000600	0.00500	mg/L	1	01-Jun-2023 18:39
Zinc	0.0231		0.00200	0.00400	mg/L	1	01-Jun-2023 18:39
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
Mercury	0.0000720	J	0.0000300	0.000200	mg/L	1	05-Jun-2023 17:14
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	446		5.00	10.0	mg/L	1	24-May-2023 04:00
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	183		5.00	5.00	mg/L	1	30-May-2023 17:10
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 17:10
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	8.02	H	0.100	0.100	pH Units	1	30-May-2023 17:10
Temp Deg C @pH	21.8	H	0	0	°C	1	30-May-2023 17:10
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	01-Jun-2023 05:41
Chloride	115		1.00	2.50	mg/L	5	01-Jun-2023 05:46
Sulfate	14.5		0.200	0.500	mg/L	1	01-Jun-2023 05:41

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-7B- Brine  
 Collection Date: 18-May-2023 14:45

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 04:52
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 04:52
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 04:52
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 04:52
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 04:52
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 04:52
<i>Surr: 1,2-Dichloroethane-d4</i>	89.6			70-126	%REC	1	25-May-2023 04:52
<i>Surr: 4-Bromofluorobenzene</i>	91.3			77-113	%REC	1	25-May-2023 04:52
<i>Surr: Dibromofluoromethane</i>	91.1			77-123	%REC	1	25-May-2023 04:52
<i>Surr: Toluene-d8</i>	98.7			82-127	%REC	1	25-May-2023 04:52
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 01:29
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 01:29
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 01:29
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	24-May-2023 01:29
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	124			70-130	%REC	1	24-May-2023 01:29
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 10:35
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 10:35
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 10:35
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 10:35
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 10:35
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 10:35
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 10:35
<i>Surr: 1-Chlorooctadecane</i>	81.0			40-140	%REC	1	01-Jun-2023 10:35
<i>Surr: 2-Bromonaphthalene</i>	60.4			40-140	%REC	1	01-Jun-2023 10:35
<i>Surr: 2-Fluorobiphenyl</i>	43.0			40-140	%REC	1	01-Jun-2023 10:35
<i>Surr: o-Terphenyl</i>	88.1			40-140	%REC	1	01-Jun-2023 10:35

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-7B- Brine  
 Collection Date: 18-May-2023 14:45

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-15  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	01-Jun-2023 18:45
Barium	0.118		0.00190	0.00400	mg/L	1	01-Jun-2023 18:45
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:45
Calcium	23.8		0.0340	0.500	mg/L	1	01-Jun-2023 18:45
Chromium	0.00175	J	0.000400	0.00400	mg/L	1	01-Jun-2023 18:45
Iron	0.980		0.0120	0.200	mg/L	1	01-Jun-2023 18:45
Lead	0.00245		0.000600	0.00200	mg/L	1	01-Jun-2023 18:45
Magnesium	1.73		0.0100	0.200	mg/L	1	01-Jun-2023 18:45
Manganese	0.161		0.000700	0.00500	mg/L	1	01-Jun-2023 18:45
Nickel	0.00417		0.000600	0.00200	mg/L	1	01-Jun-2023 18:45
Potassium	1.30		0.0180	0.200	mg/L	1	01-Jun-2023 18:45
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:45
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:45
Sodium	1,390		1.40	20.0	mg/L	100	02-Jun-2023 12:59
Strontium	0.160		0.000200	0.00500	mg/L	1	01-Jun-2023 18:45
Vanadium	0.00113	J	0.000600	0.00500	mg/L	1	01-Jun-2023 18:45
Zinc	0.451		0.00200	0.00400	mg/L	1	01-Jun-2023 18:45
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
Mercury	0.000358		0.0000300	0.000200	mg/L	1	05-Jun-2023 17:15
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	4,840		5.00	10.0	mg/L	1	24-May-2023 04:00
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	78.4		5.00	5.00	mg/L	1	30-May-2023 17:21
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 17:21
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	7.65	H	0.100	0.100	pH Units	1	30-May-2023 17:21
Temp Deg C @pH	21.7	H	0	0	°C	1	30-May-2023 17:21
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	U		0.0600	0.200	mg/L	2	01-Jun-2023 05:52
Chloride	2,400		10.0	25.0	mg/L	50	01-Jun-2023 05:58
Sulfate	14.2		0.400	1.00	mg/L	2	01-Jun-2023 05:52

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: Cottages  
 Collection Date: 18-May-2023 15:50

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 05:14
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 05:14
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 05:14
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 05:14
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 05:14
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 05:14
<i>Surr: 1,2-Dichloroethane-d4</i>	90.2			70-126	%REC	1	25-May-2023 05:14
<i>Surr: 4-Bromofluorobenzene</i>	94.3			77-113	%REC	1	25-May-2023 05:14
<i>Surr: Dibromofluoromethane</i>	92.0			77-123	%REC	1	25-May-2023 05:14
<i>Surr: Toluene-d8</i>	99.6			82-127	%REC	1	25-May-2023 05:14
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 03:24
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 03:24
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 03:24
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	24-May-2023 03:24
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	121			70-130	%REC	1	24-May-2023 03:24
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 11:07
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 11:07
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 11:07
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 11:07
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 11:07
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 11:07
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 11:07
<i>Surr: 1-Chlorooctadecane</i>	62.1			40-140	%REC	1	01-Jun-2023 11:07
<i>Surr: 2-Bromonaphthalene</i>	118			40-140	%REC	1	01-Jun-2023 11:07
<i>Surr: 2-Fluorobiphenyl</i>	64.4			40-140	%REC	1	01-Jun-2023 11:07
<i>Surr: o-Terphenyl</i>	110			40-140	%REC	1	01-Jun-2023 11:07

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: Cottages  
 Collection Date: 18-May-2023 15:50

**ANALYTICAL REPORT**

WorkOrder:HS23051456  
 Lab ID:HS23051456-16  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	01-Jun-2023 18:47
<b>Barium</b>	<b>0.171</b>		<b>0.00190</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:47
<b>Calcium</b>	<b>14.5</b>		<b>0.0340</b>	<b>0.500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>Chromium</b>	<b>0.00103</b>	J	<b>0.000400</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
Iron	4.76		0.0120	0.200	mg/L	1	01-Jun-2023 18:47
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:47
<b>Magnesium</b>	<b>4.05</b>		<b>0.0100</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>Manganese</b>	<b>0.224</b>		<b>0.000700</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>Nickel</b>	<b>0.00408</b>		<b>0.000600</b>	<b>0.00200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>Potassium</b>	<b>2.31</b>		<b>0.0180</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:47
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:47
<b>Sodium</b>	<b>71.2</b>		<b>0.0140</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>Strontium</b>	<b>0.171</b>		<b>0.000200</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
Vanadium	U		0.000600	0.00500	mg/L	1	01-Jun-2023 18:47
<b>Zinc</b>	<b>0.202</b>		<b>0.00200</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	<b>01-Jun-2023 18:47</b>
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
<b>Mercury</b>	<b>0.000117</b>	J	<b>0.0000300</b>	<b>0.000200</b>	<b>mg/L</b>	<b>1</b>	<b>05-Jun-2023 17:25</b>
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	284		5.00	10.0	mg/L	1	24-May-2023 04:00
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	139		5.00	5.00	mg/L	1	30-May-2023 17:26
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 17:26
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	7.63	H	0.100	0.100	pH Units	1	30-May-2023 17:26
Temp Deg C @pH	22.1	H	0	0	°C	1	30-May-2023 17:26
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	0.190		0.0300	0.100	mg/L	1	01-Jun-2023 06:27
Chloride	52.8		0.200	0.500	mg/L	1	01-Jun-2023 06:27
Sulfate	0.574		0.200	0.500	mg/L	1	01-Jun-2023 06:27

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: MW 019-1055  
 Collection Date: 18-May-2023 16:30

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-17  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 05:37
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 05:37
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 05:37
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 05:37
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 05:37
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 05:37
<i>Surr: 1,2-Dichloroethane-d4</i>	90.6			70-126	%REC	1	25-May-2023 05:37
<i>Surr: 4-Bromofluorobenzene</i>	92.5			77-113	%REC	1	25-May-2023 05:37
<i>Surr: Dibromofluoromethane</i>	89.7			77-123	%REC	1	25-May-2023 05:37
<i>Surr: Toluene-d8</i>	104			82-127	%REC	1	25-May-2023 05:37
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 04:02
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 04:02
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 04:02
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	24-May-2023 04:02
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	24-May-2023 04:02
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 12:10
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	01-Jun-2023 12:10
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	01-Jun-2023 12:10
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	01-Jun-2023 11:38
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	01-Jun-2023 11:38
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	01-Jun-2023 11:38
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	01-Jun-2023 11:38
<i>Surr: 1-Chlorooctadecane</i>	59.8			40-140	%REC	1	01-Jun-2023 12:10
<i>Surr: 2-Bromonaphthalene</i>	80.5			40-140	%REC	1	01-Jun-2023 11:38
<i>Surr: 2-Fluorobiphenyl</i>	43.1			40-140	%REC	1	01-Jun-2023 11:38
<i>Surr: o-Terphenyl</i>	75.2			40-140	%REC	1	01-Jun-2023 11:38

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: MW 019-1055  
 Collection Date: 18-May-2023 16:30

**ANALYTICAL REPORT**  
 WorkOrder:HS23051456  
 Lab ID:HS23051456-17  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 01-Jun-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	01-Jun-2023 18:49
<b>Barium</b>	<b>0.256</b>		<b>0.00190</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Cadmium	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:49
<b>Calcium</b>	<b>25.9</b>		<b>0.0340</b>	<b>0.500</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Chromium	U		0.000400	0.00400	mg/L	1	01-Jun-2023 18:49
<b>Iron</b>	<b>3.42</b>		<b>0.0120</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Lead	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:49
<b>Magnesium</b>	<b>7.78</b>		<b>0.0100</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
<b>Manganese</b>	<b>0.379</b>		<b>0.000700</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Nickel	U		0.000600	0.00200	mg/L	1	01-Jun-2023 18:49
<b>Potassium</b>	<b>2.74</b>		<b>0.0180</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Selenium	U		0.00110	0.00200	mg/L	1	01-Jun-2023 18:49
Silver	U		0.000200	0.00200	mg/L	1	01-Jun-2023 18:49
<b>Sodium</b>	<b>29.6</b>		<b>0.0140</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
<b>Strontium</b>	<b>0.240</b>		<b>0.000200</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
Vanadium	U		0.000600	0.00500	mg/L	1	01-Jun-2023 18:49
<b>Zinc</b>	<b>0.00906</b>		<b>0.00200</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	01-Jun-2023 18:49
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 05-Jun-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	05-Jun-2023 17:27
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	24-May-2023 11:09
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	274		5.00	10.0	mg/L	1	24-May-2023 04:00
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	118		5.00	5.00	mg/L	1	30-May-2023 17:32
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 17:32
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	24-May-2023 08:34
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	7.14	H	0.100	0.100	pH Units	1	30-May-2023 17:32
Temp Deg C @pH	21.9	H	0	0	°C	1	30-May-2023 17:32
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	0.167		0.0300	0.100	mg/L	1	01-Jun-2023 06:33
Chloride	37.6		0.200	0.500	mg/L	1	01-Jun-2023 06:33
Sulfate	3.85		0.200	0.500	mg/L	1	01-Jun-2023 06:33

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

**Weight / Prep Log****Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23051456**Batch ID:** 194516**Start Date:** 31 May 2023 14:24**End Date:** 31 May 2023 14:24**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051456-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-07	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-08	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-09	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-10	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-11	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-12	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-13	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-14	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-15	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-16	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051456-17	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

**Batch ID:** 194591**Start Date:** 01 Jun 2023 13:00**End Date:** 01 Jun 2023 13:00**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051456-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-10		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-11		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-12		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-13		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-14		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-15		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-16		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-17		10 (mL)	10 (mL)	1	120 plastic HNO3

**Weight / Prep Log****Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23051456**Batch ID:** 194749**Start Date:** 05 Jun 2023 08:30**End Date:** 05 Jun 2023 08:30**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051456-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-06		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-07		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-08		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-09		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-10		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-11		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-12		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-13		10 (mL)	10 (mL)	1	120 plastic HNO3

**Batch ID:** 194750**Start Date:** 05 Jun 2023 08:30**End Date:** 05 Jun 2023 08:30**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051456-14		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-15		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-16		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051456-17		10 (mL)	10 (mL)	1	120 plastic HNO3

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 194516 ( 0 )		<b>Test Name :</b> MASSACHUSETTS EPH R2.1, DEC 2019				
HS23051456-01	BS-17	17 May 2023 10:45		31 May 2023 14:24	31 May 2023 22:29	1
HS23051456-01	BS-17	17 May 2023 10:45		31 May 2023 14:24	31 May 2023 22:29	1
HS23051456-02	BS-5	17 May 2023 11:45		31 May 2023 14:24	01 Jun 2023 00:04	1
HS23051456-02	BS-5	17 May 2023 11:45		31 May 2023 14:24	01 Jun 2023 00:04	1
HS23051456-03	BS-18	17 May 2023 12:15		31 May 2023 14:24	01 Jun 2023 00:36	1
HS23051456-03	BS-18	17 May 2023 12:15		31 May 2023 14:24	01 Jun 2023 00:36	1
HS23051456-04	BS-21	17 May 2023 14:15		31 May 2023 14:24	01 Jun 2023 01:08	1
HS23051456-04	BS-21	17 May 2023 14:15		31 May 2023 14:24	01 Jun 2023 01:08	1
HS23051456-05	BS-22	17 May 2023 14:35		31 May 2023 14:24	01 Jun 2023 01:39	1
HS23051456-05	BS-22	17 May 2023 14:35		31 May 2023 14:24	01 Jun 2023 01:39	1
HS23051456-06	BS-7	17 May 2023 15:00		31 May 2023 14:24	01 Jun 2023 02:11	1
HS23051456-06	BS-7	17 May 2023 15:00		31 May 2023 14:24	01 Jun 2023 02:11	1
HS23051456-07	BS-23	18 May 2023 08:15		31 May 2023 14:24	01 Jun 2023 02:43	1
HS23051456-07	BS-23	18 May 2023 08:15		31 May 2023 14:24	01 Jun 2023 02:43	1
HS23051456-08	BS-6	18 May 2023 08:40		31 May 2023 14:24	01 Jun 2023 03:15	1
HS23051456-08	BS-6	18 May 2023 08:40		31 May 2023 14:24	01 Jun 2023 03:15	1
HS23051456-09	BS-12	18 May 2023 09:00		31 May 2023 14:24	01 Jun 2023 03:46	1
HS23051456-09	BS-12	18 May 2023 09:00		31 May 2023 14:24	01 Jun 2023 03:46	1
HS23051456-10	BS-8	18 May 2023 09:30		31 May 2023 14:24	01 Jun 2023 04:18	1
HS23051456-10	BS-8	18 May 2023 09:30		31 May 2023 14:24	01 Jun 2023 04:18	1
HS23051456-11	BS-9	18 May 2023 10:20		31 May 2023 14:24	01 Jun 2023 04:50	1
HS23051456-11	BS-9	18 May 2023 10:20		31 May 2023 14:24	01 Jun 2023 04:50	1
HS23051456-12	BS-19	18 May 2023 11:00		31 May 2023 14:24	01 Jun 2023 06:25	1
HS23051456-12	BS-19	18 May 2023 11:00		31 May 2023 14:24	01 Jun 2023 06:25	1
HS23051456-13	BS-1	18 May 2023 13:30		31 May 2023 14:24	01 Jun 2023 08:59	1
HS23051456-13	BS-1	18 May 2023 13:30		31 May 2023 14:24	01 Jun 2023 08:59	1
HS23051456-14	MW 019-1603	18 May 2023 13:00		31 May 2023 14:24	01 Jun 2023 09:31	1
HS23051456-14	MW 019-1603	18 May 2023 13:00		31 May 2023 14:24	01 Jun 2023 09:31	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45		31 May 2023 14:24	01 Jun 2023 10:35	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45		31 May 2023 14:24	01 Jun 2023 10:35	1
HS23051456-16	Cottages	18 May 2023 15:50		31 May 2023 14:24	01 Jun 2023 11:07	1
HS23051456-16	Cottages	18 May 2023 15:50		31 May 2023 14:24	01 Jun 2023 11:07	1
HS23051456-17	MW 019-1055	18 May 2023 16:30		31 May 2023 14:24	01 Jun 2023 12:10	1
HS23051456-17	MW 019-1055	18 May 2023 16:30		31 May 2023 14:24	01 Jun 2023 11:38	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 194591 ( 0 )		<b>Test Name :</b> ICP-MS METALS BY SW6020A			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45		01 Jun 2023 13:00	02 Jun 2023 12:42	20
HS23051456-01	BS-17	17 May 2023 10:45		01 Jun 2023 13:00	01 Jun 2023 17:50	1
HS23051456-02	BS-5	17 May 2023 11:45		01 Jun 2023 13:00	02 Jun 2023 12:48	20
HS23051456-02	BS-5	17 May 2023 11:45		01 Jun 2023 13:00	01 Jun 2023 18:08	1
HS23051456-03	BS-18	17 May 2023 12:15		01 Jun 2023 13:00	02 Jun 2023 12:50	20
HS23051456-03	BS-18	17 May 2023 12:15		01 Jun 2023 13:00	01 Jun 2023 18:10	1
HS23051456-04	BS-21	17 May 2023 14:15		01 Jun 2023 13:00	01 Jun 2023 18:12	1
HS23051456-05	BS-22	17 May 2023 14:35		01 Jun 2023 13:00	02 Jun 2023 12:52	20
HS23051456-05	BS-22	17 May 2023 14:35		01 Jun 2023 13:00	01 Jun 2023 18:22	1
HS23051456-06	BS-7	17 May 2023 15:00		01 Jun 2023 13:00	02 Jun 2023 12:53	20
HS23051456-06	BS-7	17 May 2023 15:00		01 Jun 2023 13:00	01 Jun 2023 18:23	1
HS23051456-07	BS-23	18 May 2023 08:15		01 Jun 2023 13:00	01 Jun 2023 18:25	1
HS23051456-08	BS-6	18 May 2023 08:40		01 Jun 2023 13:00	01 Jun 2023 18:27	1
HS23051456-09	BS-12	18 May 2023 09:00		01 Jun 2023 13:00	02 Jun 2023 12:55	20
HS23051456-09	BS-12	18 May 2023 09:00		01 Jun 2023 13:00	01 Jun 2023 18:29	1
HS23051456-10	BS-8	18 May 2023 09:30		01 Jun 2023 13:00	02 Jun 2023 12:57	20
HS23051456-10	BS-8	18 May 2023 09:30		01 Jun 2023 13:00	01 Jun 2023 18:31	1
HS23051456-11	BS-9	18 May 2023 10:20		01 Jun 2023 13:00	01 Jun 2023 18:33	1
HS23051456-12	BS-19	18 May 2023 11:00		01 Jun 2023 13:00	01 Jun 2023 18:35	1
HS23051456-13	BS-1	18 May 2023 13:30		01 Jun 2023 13:00	01 Jun 2023 18:37	1
HS23051456-14	MW 019-1603	18 May 2023 13:00		01 Jun 2023 13:00	01 Jun 2023 18:39	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45		01 Jun 2023 13:00	02 Jun 2023 12:59	100
HS23051456-15	BS-7B- Brine	18 May 2023 14:45		01 Jun 2023 13:00	01 Jun 2023 18:45	1
HS23051456-16	Cottages	18 May 2023 15:50		01 Jun 2023 13:00	01 Jun 2023 18:47	1
HS23051456-17	MW 019-1055	18 May 2023 16:30		01 Jun 2023 13:00	01 Jun 2023 18:49	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 194749 ( 0 )		<b>Test Name :</b> MERCURY BY SW7470A			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45		05 Jun 2023 08:30	05 Jun 2023 15:51	1
HS23051456-02	BS-5	17 May 2023 11:45		05 Jun 2023 08:30	05 Jun 2023 15:53	1
HS23051456-03	BS-18	17 May 2023 12:15		05 Jun 2023 08:30	05 Jun 2023 15:55	1
HS23051456-04	BS-21	17 May 2023 14:15		05 Jun 2023 08:30	05 Jun 2023 15:57	1
HS23051456-05	BS-22	17 May 2023 14:35		05 Jun 2023 08:30	05 Jun 2023 15:58	1
HS23051456-06	BS-7	17 May 2023 15:00		05 Jun 2023 08:30	05 Jun 2023 16:00	1
HS23051456-07	BS-23	18 May 2023 08:15		05 Jun 2023 08:30	05 Jun 2023 16:02	1
HS23051456-08	BS-6	18 May 2023 08:40		05 Jun 2023 08:30	05 Jun 2023 16:03	1
HS23051456-09	BS-12	18 May 2023 09:00		05 Jun 2023 08:30	05 Jun 2023 16:05	1
HS23051456-10	BS-8	18 May 2023 09:30		05 Jun 2023 08:30	05 Jun 2023 16:07	1
HS23051456-11	BS-9	18 May 2023 10:20		05 Jun 2023 08:30	05 Jun 2023 16:14	1
HS23051456-12	BS-19	18 May 2023 11:00		05 Jun 2023 08:30	05 Jun 2023 16:16	1
HS23051456-13	BS-1	18 May 2023 13:30		05 Jun 2023 08:30	05 Jun 2023 16:18	1
<b>Batch ID:</b> 194750 ( 0 )		<b>Test Name :</b> MERCURY BY SW7470A			<b>Matrix:</b> Water	
HS23051456-14	MW 019-1603	18 May 2023 13:00		05 Jun 2023 08:30	05 Jun 2023 17:14	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45		05 Jun 2023 08:30	05 Jun 2023 17:15	1
HS23051456-16	Cottages	18 May 2023 15:50		05 Jun 2023 08:30	05 Jun 2023 17:25	1
HS23051456-17	MW 019-1055	18 May 2023 16:30		05 Jun 2023 08:30	05 Jun 2023 17:27	1
<b>Batch ID:</b> R436054 ( 0 )		<b>Test Name :</b> SULFIDE BY SM4500 S2-F-2011			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			24 May 2023 08:34	1
HS23051456-02	BS-5	17 May 2023 11:45			24 May 2023 08:34	1
HS23051456-03	BS-18	17 May 2023 12:15			24 May 2023 08:34	1
HS23051456-04	BS-21	17 May 2023 14:15			24 May 2023 08:34	1
HS23051456-05	BS-22	17 May 2023 14:35			24 May 2023 08:34	1
HS23051456-06	BS-7	17 May 2023 15:00			24 May 2023 08:34	1
HS23051456-07	BS-23	18 May 2023 08:15			24 May 2023 08:34	1
HS23051456-08	BS-6	18 May 2023 08:40			24 May 2023 08:34	1
HS23051456-09	BS-12	18 May 2023 09:00			24 May 2023 08:34	1
HS23051456-10	BS-8	18 May 2023 09:30			24 May 2023 08:34	1
HS23051456-11	BS-9	18 May 2023 10:20			24 May 2023 08:34	1
HS23051456-12	BS-19	18 May 2023 11:00			24 May 2023 08:34	1
HS23051456-13	BS-1	18 May 2023 13:30			24 May 2023 08:34	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			24 May 2023 08:34	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			24 May 2023 08:34	1
HS23051456-16	Cottages	18 May 2023 15:50			24 May 2023 08:34	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			24 May 2023 08:34	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436073 ( 0 )		<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			23 May 2023 15:16	1
HS23051456-02	BS-5	17 May 2023 11:45			23 May 2023 15:54	1
HS23051456-03	BS-18	17 May 2023 12:15			23 May 2023 16:32	1
HS23051456-04	BS-21	17 May 2023 14:15			23 May 2023 17:10	1
HS23051456-05	BS-22	17 May 2023 14:35			23 May 2023 17:49	1
HS23051456-06	BS-7	17 May 2023 15:00			23 May 2023 19:44	1
HS23051456-07	BS-23	18 May 2023 08:15			23 May 2023 20:22	1
HS23051456-08	BS-6	18 May 2023 08:40			23 May 2023 21:00	1
HS23051456-09	BS-12	18 May 2023 09:00			23 May 2023 21:39	1
HS23051456-10	BS-8	18 May 2023 09:30			23 May 2023 22:17	1
HS23051456-11	BS-9	18 May 2023 10:20			23 May 2023 22:55	1
HS23051456-12	BS-19	18 May 2023 11:00			23 May 2023 23:34	1
HS23051456-13	BS-1	18 May 2023 13:30			24 May 2023 00:12	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			24 May 2023 00:50	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			24 May 2023 01:29	1
HS23051456-16	Cottages	18 May 2023 15:50			24 May 2023 03:24	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			24 May 2023 04:02	1
<b>Batch ID:</b> R436083 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			24 May 2023 04:57	1
HS23051456-02	BS-5	17 May 2023 11:45			24 May 2023 05:20	1
HS23051456-03	BS-18	17 May 2023 12:15			24 May 2023 05:42	1
HS23051456-04	BS-21	17 May 2023 14:15			24 May 2023 06:05	1
HS23051456-05	BS-22	17 May 2023 14:35			24 May 2023 06:27	1
HS23051456-06	BS-7	17 May 2023 15:00			24 May 2023 06:49	1
HS23051456-07	BS-23	18 May 2023 08:15			24 May 2023 07:12	1
HS23051456-08	BS-6	18 May 2023 08:40			24 May 2023 07:34	1
HS23051456-09	BS-12	18 May 2023 09:00			24 May 2023 07:57	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436085 ( 0 )		<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			23 May 2023 15:16	1
HS23051456-02	BS-5	17 May 2023 11:45			23 May 2023 15:54	1
HS23051456-03	BS-18	17 May 2023 12:15			23 May 2023 16:32	1
HS23051456-04	BS-21	17 May 2023 14:15			23 May 2023 17:10	1
HS23051456-05	BS-22	17 May 2023 14:35			23 May 2023 17:49	1
HS23051456-06	BS-7	17 May 2023 15:00			23 May 2023 19:44	1
HS23051456-07	BS-23	18 May 2023 08:15			23 May 2023 20:22	1
HS23051456-08	BS-6	18 May 2023 08:40			23 May 2023 21:00	1
HS23051456-09	BS-12	18 May 2023 09:00			23 May 2023 21:39	1
HS23051456-10	BS-8	18 May 2023 09:30			23 May 2023 22:17	1
HS23051456-11	BS-9	18 May 2023 10:20			23 May 2023 22:55	1
HS23051456-12	BS-19	18 May 2023 11:00			23 May 2023 23:34	1
HS23051456-13	BS-1	18 May 2023 13:30			24 May 2023 00:12	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			24 May 2023 00:50	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			24 May 2023 01:29	1
HS23051456-16	Cottages	18 May 2023 15:50			24 May 2023 03:24	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			24 May 2023 04:02	1
<b>Batch ID:</b> R436097 ( 0 )		<b>Test Name :</b> HYDROGEN SULFIDE BY E376.1			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			24 May 2023 11:09	1
HS23051456-02	BS-5	17 May 2023 11:45			24 May 2023 11:09	1
HS23051456-03	BS-18	17 May 2023 12:15			24 May 2023 11:09	1
HS23051456-04	BS-21	17 May 2023 14:15			24 May 2023 11:09	1
HS23051456-05	BS-22	17 May 2023 14:35			24 May 2023 11:09	1
HS23051456-06	BS-7	17 May 2023 15:00			24 May 2023 11:09	1
HS23051456-07	BS-23	18 May 2023 08:15			24 May 2023 11:09	1
HS23051456-08	BS-6	18 May 2023 08:40			24 May 2023 11:09	1
HS23051456-09	BS-12	18 May 2023 09:00			24 May 2023 11:09	1
HS23051456-10	BS-8	18 May 2023 09:30			24 May 2023 11:09	1
HS23051456-11	BS-9	18 May 2023 10:20			24 May 2023 11:09	1
HS23051456-12	BS-19	18 May 2023 11:00			24 May 2023 11:09	1
HS23051456-13	BS-1	18 May 2023 13:30			24 May 2023 11:09	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			24 May 2023 11:09	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			24 May 2023 11:09	1
HS23051456-16	Cottages	18 May 2023 15:50			24 May 2023 11:09	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			24 May 2023 11:09	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436139 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011				<b>Matrix:</b> Water
HS23051456-01	BS-17	17 May 2023 10:45			23 May 2023 15:03	1
HS23051456-02	BS-5	17 May 2023 11:45			23 May 2023 15:03	1
HS23051456-03	BS-18	17 May 2023 12:15			23 May 2023 15:03	1
HS23051456-04	BS-21	17 May 2023 14:15			23 May 2023 15:03	1
HS23051456-05	BS-22	17 May 2023 14:35			23 May 2023 15:03	1
HS23051456-06	BS-7	17 May 2023 15:00			23 May 2023 15:03	1
<b>Batch ID:</b> R436208 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C				<b>Matrix:</b> Water
HS23051456-10	BS-8	18 May 2023 09:30			25 May 2023 03:22	1
HS23051456-11	BS-9	18 May 2023 10:20			25 May 2023 01:08	1
HS23051456-12	BS-19	18 May 2023 11:00			25 May 2023 03:45	1
HS23051456-13	BS-1	18 May 2023 13:30			25 May 2023 04:07	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			25 May 2023 04:29	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			25 May 2023 04:52	1
HS23051456-16	Cottages	18 May 2023 15:50			25 May 2023 05:14	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			25 May 2023 05:37	1
<b>Batch ID:</b> R436316 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011				<b>Matrix:</b> Water
HS23051456-13	BS-1	18 May 2023 13:30			24 May 2023 04:00	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			24 May 2023 04:00	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			24 May 2023 04:00	1
HS23051456-16	Cottages	18 May 2023 15:50			24 May 2023 04:00	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			24 May 2023 04:00	1
<b>Batch ID:</b> R436318 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011				<b>Matrix:</b> Water
HS23051456-07	BS-23	18 May 2023 08:15			24 May 2023 03:30	1
HS23051456-08	BS-6	18 May 2023 08:40			24 May 2023 03:30	1
HS23051456-09	BS-12	18 May 2023 09:00			24 May 2023 03:30	1
HS23051456-10	BS-8	18 May 2023 09:30			24 May 2023 03:30	1
HS23051456-11	BS-9	18 May 2023 10:20			24 May 2023 03:30	1
HS23051456-12	BS-19	18 May 2023 11:00			24 May 2023 03:30	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436440 ( 0 )		<b>Test Name :</b> ALKALINITY BY SM 2320B-2011			<b>Matrix:</b> Water	
HS23051456-01	BS-17	17 May 2023 10:45			26 May 2023 15:18	1
HS23051456-02	BS-5	17 May 2023 11:45			26 May 2023 15:23	1
HS23051456-03	BS-18	17 May 2023 12:15			26 May 2023 15:29	1
HS23051456-04	BS-21	17 May 2023 14:15			26 May 2023 15:34	1
HS23051456-05	BS-22	17 May 2023 14:35			26 May 2023 15:40	1
HS23051456-06	BS-7	17 May 2023 15:00			26 May 2023 15:58	1
HS23051456-07	BS-23	18 May 2023 08:15			26 May 2023 16:04	1
HS23051456-08	BS-6	18 May 2023 08:40			26 May 2023 16:09	1
HS23051456-09	BS-12	18 May 2023 09:00			26 May 2023 16:14	1
HS23051456-10	BS-8	18 May 2023 09:30			26 May 2023 16:19	1
HS23051456-11	BS-9	18 May 2023 10:20			26 May 2023 16:24	1
HS23051456-12	BS-19	18 May 2023 11:00			26 May 2023 16:30	1
HS23051456-13	BS-1	18 May 2023 13:30			26 May 2023 16:35	1
<b>Batch ID:</b> R436614 ( 0 )		<b>Test Name :</b> ALKALINITY BY SM 2320B-2011			<b>Matrix:</b> Water	
HS23051456-14	MW 019-1603	18 May 2023 13:00			30 May 2023 17:10	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			30 May 2023 17:21	1
HS23051456-16	Cottages	18 May 2023 15:50			30 May 2023 17:26	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			30 May 2023 17:32	1
<b>Batch ID:</b> R436676 ( 0 )		<b>Test Name :</b> PH BY SM4500H+ B-2011			<b>Matrix:</b> Water	
HS23051456-14	MW 019-1603	18 May 2023 13:00			30 May 2023 17:10	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			30 May 2023 17:21	1
HS23051456-16	Cottages	18 May 2023 15:50			30 May 2023 17:26	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			30 May 2023 17:32	1
<b>Batch ID:</b> R436739 ( 0 )		<b>Test Name :</b> ANIONS BY SW9056A			<b>Matrix:</b> Water	
HS23051456-11	BS-9	18 May 2023 10:20			01 Jun 2023 05:12	5
HS23051456-11	BS-9	18 May 2023 10:20			01 Jun 2023 05:06	1
HS23051456-12	BS-19	18 May 2023 11:00			01 Jun 2023 05:17	1
HS23051456-13	BS-1	18 May 2023 13:30			01 Jun 2023 05:35	5
HS23051456-13	BS-1	18 May 2023 13:30			01 Jun 2023 05:29	1
HS23051456-14	MW 019-1603	18 May 2023 13:00			01 Jun 2023 05:46	5
HS23051456-14	MW 019-1603	18 May 2023 13:00			01 Jun 2023 05:41	1
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			01 Jun 2023 05:58	50
HS23051456-15	BS-7B- Brine	18 May 2023 14:45			01 Jun 2023 05:52	2
HS23051456-16	Cottages	18 May 2023 15:50			01 Jun 2023 06:27	1
HS23051456-17	MW 019-1055	18 May 2023 16:30			01 Jun 2023 06:33	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436744 ( 0 )		<b>Test Name :</b> ANIONS BY SW9056A				
HS23051456-01	BS-17	17 May 2023 10:45			31 May 2023 12:24	10
HS23051456-01	BS-17	17 May 2023 10:45			31 May 2023 12:07	1
HS23051456-02	BS-5	17 May 2023 11:45			31 May 2023 12:36	10
HS23051456-02	BS-5	17 May 2023 11:45			31 May 2023 12:30	1
HS23051456-03	BS-18	17 May 2023 12:15			31 May 2023 13:11	10
HS23051456-03	BS-18	17 May 2023 12:15			31 May 2023 13:05	1
HS23051456-04	BS-21	17 May 2023 14:15			31 May 2023 13:23	10
HS23051456-04	BS-21	17 May 2023 14:15			31 May 2023 13:17	1
HS23051456-05	BS-22	17 May 2023 14:35			31 May 2023 13:34	10
HS23051456-05	BS-22	17 May 2023 14:35			31 May 2023 13:28	1
HS23051456-06	BS-7	17 May 2023 15:00			31 May 2023 13:46	10
HS23051456-06	BS-7	17 May 2023 15:00			31 May 2023 13:40	1
HS23051456-07	BS-23	18 May 2023 08:15			31 May 2023 13:58	10
HS23051456-07	BS-23	18 May 2023 08:15			31 May 2023 13:52	1
HS23051456-08	BS-6	18 May 2023 08:40			31 May 2023 14:32	10
HS23051456-08	BS-6	18 May 2023 08:40			31 May 2023 14:27	1
HS23051456-09	BS-12	18 May 2023 09:00			31 May 2023 14:44	10
HS23051456-09	BS-12	18 May 2023 09:00			31 May 2023 14:38	1
HS23051456-10	BS-8	18 May 2023 09:30			31 May 2023 14:56	10
HS23051456-10	BS-8	18 May 2023 09:30			31 May 2023 14:50	1
<b>Batch ID:</b> R436971 ( 0 )		<b>Test Name :</b> PH BY SM4500H+ B-2011				
HS23051456-01	BS-17	17 May 2023 10:45			03 Jun 2023 11:38	1
HS23051456-02	BS-5	17 May 2023 11:45			03 Jun 2023 11:41	1
HS23051456-03	BS-18	17 May 2023 12:15			03 Jun 2023 11:48	1
HS23051456-04	BS-21	17 May 2023 14:15			03 Jun 2023 11:50	1
HS23051456-05	BS-22	17 May 2023 14:35			03 Jun 2023 11:52	1
HS23051456-06	BS-7	17 May 2023 15:00			03 Jun 2023 11:54	1
HS23051456-07	BS-23	18 May 2023 08:15			03 Jun 2023 11:56	1
HS23051456-08	BS-6	18 May 2023 08:40			03 Jun 2023 11:58	1
HS23051456-09	BS-12	18 May 2023 09:00			03 Jun 2023 12:00	1
HS23051456-10	BS-8	18 May 2023 09:30			03 Jun 2023 12:02	1
HS23051456-11	BS-9	18 May 2023 10:20			03 Jun 2023 12:05	1
HS23051456-12	BS-19	18 May 2023 11:00			03 Jun 2023 12:07	1
<b>Batch ID:</b> R437077 ( 0 )		<b>Test Name :</b> PH BY SM4500H+ B-2011				
HS23051456-13	BS-1	18 May 2023 13:30			05 Jun 2023 16:26	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194516 (0)      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

<b>MLBK</b>	Sample ID:	<b>MLBK-194516</b>	Units:	mg/L	Analysis Date: 31-May-2023 18:46			
Client ID:		Run ID:	<b>FID-7_436772</b>	SeqNo:	7335037	PrepDate:	31-May-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						
<i>Surr: 1-Chlorooctadecane</i>	0.02276	0	0.04	0	56.9	40 - 140		

<b>MLBK</b>	Sample ID:	<b>MLBK-194516</b>	Units:	mg/L	Analysis Date: 31-May-2023 18:46			
Client ID:		Run ID:	<b>FID-8_436756</b>	SeqNo:	7334757	PrepDate:	31-May-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Al aromatics >C10 - C12	U	0.00100						
Aromatics >C12 - C16	U	0.00400						
Aromatics >C16 - C21	U	0.00300						
Aromatics >C21 - C35	U	0.00900						
<i>Surr: 2-Bromonaphthalene</i>	0.041	0	0.04	0	102	40 - 140		
<i>Surr: 2-Fluorobiphenyl</i>	0.02176	0	0.04	0	54.4	40 - 140		
<i>Surr: o-Terphenyl</i>	0.03258	0	0.04	0	81.5	40 - 140		

<b>LCS</b>	Sample ID:	<b>LCS-194516</b>	Units:	mg/L	Analysis Date: 01-Jun-2023 11:38			
Client ID:		Run ID:	<b>FID-7_436772</b>	SeqNo:	7335136	PrepDate:	31-May-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aliphatics >C10 - C12	0.05262	0.00100	0.05	0	105	40 - 140		
Aliphatics >C12 - C16	0.1146	0.00200	0.1	0	115	40 - 140		
Aliphatics >C16 - C35	0.4028	0.00800	0.4	0	101	40 - 140		
<i>Surr: 1-Chlorooctadecane</i>	0.02872	0	0.04	0	71.8	40 - 140		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194516 (0)      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-194516		Units: mg/L		Analysis Date: 31-May-2023 19:18			
Client ID:		Run ID: FID-8_436756		SeqNo: 7334758		PrepDate: 31-May-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.0574	0.00100	0.05	0	115	40 - 140		
Aromatics >C12 - C16		0.2434	0.00400	0.2	0	122	40 - 140		
Aromatics >C16 - C21		0.185	0.00300	0.15	0	123	40 - 140		
Aromatics >C21 - C35		0.4884	0.00900	0.45	0	109	40 - 140		
Surr: 2-Bromonaphthalene		0.04097	0	0.04	0	102	40 - 140		
Surr: 2-Fluorobiphenyl		0.02941	0	0.04	0	73.5	40 - 140		
Surr: o-Terphenyl		0.03927	0	0.04	0	98.2	40 - 140		

MS	Sample ID:	HS23051659-01MS		Units: mg/L		Analysis Date: 31-May-2023 20:21			
Client ID:		Run ID: FID-7_436772		SeqNo: 7335040		PrepDate: 31-May-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.06087	0.00100	0.05	0	122	40 - 140		
Aliphatics >C12 - C16		0.1287	0.00200	0.1	0	129	40 - 140		
Aliphatics >C16 - C35		0.3959	0.00800	0.4	0	99.0	40 - 140		
Surr: 1-Chlorooctadecane		0.02956	0	0.04	0	73.9	40 - 140		

MS	Sample ID:	HS23051659-01MS		Units: mg/L		Analysis Date: 31-May-2023 20:21			
Client ID:		Run ID: FID-8_436756		SeqNo: 7334778		PrepDate: 31-May-2023		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.04465	0.00100	0.05	0	89.3	40 - 140		
Aromatics >C12 - C16		0.1887	0.00400	0.2	0	94.4	40 - 140		
Aromatics >C16 - C21		0.1398	0.00300	0.15	0	93.2	40 - 140		
Aromatics >C21 - C35		0.3623	0.00900	0.45	0	80.5	40 - 140		
Surr: 2-Bromonaphthalene		0.0323	0	0.04	0	80.7	40 - 140		
Surr: 2-Fluorobiphenyl		0.01611	0	0.04	0	40.3	40 - 140		
Surr: o-Terphenyl		0.03086	0	0.04	0	77.1	40 - 140		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194516 (0)      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MSD	Sample ID:	HS23051659-01MSD		Units:	mg/L		Analysis Date: 31-May-2023 20:53			
Client ID:		Run ID: FID-7_436772		SeqNo:	7335041	PrepDate:	31-May-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aliphatics >C10 - C12		0.05884	0.00100	0.05	0	118	40 - 140	0.06087	3.38 50	
Aliphatics >C12 - C16		0.1301	0.00200	0.1	0	130	40 - 140	0.1287	1.12 50	
Aliphatics >C16 - C35		0.3878	0.00800	0.4	0	97.0	40 - 140	0.3959	2.06 50	
Surr: 1-Chlorooctadecane		0.02739	0	0.04	0	68.5	40 - 140	0.02956	7.64 50	

MSD	Sample ID:	HS23051659-01MSD		Units:	mg/L		Analysis Date: 31-May-2023 20:53			
Client ID:		Run ID: FID-8_436756		SeqNo:	7334761	PrepDate:	31-May-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Aromatics >C10 - C12		0.0546	0.00100	0.05	0	109	40 - 140	0.04465	20.1 50	
Aromatics >C12 - C16		0.2274	0.00400	0.2	0	114	40 - 140	0.1887	18.6 50	
Aromatics >C16 - C21		0.1724	0.00300	0.15	0	115	40 - 140	0.1398	20.9 50	
Aromatics >C21 - C35		0.437	0.00900	0.45	0	97.1	40 - 140	0.3623	18.7 50	
Surr: 2-Bromonaphthalene		0.04019	0	0.04	0	100	40 - 140	0.0323	21.8 50	
Surr: 2-Fluorobiphenyl		0.02161	0	0.04	0	54.0	40 - 140	0.01611	29.2 50	
Surr: o-Terphenyl		0.03585	0	0.04	0	89.6	40 - 140	0.03086	15 50	

The following samples were analyzed in this batch:	HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
	HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
	HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
	HS23051456-13	HS23051456-14	HS23051456-15	HS23051456-16
	HS23051456-17			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436073 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1				
MLBK	Sample ID: MBLK-230523			Units: mg/L		Analysis Date: 23-May-2023 13:21		
Client ID:		Run ID: FID-14_436073		SeqNo: 7320283	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)	0.2921	0.0100	0.25	0	117	70 - 130		
LCS	Sample ID: LCS-230523			Units: mg/L		Analysis Date: 23-May-2023 11:26		
Client ID:		Run ID: FID-14_436073		SeqNo: 7320261	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02115	0.0100	0.025	0	84.6	70 - 130		
Aliphatics >C8 - C10	0.02039	0.0100	0.025	0	81.6	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3055	0.0100	0.25	0	122	70 - 130		
LCSD	Sample ID: LCSD-230523			Units: mg/L		Analysis Date: 23-May-2023 12:04		
Client ID:		Run ID: FID-14_436073		SeqNo: 7320262	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02228	0.0100	0.025	0	89.1	70 - 130	0.02115	5.21 25
Aliphatics >C8 - C10	0.02009	0.0100	0.025	0	80.4	70 - 130	0.02039	1.5 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3066	0.0100	0.25	0	123	70 - 130	0.3055	0.347 25
The following samples were analyzed in this batch:		HS23051456-01	HS23051456-02	HS23051456-03		HS23051456-04		
		HS23051456-05	HS23051456-06	HS23051456-07		HS23051456-08		
		HS23051456-09	HS23051456-10	HS23051456-11		HS23051456-12		
		HS23051456-13	HS23051456-14	HS23051456-15		HS23051456-16		
		HS23051456-17						

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436085 ( 0 )		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MBLK	Sample ID: MBLK-230523	Units: mg/L		Analysis Date: 23-May-2023 13:21	
Client ID:		Run ID: FID-15_436085	SeqNo: 7320518	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.3028	0.0100	0.25	0 121	70 - 130
LCS	Sample ID: LCS-230523	Units: mg/L		Analysis Date: 23-May-2023 11:26	
Client ID:		Run ID: FID-15_436085	SeqNo: 7320516	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08409	0.0100	0.1	0 84.1	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.3064	0.0100	0.25	0 123	70 - 130
LCSD	Sample ID: LCSD-230523	Units: mg/L		Analysis Date: 23-May-2023 12:04	
Client ID:		Run ID: FID-15_436085	SeqNo: 7320517	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08337	0.0100	0.1	0 83.4	70 - 130 0.08409 0.861 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.3036	0.0100	0.25	0 121	70 - 130 0.3064 0.893 25
The following samples were analyzed in this batch:		HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
		HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
		HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
		HS23051456-13	HS23051456-14	HS23051456-15	HS23051456-16
		HS23051456-17			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194591 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-194591	Units:	mg/L	Analysis Date: 01-Jun-2023 17:46				
Client ID:		Run ID:	ICPMS06_436768	SeqNo:	7336377	PrepDate:	01-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	0.000697	0.00400							J
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	0.0112	0.200							J
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:** HS23051456

**QC BATCH REPORT**

Batch ID: 194591 ( 0 )		Instrument: ICPMS06		Method: ICP-MS METALS BY SW6020A					
LCS	Sample ID: LCS-194591	Units: mg/L			Analysis Date: 01-Jun-2023 17:48				
Client ID:		Run ID: ICPMS06_436768		SeqNo: 7336378	PrepDate: 01-Jun-2023	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual
Arsenic	0.0476	0.00200	0.05	0	95.2	80 - 120			
Barium	0.0467	0.00400	0.05	0	93.4	80 - 120			
Cadmium	0.04776	0.00200	0.05	0	95.5	80 - 120			
Calcium	4.784	0.500	5	0	95.7	80 - 120			
Chromium	0.04609	0.00400	0.05	0	92.2	80 - 120			
Iron	4.706	0.200	5	0	94.1	80 - 120			
Lead	0.04556	0.00200	0.05	0	91.1	80 - 120			
Magnesium	4.73	0.200	5	0	94.6	80 - 120			
Manganese	0.04735	0.00500	0.05	0	94.7	80 - 120			
Nickel	0.0473	0.00200	0.05	0	94.6	80 - 120			
Potassium	4.819	0.200	5	0	96.4	80 - 120			
Selenium	0.05137	0.00200	0.05	0	103	80 - 120			
Silver	0.04722	0.00200	0.05	0	94.4	80 - 120			
Sodium	4.64	0.200	5	0	92.8	80 - 120			
Strontium	0.09621	0.00500	0.1	0	96.2	80 - 120			
Vanadium	0.04534	0.00500	0.05	0	90.7	80 - 120			
Zinc	0.04932	0.00400	0.05	0	98.6	80 - 120			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194591 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23051456-01MS		Units:	mg/L	Analysis Date: 01-Jun-2023 18:03			
Client ID:	BS-17	Run ID: ICPMS06_436768		SeqNo:	7336381	PrepDate:	01-Jun-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05147	0.00200	0.05	0.001304	100	80 - 120		
Barium		0.2437	0.00400	0.05	0.1881	111	80 - 120		
Cadmium		0.04864	0.00200	0.05	0.000038	97.2	80 - 120		
Calcium		76.95	0.500	5	71.25	114	80 - 120	O	
Chromium		0.0477	0.00400	0.05	0.001268	92.9	80 - 120		
Iron		4.832	0.200	5	0.08524	94.9	80 - 120		
Lead		0.0476	0.00200	0.05	0.000061	95.1	80 - 120		
Magnesium		18.75	0.200	5	14.13	92.6	80 - 120		
Manganese		1.328	0.00500	0.05	1.289	78.6	80 - 120	SO	
Nickel		0.04747	0.00200	0.05	0.001594	91.8	80 - 120		
Potassium		7.259	0.200	5	2.42	96.8	80 - 120		
Selenium		0.05111	0.00200	0.05	0.000265	102	80 - 120		
Silver		0.04708	0.00200	0.05	0.000044	94.1	80 - 120		
Sodium		185	0.200	5	179.7	106	80 - 120	EO	
Strontium		0.6527	0.00500	0.1	0.5405	112	80 - 120	O	
Vanadium		0.04994	0.00500	0.05	0.00221	95.5	80 - 120		
Zinc		0.04958	0.00400	0.05	0.000717	97.7	80 - 120		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194591 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23051456-01MSD		Units:	mg/L		Analysis Date: 01-Jun-2023 18:05			
Client ID:	BS-17	Run ID: ICPMS06_436768		SeqNo:	7336382	PrepDate:	01-Jun-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.05142	0.00200	0.05	0.001304	100	80 - 120	0.05147	0.0894 20	
Barium		0.2378	0.00400	0.05	0.1881	99.4	80 - 120	0.2437	2.45 20	
Cadmium		0.04798	0.00200	0.05	0.000038	95.9	80 - 120	0.04864	1.36 20	
Calcium		76.43	0.500	5	71.25	103	80 - 120	76.95	0.679 20 O	
Chromium		0.04756	0.00400	0.05	0.001268	92.6	80 - 120	0.0477	0.286 20	
Iron		4.84	0.200	5	0.08524	95.1	80 - 120	4.832	0.166 20	
Lead		0.04714	0.00200	0.05	0.000061	94.1	80 - 120	0.0476	0.992 20	
Magnesium		18.85	0.200	5	14.13	94.4	80 - 120	18.75	0.5 20	
Manganese		1.314	0.00500	0.05	1.289	50.4	80 - 120	1.328	1.07 20 SO	
Nickel		0.04824	0.00200	0.05	0.001594	93.3	80 - 120	0.04747	1.62 20	
Potassium		7.259	0.200	5	2.42	96.8	80 - 120	7.259	0.00756 20	
Selenium		0.05063	0.00200	0.05	0.000265	101	80 - 120	0.05111	0.93 20	
Silver		0.04705	0.00200	0.05	0.000044	94.0	80 - 120	0.04708	0.0765 20	
Sodium		184	0.200	5	179.7	85.5	80 - 120	185	0.554 20 EO	
Strontium		0.6618	0.00500	0.1	0.5405	121	80 - 120	0.6527	1.38 20 SO	
Vanadium		0.0495	0.00500	0.05	0.00221	94.6	80 - 120	0.04994	0.879 20	
Zinc		0.04998	0.00400	0.05	0.000717	98.5	80 - 120	0.04958	0.8 20	

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194591 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23051456-01PDS		Units:	mg/L	Analysis Date: 01-Jun-2023 18:07			
Client ID:	BS-17	Run ID:	ICPMS06_436768	SeqNo:	7336383	PrepDate:	01-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.1038	0.00200	0.1	0.001304	103	75 - 125			
Barium	0.2882	0.00400	0.1	0.1881	100	75 - 125			
Cadmium	0.09681	0.00200	0.1	0.000038	96.8	75 - 125			
Calcium	81.04	0.500	10	71.25	97.9	75 - 125	O		
Chromium	0.09615	0.00400	0.1	0.001268	94.9	75 - 125			
Iron	9.793	0.200	10	0.08524	97.1	75 - 125			
Lead	0.09595	0.00200	0.1	0.000061	95.9	75 - 125			
Magnesium	23.56	0.200	10	14.13	94.3	75 - 125			
Manganese	1.377	0.00500	0.1	1.289	88.3	75 - 125	O		
Nickel	0.09628	0.00200	0.1	0.001594	94.7	75 - 125			
Potassium	12.31	0.200	10	2.42	98.9	75 - 125			
Selenium	0.1054	0.00200	0.1	0.000265	105	75 - 125			
Silver	0.09699	0.00200	0.1	0.000044	96.9	75 - 125			
Strontium	0.5418	0.00500	0.1	0.5405	1.26	75 - 125	SO		
Vanadium	0.1	0.00500	0.1	0.00221	97.8	75 - 125			
Zinc	0.09779	0.00400	0.1	0.000717	97.1	75 - 125			

PDS	Sample ID:	HS23051456-01PDS		Units:	mg/L	Analysis Date: 02-Jun-2023 12:46			
Client ID:	BS-17	Run ID:	ICPMS06_436887	SeqNo:	7338068	PrepDate:	01-Jun-2023	DF:	20
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Sodium	405.7	4.00	200	196.6	105	75 - 125			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194591 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID: HS23051456-01SD		Units: mg/L		Analysis Date: 01-Jun-2023 18:01				
Client ID:	BS-17	Run ID: ICPMS06_436768		SeqNo: 7336380	PrepDate: 01-Jun-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					0.001304	0	10
Barium	0.1907	0.0200					0.1881	1.35	10
Cadmium	U	0.0100					0.000038	0	10
Calcium	73.53	2.50					71.25	3.2	10
Chromium	0.006712	0.0200					0.001268	0	10
Iron	0.0983	1.00					0.08524	0	10
Lead	U	0.0100					0.000061	0	10
Magnesium	14.68	1.00					14.13	3.89	10
Manganese	1.353	0.0250					1.289	4.98	10
Nickel	0.003094	0.0100					0.001594	0	10
Potassium	2.425	1.00					2.42	0.207	10
Selenium	U	0.0100					0.000265	0	10
Silver	U	0.0100					0.000044	0	10
Strontium	0.5499	0.0250					0.5405	1.75	10
Vanadium	0.005286	0.0250					0.00221	0	10
Zinc	U	0.0200					0.000717	0	10

SD	Sample ID: HS23051456-01SD		Units: mg/L		Analysis Date: 02-Jun-2023 12:44				
Client ID:	BS-17	Run ID: ICPMS06_436887		SeqNo: 7338067	PrepDate: 01-Jun-2023	DF: 100			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Sodium	200.7	20.0					196.6	2.11	10

The following samples were analyzed in this batch:	HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
	HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
	HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
	HS23051456-13	HS23051456-14	HS23051456-15	HS23051456-16
	HS23051456-17			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194749 ( 0 )      **Instrument:** HG04      **Method:** MERCURY BY SW7470A

<b>MLBK</b>	Sample ID:	MLBK-194749	Units:	mg/L	Analysis Date: 05-Jun-2023 15:23			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342551	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          U    0.000200

<b>LCS</b>	Sample ID:	LCS-194749	Units:	mg/L	Analysis Date: 05-Jun-2023 15:27			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342552	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00566    0.000200    0.005    0    113    80 - 120

<b>MS</b>	Sample ID:	HS23051473-01MS	Units:	mg/L	Analysis Date: 05-Jun-2023 17:51			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342688	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00445    0.000200    0.005    0.000291    83.2    75 - 125

<b>MSD</b>	Sample ID:	HS23051473-01MSD	Units:	mg/L	Analysis Date: 05-Jun-2023 17:06			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342578	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00451    0.000200    0.005    0.000291    84.4    75 - 125    0.00445    1.34 20

The following samples were analyzed in this batch: HS23051456-01    HS23051456-02    HS23051456-03    HS23051456-04  
HS23051456-05    HS23051456-06    HS23051456-07    HS23051456-08  
HS23051456-09    HS23051456-10    HS23051456-11    HS23051456-12  
HS23051456-13

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** 194750 ( 0 )      **Instrument:** HG04      **Method:** MERCURY BY SW7470A

MBLK	Sample ID:	MBLK-194750	Units:	mg/L	Analysis Date: 05-Jun-2023 17:10			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342579	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          U    0.000200

LCS	Sample ID:	LCS-194750	Units:	mg/L	Analysis Date: 05-Jun-2023 17:12			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342580	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00489    0.000200    0.005    0    97.8    80 - 120

MS	Sample ID:	HS23051485-04MS	Units:	mg/L	Analysis Date: 05-Jun-2023 17:36			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342682	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00453    0.000200    0.005    0.000015    90.3    75 - 125

MSD	Sample ID:	HS23051485-04MSD	Units:	mg/L	Analysis Date: 05-Jun-2023 17:37			
Client ID:		Run ID:	HG04_437047	SeqNo:	7342693	PrepDate:	05-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00458    0.000200    0.005    0.000015    91.3    75 - 125    0.00453    1.1 20

The following samples were analyzed in this batch: HS23051456-14    HS23051456-15    HS23051456-16    HS23051456-17

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436083 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230523			Units: ug/L		Analysis Date: 23-May-2023 23:44			
Client ID:		Run ID: VOA9_436083		SeqNo: 7320470		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
Surr: 1,2-Dichloroethane-d4	46.18	1.0	50	0	92.4	70 - 123			
Surr: 4-Bromofluorobenzene	48.07	1.0	50	0	96.1	77 - 113			
Surr: Dibromofluoromethane	46.13	1.0	50	0	92.3	73 - 126			
Surr: Toluene-d8	49.6	1.0	50	0	99.2	81 - 120			
LCS	Sample ID: VLCSW-230523			Units: ug/L		Analysis Date: 23-May-2023 22:59			
Client ID:		Run ID: VOA9_436083		SeqNo: 7320469		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	18.13	1.0	20	0	90.6	74 - 120			
Ethylbenzene	18.27	1.0	20	0	91.3	77 - 117			
m,p-Xylene	37.41	2.0	40	0	93.5	77 - 122			
o-Xylene	18.2	1.0	20	0	91.0	75 - 119			
Toluene	17.88	1.0	20	0	89.4	77 - 118			
Xylenes, Total	55.6	1.0	60	0	92.7	75 - 122			
Surr: 1,2-Dichloroethane-d4	54.32	1.0	50	0	109	70 - 123			
Surr: 4-Bromofluorobenzene	49.2	1.0	50	0	98.4	77 - 113			
Surr: Dibromofluoromethane	54.11	1.0	50	0	108	73 - 126			
Surr: Toluene-d8	48.31	1.0	50	0	96.6	81 - 120			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436083 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23051428-02MS			Units: ug/L		Analysis Date: 24-May-2023 01:58		
Client ID:		Run ID: VOA9_436083		SeqNo: 7320473	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	19.79	1.0	20	0	98.9	70 - 127		
Ethylbenzene	21.12	1.0	20	0	106	70 - 124		
m,p-Xylene	42.95	2.0	40	0	107	70 - 130		
o-Xylene	20.53	1.0	20	0	103	70 - 124		
Toluene	20.42	1.0	20	0	102	70 - 123		
Xylenes, Total	63.48	1.0	60	0	106	70 - 130		
Surr: 1,2-Dichloroethane-d4	46	1.0	50	0	92.0	70 - 126		
Surr: 4-Bromofluorobenzene	49.84	1.0	50	0	99.7	77 - 113		
Surr: Dibromofluoromethane	47.17	1.0	50	0	94.3	77 - 123		
Surr: Toluene-d8	49.9	1.0	50	0	99.8	82 - 127		
MSD	Sample ID: HS23051428-02MSD			Units: ug/L		Analysis Date: 24-May-2023 02:21		
Client ID:		Run ID: VOA9_436083		SeqNo: 7320474	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	19.58	1.0	20	0	97.9	70 - 127	19.79	1.05 20
Ethylbenzene	20.73	1.0	20	0	104	70 - 124	21.12	1.85 20
m,p-Xylene	42.36	2.0	40	0	106	70 - 130	42.95	1.39 20
o-Xylene	20.65	1.0	20	0	103	70 - 124	20.53	0.609 20
Toluene	20.03	1.0	20	0	100	70 - 123	20.42	1.92 20
Xylenes, Total	63.01	1.0	60	0	105	70 - 130	63.48	0.741 20
Surr: 1,2-Dichloroethane-d4	45.34	1.0	50	0	90.7	70 - 126	46	1.45 20
Surr: 4-Bromofluorobenzene	49.77	1.0	50	0	99.5	77 - 113	49.84	0.139 20
Surr: Dibromofluoromethane	47.04	1.0	50	0	94.1	77 - 123	47.17	0.279 20
Surr: Toluene-d8	49.22	1.0	50	0	98.4	82 - 127	49.9	1.37 20
The following samples were analyzed in this batch:		HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04			
		HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08			
		HS23051456-09						

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436208 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230524			Units: ug/L		Analysis Date: 25-May-2023 00:23			
Client ID:		Run ID: VOA9_436208		SeqNo: 7323020		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
Surr: 1,2-Dichloroethane-d4	44.39	1.0	50	0	88.8	70 - 123			
Surr: 4-Bromofluorobenzene	45.42	1.0	50	0	90.8	77 - 113			
Surr: Dibromofluoromethane	44.63	1.0	50	0	89.3	73 - 126			
Surr: Toluene-d8	50.75	1.0	50	0	102	81 - 120			
LCS	Sample ID: VLCSW-230524			Units: ug/L		Analysis Date: 24-May-2023 23:38			
Client ID:		Run ID: VOA9_436208		SeqNo: 7323019		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	19.38	1.0	20	0	96.9	74 - 120			
Ethylbenzene	18.79	1.0	20	0	93.9	77 - 117			
m,p-Xylene	37.58	2.0	40	0	94.0	77 - 122			
o-Xylene	18.98	1.0	20	0	94.9	75 - 119			
Toluene	19.7	1.0	20	0	98.5	77 - 118			
Xylenes, Total	56.56	1.0	60	0	94.3	75 - 122			
Surr: 1,2-Dichloroethane-d4	50.5	1.0	50	0	101	70 - 123			
Surr: 4-Bromofluorobenzene	46.97	1.0	50	0	93.9	77 - 113			
Surr: Dibromofluoromethane	52.25	1.0	50	0	104	73 - 126			
Surr: Toluene-d8	48.79	1.0	50	0	97.6	81 - 120			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436208 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C					
MS	Sample ID: HS23051456-11MS	Units: ug/L		Analysis Date: 25-May-2023 02:15					
Client ID: BS-9	Run ID: VOA9_436208			SeqNo: 7323025	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	19.95	1.0	20	0	99.8	70 - 127			
Ethylbenzene	20.76	1.0	20	0	104	70 - 124			
m,p-Xylene	42.42	2.0	40	0	106	70 - 130			
o-Xylene	20.47	1.0	20	0	102	70 - 124			
Toluene	21.02	1.0	20	0	105	70 - 123			
Xylenes, Total	62.89	1.0	60	0	105	70 - 130			
Surr: 1,2-Dichloroethane-d4	43.77	1.0	50	0	87.5	70 - 126			
Surr: 4-Bromofluorobenzene	48.21	1.0	50	0	96.4	77 - 113			
Surr: Dibromofluoromethane	45.16	1.0	50	0	90.3	77 - 123			
Surr: Toluene-d8	50.48	1.0	50	0	101	82 - 127			
MSD	Sample ID: HS23051456-11MSD	Units: ug/L		Analysis Date: 25-May-2023 02:37					
Client ID: BS-9	Run ID: VOA9_436208			SeqNo: 7323026	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	18.92	1.0	20	0	94.6	70 - 127	19.95	5.32	20
Ethylbenzene	19.75	1.0	20	0	98.7	70 - 124	20.76	4.99	20
m,p-Xylene	39.98	2.0	40	0	99.9	70 - 130	42.42	5.94	20
o-Xylene	19.45	1.0	20	0	97.2	70 - 124	20.47	5.11	20
Toluene	20.18	1.0	20	0	101	70 - 123	21.02	4.11	20
Xylenes, Total	59.42	1.0	60	0	99.0	70 - 130	62.89	5.67	20
Surr: 1,2-Dichloroethane-d4	43.05	1.0	50	0	86.1	70 - 126	43.77	1.65	20
Surr: 4-Bromofluorobenzene	48.18	1.0	50	0	96.4	77 - 113	48.21	0.0793	20
Surr: Dibromofluoromethane	45.11	1.0	50	0	90.2	77 - 123	45.16	0.103	20
Surr: Toluene-d8	50.42	1.0	50	0	101	82 - 127	50.48	0.11	20
The following samples were analyzed in this batch:		HS23051456-10	HS23051456-11	HS23051456-12	HS23051456-13				
		HS23051456-14	HS23051456-15	HS23051456-16	HS23051456-17				

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436054 ( 0 )      **Instrument:** WetChem\_HS      **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R436054	Units:	mg/L	Analysis Date: 24-May-2023 08:34			
Client ID:		Run ID: WetChem_HS_436054 SeqNo: 7319772	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-R436054	Units:	mg/L	Analysis Date: 24-May-2023 08:34			
Client ID:		Run ID: WetChem_HS_436054 SeqNo: 7319771	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide                          21.88                          2.00                          25                          0                          87.5                          85 - 115

LCSD	Sample ID:	LCSD-R436054	Units:	mg/L	Analysis Date: 24-May-2023 08:34			
Client ID:		Run ID: WetChem_HS_436054 SeqNo: 7319770	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide                          22.08                          2.00                          25                          0                          88.3                          85 - 115                          21.88                          0.91                          20

MS	Sample ID:	HS23051456-01MS	Units:	mg/L	Analysis Date: 24-May-2023 08:34			
Client ID:	BS-17	Run ID: WetChem_HS_436054 SeqNo: 7319769	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Sulfide                          21.88                          2.00                          25                          1.52                          81.4                          80 - 120

The following samples were analyzed in this batch:

HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
HS23051456-13	HS23051456-14	HS23051456-15	HS23051456-16
HS23051456-17			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436097 ( 0 )      **Instrument:** WetChem\_HS      **Method:** HYDROGEN SULFIDE BY E376.1

MBLK	Sample ID:	MBLK-R436097	Units:	mg/L	Analysis Date: 24-May-2023 11:09			
Client ID:		Run ID: WetChem_HS_436097 SeqNo: 7320719	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide                          U                          1.00

LCS	Sample ID:	LCS-R436097	Units:	mg/L	Analysis Date: 24-May-2023 11:09			
Client ID:		Run ID: WetChem_HS_436097 SeqNo: 7320718	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide                          23.25                          1.00                          25                          0                          93.0                          80 - 120

LCSD	Sample ID:	LCSD-R436097	Units:	mg/L	Analysis Date: 24-May-2023 11:09			
Client ID:		Run ID: WetChem_HS_436097 SeqNo: 7320717	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual

Hydrogen Sulfide                          23.46                          1.00                          25                          0                          93.8                          80 - 120                          23.25                          0.91                          20

The following samples were analyzed in this batch:	HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
	HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
	HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
	HS23051456-13	HS23051456-14	HS23051456-15	HS23051456-16
	HS23051456-17			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436139 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011	
<b>MBLK</b> Sample ID: WBLK-052322		Units: mg/L		Analysis Date: 23-May-2023 15:03	
Client ID: Run ID: Balance1_436139		SeqNo: 7321457 PrepDate:		DF: 1	
Analyte Result PQL SPK Val		SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0		
<b>LCS</b> Sample ID: LCS-052323		Units: mg/L		Analysis Date: 23-May-2023 15:03	
Client ID: Run ID: Balance1_436139		SeqNo: 7321456 PrepDate:		DF: 1	
Analyte Result PQL SPK Val		SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1082	10.0	1000 0 108	85 - 115
<b>DUP</b> Sample ID: HS23051456-02DUP		Units: mg/L		Analysis Date: 23-May-2023 15:03	
Client ID: BS-5 Run ID: Balance1_436139		SeqNo: 7321447 PrepDate:		DF: 1	
Analyte Result PQL SPK Val		SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		788	10.0		792 0.506 20
<b>DUP</b> Sample ID: HS23051402-27DUP		Units: mg/L		Analysis Date: 23-May-2023 15:03	
Client ID: Run ID: Balance1_436139		SeqNo: 7321439 PrepDate:		DF: 1	
Analyte Result PQL SPK Val		SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		388	10.0		390 0.514 20
The following samples were analyzed in this batch: HS23051456-01 HS23051456-02 HS23051456-03 HS23051456-04					
HS23051456-05 HS23051456-06					

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

QC BATCH REPORT

Batch ID: R436316 ( 0 )      Instrument: Balance1      Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011

<b>MBLK</b>	Sample ID:	<b>WBLK-05242023</b>	Units:	<b>mg/L</b>	Analysis Date:	<b>24-May-2023 04:00</b>		
Client ID:		Run ID:	<b>Balance1_436316</b>	SeqNo:	<b>7324942</b>	PrepDate:	DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref	Control	RPD Ref	RPD
				Value	%REC	Limit	Value	%RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) U 10.0

<b>LCS</b>	Sample ID:	<b>LCS-05242023</b>	Units:	<b>mg/L</b>	Analysis Date: <b>24-May-2023 04:00</b>			
Client ID:		Run ID:	<b>Balance1_436316</b>	SeqNo:	<b>7324941</b>	PrepDate:		DF: <b>1</b>
Analyte		Result	PQL	SPK Val	SPK Ref Value	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable) 1076 10.0 1000 0 108 85 - 115

Sample ID: HS23051597-01DUP Units: mg/L Analysis Date: 24-May-2023 04:00  
Client ID: Run ID: Balance1\_436316 SeqNo: 7324938 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) 151800 10.0 151800 0.0132 20

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

Batch ID: R436318 (0)		Instrument: Balance1		Method: TOTAL DISSOLVED SOLIDS BY SM2540C-2011	
MBLK		Sample ID: WBLK-02022023			Units: mg/L Analysis Date: 24-May-2023 03:30
Client ID:		Run ID: Balance1_436318		SeqNo: 7325016	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		U	10.0		
LCS		Sample ID: LCS-02022023			Units: mg/L Analysis Date: 24-May-2023 03:30
Client ID:		Run ID: Balance1_436318		SeqNo: 7325015	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		1070	10.0	1000	0 107 85 - 115
DUP		Sample ID: HS23051456-12DUP			Units: mg/L Analysis Date: 24-May-2023 03:30
Client ID: BS-19		Run ID: Balance1_436318		SeqNo: 7325014	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		288	10.0		286 0.697 20
DUP		Sample ID: HS23051402-28DUP			Units: mg/L Analysis Date: 24-May-2023 03:30
Client ID:		Run ID: Balance1_436318		SeqNo: 7324997	PrepDate: DF: 1
Analyte		Result	PQL	SPK Val	SPK Ref Value %REC Control Limit RPD Ref Value %RPD Limit Qual
Total Dissolved Solids (Residue, Filterable)		272	10.0		270 0.738 20
The following samples were analyzed in this batch:					
		HS23051456-07	HS23051456-08		HS23051456-09
		HS23051456-11	HS23051456-12		HS23051456-10

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436440 ( 0 )      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-05262023		Units: mg/L		Analysis Date: 26-May-2023 14:50			
Client ID:		Run ID:	Skalar 03_436440	SeqNo:	7328119	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-05262023		Units: mg/L		Analysis Date: 26-May-2023 14:56			
Client ID:		Run ID:	Skalar 03_436440	SeqNo:	7328120	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)		911.2	5.00	1000	0	91.1	85 - 115		

LCSD		Sample ID: LCSD-05262023		Units: mg/L		Analysis Date: 26-May-2023 15:02			
Client ID:		Run ID:	Skalar 03_436440	SeqNo:	7328121	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)		910.4	5.00	1000	0	91.0	85 - 115	911.2	0.0878 20

DUP		Sample ID: HS23051133-01DUP		Units: mg/L		Analysis Date: 26-May-2023 15:12			
Client ID:		Run ID:	Skalar 03_436440	SeqNo:	7328123	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)		33.4	5.00					33.5	0.299 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch:	HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
	HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
	HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12
	HS23051456-13			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436614 (0)      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

MLBK	Sample ID:	MLBK-05302023	Units: mg/L		Analysis Date: 30-May-2023 16:48			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331666	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						

MLBK	Sample ID:	MLBK-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:27			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331693	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-05302023	Units: mg/L		Analysis Date: 30-May-2023 16:54			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331667	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)	909.4	5.00	1000	0	90.9	85 - 115		

LCS	Sample ID:	LCS-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:34			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331694	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)	893	5.00	1000	0	89.3	85 - 115		

LCSD	Sample ID:	LCSD-05302023	Units: mg/L		Analysis Date: 30-May-2023 17:00			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331668	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)	906.8	5.00	1000	0	90.7	85 - 115	909.4	0.286 20

LCSD	Sample ID:	LCSD-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:40			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331695	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)	895.2	5.00	1000	0	89.5	85 - 115	909.4	1.57 20

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436614 ( 0 )      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

DUP	Sample ID:	HS23051827-01DUP		Units: mg/L		Analysis Date: 30-May-2023 20:32			
Client ID:		Run ID: Skalar 03_436614		SeqNo: 7331704	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)		216.4	5.00					219.5	1.42 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

DUP	Sample ID:	HS23051456-14DUP		Units: mg/L		Analysis Date: 30-May-2023 17:15			
Client ID:	MW 019-1603	Run ID: Skalar 03_436614		SeqNo: 7331671	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)		184.7	5.00					183	0.925 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23051456-14      HS23051456-15      HS23051456-16      HS23051456-17

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436676 ( 0 )      **Instrument:** Skalar 03      **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23051456-14DUP	Units:	pH Units	Analysis Date: 30-May-2023 17:15			
Client ID:	MW 019-1603	Run ID:	Skalar 03_436676	SeqNo: 7332686	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
pH	8.03	0.100					8.02	0.125 10
Temp Deg C @pH	21.6	0					21.8	0.922 10

The following samples were analyzed in this batch: HS23051456-14      HS23051456-15      HS23051456-16      HS23051456-17

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436739 ( 0 )      **Instrument:** ICS-Integriion      **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 01-Jun-2023 03:44			
Client ID:		Run ID: ICS-Integriion_436739		SeqNo: 7334344		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	U	0.100							
Chloride	U	0.500							
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 01-Jun-2023 03:50			
Client ID:		Run ID: ICS-Integriion_436739		SeqNo: 7334345		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	4.305	0.100	4	0	108	80 - 120			
Chloride	20.38	0.500	20	0	102	80 - 120			
Sulfate	20.97	0.500	20	0	105	80 - 120			

MS		Sample ID: HS23051709-01MS		Units: mg/L		Analysis Date: 01-Jun-2023 06:45			
Client ID:		Run ID: ICS-Integriion_436739		SeqNo: 7334371		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.952	0.100	2	0	97.6	80 - 120			
Chloride	17.5	0.500	10	7.159	103	80 - 120			
Sulfate	33.37	0.500	10	23.97	94.0	80 - 120			

MSD		Sample ID: HS23051709-01MSD		Units: mg/L		Analysis Date: 01-Jun-2023 06:50			
Client ID:		Run ID: ICS-Integriion_436739		SeqNo: 7334372		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	1.995	0.100	2	0	99.8	80 - 120	1.952	2.19	20
Chloride	17.49	0.500	10	7.159	103	80 - 120	17.5	0.0857	20
Sulfate	33.43	0.500	10	23.97	94.6	80 - 120	33.37	0.164	20

The following samples were analyzed in this batch: HS23051456-11 HS23051456-12 HS23051456-13 HS23051456-14  
HS23051456-15 HS23051456-16 HS23051456-17 HS23051456-18

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436744 ( 0 )      **Instrument:** ICS-Integriion      **Method:** ANIONS BY SW9056A

MLK		Sample ID: MBLK		Units: mg/L		Analysis Date: 31-May-2023 10:40			
Client ID:		Run ID: ICS-Integriion_436744		SeqNo: 7334445		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: 31-May-2023 10:45			
Client ID:		Run ID: ICS-Integriion_436744		SeqNo: 7334446		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		4.103	0.100	4	0	103	80 - 120		
Chloride		20.74	0.500	20	0	104	80 - 120		
Sulfate		20.9	0.500	20	0	105	80 - 120		
MS		Sample ID: HS23051456-01MS		Units: mg/L		Analysis Date: 31-May-2023 12:13			
Client ID: BS-17		Run ID: ICS-Integriion_436744		SeqNo: 7334458		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1.473	0.100	2	0	73.7	80 - 120		S
Chloride		316.9	0.500	10	321.2	-42.6	80 - 120		SEO
Sulfate		90.64	0.500	10	84.66	59.8	80 - 120		SO
MSD		Sample ID: HS23051456-01MSD		Units: mg/L		Analysis Date: 31-May-2023 12:19			
Client ID: BS-17		Run ID: ICS-Integriion_436744		SeqNo: 7334459		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1.56	0.100	2	0	78.0	80 - 120	1.473	5.74 20 S
Chloride		318.2	0.500	10	321.2	-29.2	80 - 120	316.9	0.422 20 SEO
Sulfate		91.43	0.500	10	84.66	67.7	80 - 120	90.64	0.872 20 SO

The following samples were analyzed in this batch: HS23051456-01 HS23051456-02 HS23051456-03 HS23051456-04  
HS23051456-05 HS23051456-06 HS23051456-07 HS23051456-08  
HS23051456-09 HS23051456-10

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R436971 ( 0 )      **Instrument:** Skalar 03      **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23052029-01DUP	Units:	pH Units	Analysis Date: 03-Jun-2023 11:21				
Client ID:	Run ID:	Skalar 03_436971	SeqNo:	7339843	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
pH	7.7	0.100				7.71	0.13	10	
Temp Deg C @pH	22.5	0				22.5	0	10	

The following samples were analyzed in this batch:

HS23051456-01	HS23051456-02	HS23051456-03	HS23051456-04
HS23051456-05	HS23051456-06	HS23051456-07	HS23051456-08
HS23051456-09	HS23051456-10	HS23051456-11	HS23051456-12

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QC BATCH REPORT**

**Batch ID:** R437077 ( 0 )      **Instrument:** WetChem\_HS      **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23051456-13DUP	Units:	pH Units	Analysis Date: 05-Jun-2023 16:26			
Client ID:	BS-1	Run ID:	WetChem_HS_437077	SeqNo: 7342258	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
pH	7.24	0.100				7.2	0.554	10
Temp Deg C @pH	22.1	0				22.1	0	10

The following samples were analyzed in this batch: HS23051456-13

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051456

**QUALIFIERS,  
ACRONYMS, UNITS**

<b>Qualifier</b>	<b>Description</b>
*	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

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

<b>Unit Reported</b>	<b>Description</b>
mg/L	Milligrams per Liter

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

Agency	Number	Expire Date
Arkansas	88-00356	27-Mar-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-37	30-Jun-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932022-13	31-Jul-2023

**Sample Receipt Checklist**

**Work Order ID:** HS23051456  
**Client Name:** ERMSW-HOU

**Date/Time Received:** 19-May-2023 14:20  
**Received by:** Paresh M. Giga

**Completed By:** /S/ Nilesh D. Ranchod

eSignature

22-May-2023 10:51

**Reviewed by:** /S/ Bernadette A. Fini

23-May-2023 14:13

Date/Time

eSignature

Matrices:

W

Carrier name:

Client

Shipping container/cooler in good condition?

Yes

No

Not Present

Custody seals intact on shipping container/cooler?

Yes

No

Not Present

Custody seals intact on sample bottles?

Yes

No

Not Present

VOA/TX1005/TX1006 Solids in hermetically sealed vials?

Yes

No

Not Present

Chain of custody present?

Yes

No

2 Page(s)

Chain of custody signed when relinquished and received?

Yes

No

COC IDs:241202/241199

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):

2.3C/2.2C,4.5C/4.4C,1.9C/1.8C,1.8C/1.7C,1.4C/1.3C,2.2C/2.1C UC/C

|IR31

Cooler(s)/Kit(s):

51140/51178/51138/51136/51164/51168

Date/Time sample(s) sent to storage:

05/19/2023 18:00

Water - VOA vials have zero headspace?

Yes

No

No VOA vials submitted

Water - pH acceptable upon receipt?

Yes

No

N/A

pH adjusted?

Yes

No

N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



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# Chain of Custody Form

**HS23051456**

Environmental Resources Mgmt.

Sulphur Dome

Page 1 of 2COC ID: **241202**

ALS Project Manager:

Customer Information		Project Information												
Purchase Order	0688077	Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)									
Work Order		Project Number		B	MA EPH_W_La (MA EPH)									
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA VPH_LA_W (MA VPH)									
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056_anions W (Cl,SO4,Br)									
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four	E	ALK_W 2320B (carb, bicarb),pH <input checked="" type="checkbox"/>									
			840 W. Sam Houston Pkwy., Suite 6	F	H2S_W (H2S)									
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G	HG_W (Mercury)									
Phone	(281) 600-1000	Phone	(281) 600-1000	H	ICP_TW(As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn),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	ERMNAccountsPayable@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	BS-17	5/17/23	1045	W		12	X	X	X	X	X	X	X	X	X	X	
2	BS-5	5/17/23	1145														
3	BS-18	5/17/23	1215														
4	BS-21	5/17/23	215														
5	BS-22	5/17/23	235														
6	BS-7	5/17/23	300														
7	BS-23	5/18/23	815														
8	BS-6	5/18/23	840														
9	BS-12	5/18/23	900														
10	BS-8	5/18/23	930	↓			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	

Sampler(s) Please Print & Sign <i>Taylor Brown TRM</i>	Shipment Method <i>drop off</i>	Required Turnaround Time: (Check Box)	<input type="checkbox"/> Other _____	Results Due Date:
		<input checked="" type="checkbox"/> STD 10 Wk Days	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days
			<input type="checkbox"/> 24 Hour	

Relinquished by: <i>TRM Taylor Brown</i>	Date: <u>5/19/23</u>	Time: <u>2:20p</u>	Received by: <i>TRM</i>	Notes: ERM Sulphur Dome		
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>ST 18125</i>	Cooler ID <u>S1140</u>	Cooler Temp. <u>0°C</u>	QC Package: (Check One Box Below)

Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): <i>ST 18125</i>	<input checked="" type="checkbox"/> S1140	<input type="checkbox"/> 23°	<input type="checkbox"/> Level II Std QC
				<input type="checkbox"/> S1118	<input type="checkbox"/> 4.5°	<input type="checkbox"/> Level III Std QC/Raw Data
				<input type="checkbox"/> S1138	<input type="checkbox"/> 1.9°	<input type="checkbox"/> Level IV SW846/CLP
						<input type="checkbox"/> Other

Preservative Key: 1-HCl 2-HNO <sub>3</sub> 3-H <sub>2</sub> SO <sub>4</sub> 4-NaOH 5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> 6-NaHSO <sub>4</sub> 7-Other 8-4°C 9-5035	<input checked="" type="checkbox"/> 31 C 1/20	Copyright 2011 by ALS Environmental.

- 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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+1 616 399 6070

## Chain of Custody Form

Page 2 of 2

COC ID: 241199

HS23051456

Environmental Resources Mgmt.  
Sulphur Dome

## ALS Project Manager:



Customer Information		Project Information		
Purchase Order	0688077	Project Name	Sulphur Dome	A
Work Order		Project Number		B
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	E
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G
Phone	(281) 600-1000	Phone	(281) 600-1000	H
Fax	(281) 600-1001	Fax	(281) 600-1001	I
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAAccountsPayable@erm.com	J

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	BS-9	5/18/23	1020	W		12	X	X	X	X	X	X	X	X	X	X	
2	BS-19		1100														
3	BS-1		130														
4	MW 019-1603		100														
5	BS 7B-Brine		245														
6	Cottages		350														
7	MW 019-1055		430														
8																	
9																	
10																	

Sampler(s) Please Print & Sign <i>Taylor Brown TM</i>	Shipment Method <i>drop off</i>	Required Turnaround Time: (Check Box)	<input type="checkbox"/> Other _____	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days	<input type="checkbox"/> 24 Hour	Results Due Date:
Relinquished by: <i>TM</i>	Date: 5/19/23	Time: 2:20 p	Received by: <i>J</i>	Notes: ERM Sulphur Dome			
Relinquished by: _____	Date: _____	Time: _____	Received by (Laboratory): <i>J</i>	Cooler ID: <i>S1136</i>	Cooler Temp: <i>31.5</i>	QC Package: (Check One Box Below)	
Logged by (Laboratory): _____	Date: _____	Time: _____	Checked by (Laboratory): <i>5/18/23 14:20</i>	<input checked="" type="checkbox"/> S1136	<input type="checkbox"/> 1.8°	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist
				<input type="checkbox"/> S1164	<input type="checkbox"/> 1.4°	<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV
				<input type="checkbox"/> Other		<input type="checkbox"/> Level IV SW846/CLP	

Preservative Key: 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> 6-NaHSO<sub>4</sub> 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.  
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 3. The Chain of Custody is a legal document. All information must be completed accurately.



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10450 Stancliff Rd. Suite 210  
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June 08, 2023

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

Work Order: **HS23051546**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 6 sample(s) on May 23, 2023 for the analysis presented in the following report.

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

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

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

Sincerely,

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

Generated By: JUMOKE.LAWAL

Bernadette A. Fini  
Project Manager

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**Work Order:** HS23051546

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23051546-01	BS-4	Water		22-May-2023 10:34	23-May-2023 10:08	<input type="checkbox"/>
HS23051546-02	BS-24	Water		22-May-2023 11:15	23-May-2023 10:08	<input type="checkbox"/>
HS23051546-03	BS-3	Water		22-May-2023 11:50	23-May-2023 10:08	<input type="checkbox"/>
HS23051546-04	019-580	Water		22-May-2023 13:40	23-May-2023 10:08	<input type="checkbox"/>
HS23051546-05	019-582	Water		22-May-2023 14:00	23-May-2023 10:08	<input type="checkbox"/>
HS23051546-06	019-995	Water		22-May-2023 14:20	23-May-2023 10:08	<input type="checkbox"/>

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**Work Order:** HS23051546

**CASE NARRATIVE****Work Order Comments**

- Login notes:  
BS-24 & 019-995 Bottle 2 of 2 MA EPH pH>2(7)Preserved with 5mil HCL on 05/23/2023 @ 11:45 Lot # 3100605321 By Sima After preserved pH (1)

**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: 194645**

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

**GC Volatiles by Method MA VPH****Batch ID: R436204,R436267**

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

**GCMS Volatiles by Method SW8260****Batch ID: R436208**

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

**Metals by Method SW7470A****Batch ID: 194893**

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

**Metals by Method SW6020A****Batch ID: 194743****Sample ID: 019-580 (HS23051546-04MS)**

- The MS and/or MSD recovery was outside of the control; however, the result in the parent sample is greater than 4x the spike amount.  
Manganese, Sodium.

**WetChemistry by Method SM2320B****Batch ID: R436614**

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

**WetChemistry by Method SM4500H+ B****Batch ID: R436676**

- 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:** HS23051546

**CASE NARRATIVE****WetChemistry by Method SW9056****Batch ID: R437110****Sample ID: BS-4 (HS23051546-01MS)**

- The MS and/or MSD recovery was outside of the control limits; however, the result in the parent sample is greater than 4x the spike amount. (Chloride,Sulfate)

**WetChemistry by Method E376.1****Batch ID: R436602,R436709**

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

**WetChemistry by Method M2540C****Batch ID: R436397**

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

**WetChemistry by Method SM4500 S2-F****Batch ID: R436310,R436391**

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-4  
 Collection Date: 22-May-2023 10:34

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 07:06
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 07:06
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 07:06
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 07:06
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 07:06
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 07:06
<i>Surr: 1,2-Dichloroethane-d4</i>	89.7			70-126	%REC	1	25-May-2023 07:06
<i>Surr: 4-Bromofluorobenzene</i>	92.9			77-113	%REC	1	25-May-2023 07:06
<i>Surr: Dibromofluoromethane</i>	89.9			77-123	%REC	1	25-May-2023 07:06
<i>Surr: Toluene-d8</i>	99.4			82-127	%REC	1	25-May-2023 07:06
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 13:36
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 13:36
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 13:36
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	24-May-2023 13:36
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	24-May-2023 13:36
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 19:08
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 19:08
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 19:08
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 19:08
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 19:08
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 19:08
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 19:08
<i>Surr: 1-Chlorooctadecane</i>	62.2			40-140	%REC	1	02-Jun-2023 19:08
<i>Surr: 2-Bromonaphthalene</i>	114			40-140	%REC	1	02-Jun-2023 19:08
<i>Surr: 2-Fluorobiphenyl</i>	80.2			40-140	%REC	1	02-Jun-2023 19:08
<i>Surr: o-Terphenyl</i>	97.8			40-140	%REC	1	02-Jun-2023 19:08

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-4  
 Collection Date: 22-May-2023 10:34

**ANALYTICAL REPORT**

WorkOrder:HS23051546  
 Lab ID:HS23051546-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 05-Jun-2023			Analyst: JC
Arsenic	0.00110	J	0.000400	0.00200	mg/L	1	06-Jun-2023 15:33
Barium	0.276		0.00190	0.00400	mg/L	1	06-Jun-2023 15:33
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:33
Calcium	69.6		0.0340	0.500	mg/L	1	06-Jun-2023 15:33
Chromium	U		0.000400	0.00400	mg/L	1	06-Jun-2023 15:33
Iron	0.0647	J	0.0120	0.200	mg/L	1	06-Jun-2023 15:33
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:33
Magnesium	13.6		0.0100	0.200	mg/L	1	06-Jun-2023 15:33
Manganese	0.747		0.000700	0.00500	mg/L	1	06-Jun-2023 15:33
Nickel	0.00385		0.000600	0.00200	mg/L	1	06-Jun-2023 15:33
Potassium	2.34		0.0180	0.200	mg/L	1	06-Jun-2023 15:33
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:33
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:33
Sodium	176		0.0140	0.200	mg/L	1	06-Jun-2023 15:33
Strontium	0.532		0.000200	0.00500	mg/L	1	06-Jun-2023 15:33
Vanadium	0.00181	J	0.000600	0.00500	mg/L	1	06-Jun-2023 15:33
Zinc	0.00289	J	0.00200	0.00400	mg/L	1	06-Jun-2023 15:33
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 07-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:42
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	25-May-2023 16:40
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	864		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	164		5.00	5.00	mg/L	1	30-May-2023 20:59
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 20:59
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	25-May-2023 17:41
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.66	H	0.100	0.100	pH Units	1	30-May-2023 20:59
Temp Deg C @pH	21.8	H	0	0	°C	1	30-May-2023 20:59
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	05-Jun-2023 14:18
Chloride	340		2.00	5.00	mg/L	10	05-Jun-2023 17:07
Sulfate	83.5		0.200	0.500	mg/L	1	05-Jun-2023 14:18

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-24  
 Collection Date: 22-May-2023 11:15

**ANALYTICAL REPORT**

WorkOrder:HS23051546  
 Lab ID:HS23051546-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>							
				<b>Method:SW8260</b>			Analyst: PC
Benzene	<b>0.74</b>	J	<b>0.20</b>	<b>1.0</b>	ug/L	1	25-May-2023 07:29
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 07:29
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 07:29
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 07:29
Toluene	<b>1.1</b>		<b>0.20</b>	<b>1.0</b>	ug/L	1	25-May-2023 07:29
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 07:29
Surr: 1,2-Dichloroethane-d4	87.8			70-126	%REC	1	25-May-2023 07:29
Surr: 4-Bromofluorobenzene	92.0			77-113	%REC	1	25-May-2023 07:29
Surr: Dibromofluoromethane	89.1			77-123	%REC	1	25-May-2023 07:29
Surr: Toluene-d8	103			82-127	%REC	1	25-May-2023 07:29
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>							
				<b>Method:MA VPH</b>			Analyst: PJM
Aliphatics >C6 - C8	<b>0.0758</b>		<b>0.0100</b>	<b>0.0100</b>	mg/L	1	24-May-2023 14:14
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 14:14
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 14:14
Surr: 2,5-Dibromotoluene (Aliphatic)	121			70-130	%REC	1	24-May-2023 14:14
Surr: 2,5-Dibromotoluene (Aromatic)	123			70-130	%REC	1	24-May-2023 14:14
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>							
				<b>Method:MA EPH</b>	Prep:SW3510 / 02-Jun-2023		Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 19:39
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 19:39
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 19:39
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 19:39
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 19:39
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 19:39
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 19:39
Surr: 1-Chlorooctadecane	62.6			40-140	%REC	1	02-Jun-2023 19:39
Surr: 2-Bromonaphthalene	111			40-140	%REC	1	02-Jun-2023 19:39
Surr: 2-Fluorobiphenyl	67.2			40-140	%REC	1	02-Jun-2023 19:39
Surr: o-Terphenyl	115			40-140	%REC	1	02-Jun-2023 19:39

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-24  
 Collection Date: 22-May-2023 11:15

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>				<b>Method:SW6020A</b>			Prep:SW3010A / 05-Jun-2023
Arsenic	0.00124	J	0.000400	0.00200	mg/L	1	06-Jun-2023 15:35
Barium	0.226		0.00190	0.00400	mg/L	1	06-Jun-2023 15:35
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:35
Calcium	71.8		0.0340	0.500	mg/L	1	06-Jun-2023 15:35
Chromium	U		0.000400	0.00400	mg/L	1	06-Jun-2023 15:35
Iron	0.327		0.0120	0.200	mg/L	1	06-Jun-2023 15:35
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:35
Magnesium	12.5		0.0100	0.200	mg/L	1	06-Jun-2023 15:35
Manganese	0.574		0.000700	0.00500	mg/L	1	06-Jun-2023 15:35
Nickel	0.000869	J	0.000600	0.00200	mg/L	1	06-Jun-2023 15:35
Potassium	2.60		0.0180	0.200	mg/L	1	06-Jun-2023 15:35
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:35
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:35
Sodium	161		0.0140	0.200	mg/L	1	06-Jun-2023 15:35
Strontium	0.519		0.000200	0.00500	mg/L	1	06-Jun-2023 15:35
Vanadium	0.00246	J	0.000600	0.00500	mg/L	1	06-Jun-2023 15:35
Zinc	0.00278	J	0.00200	0.00400	mg/L	1	06-Jun-2023 15:35
<b>MERCURY BY SW7470A</b>				<b>Method:SW7470A</b>			Prep:SW7470A / 07-Jun-2023
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:44
<b>HYDROGEN SULFIDE BY E376.1</b>				<b>Method:E376.1</b>			Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	26-May-2023 17:14
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>				<b>Method:M2540C</b>			Analyst: DC
Total Dissolved Solids (Residue, Filterable)	840		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b>				<b>Method:SM2320B</b>			Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	176		5.00	5.00	mg/L	1	30-May-2023 21:04
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 21:04
<b>SULFIDE BY SM4500 S2-F-2011</b>				<b>Method:SM4500 S2-F</b>			Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b>				<b>Method:SM4500H+ B</b>			Analyst: DW
pH	7.58	H	0.100	0.100	pH Units	1	30-May-2023 21:04
Temp Deg C @pH	21.8	H	0	0	°C	1	30-May-2023 21:04
<b>ANIONS BY SW9056A</b>				<b>Method:SW9056</b>			Analyst: TH
Bromide	U		0.0300	0.100	mg/L	1	05-Jun-2023 14:36
Chloride	314		2.00	5.00	mg/L	10	05-Jun-2023 17:13
Sulfate	79.9		0.200	0.500	mg/L	1	05-Jun-2023 14:36

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-3  
 Collection Date: 22-May-2023 11:50

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>							
				<b>Method:SW8260</b>			Analyst: PC
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 07:51
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 07:51
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 07:51
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 07:51
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 07:51
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 07:51
<i>Surr: 1,2-Dichloroethane-d4</i>	88.1			70-126	%REC	1	25-May-2023 07:51
<i>Surr: 4-Bromofluorobenzene</i>	93.8			77-113	%REC	1	25-May-2023 07:51
<i>Surr: Dibromofluoromethane</i>	90.2			77-123	%REC	1	25-May-2023 07:51
<i>Surr: Toluene-d8</i>	100			82-127	%REC	1	25-May-2023 07:51
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>							
				<b>Method:MA VPH</b>			Analyst: PJM
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 14:53
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 14:53
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 14:53
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	121			70-130	%REC	1	24-May-2023 14:53
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	121			70-130	%REC	1	24-May-2023 14:53
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>							
				<b>Method:MA EPH</b>	Prep:SW3510 / 02-Jun-2023		Analyst: SAM
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 20:11
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 20:11
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 20:11
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 20:11
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 20:11
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 20:11
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 20:11
<i>Surr: 1-Chlorooctadecane</i>	59.5			40-140	%REC	1	02-Jun-2023 20:11
<i>Surr: 2-Bromonaphthalene</i>	114			40-140	%REC	1	02-Jun-2023 20:11
<i>Surr: 2-Fluorobiphenyl</i>	87.4			40-140	%REC	1	02-Jun-2023 20:11
<i>Surr: o-Terphenyl</i>	98.4			40-140	%REC	1	02-Jun-2023 20:11

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: BS-3  
 Collection Date: 22-May-2023 11:50

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-03  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 05-Jun-2023			Analyst: JC
Arsenic	0.00113	J	0.000400	0.00200	mg/L	1	06-Jun-2023 15:47
Barium	0.156		0.00190	0.00400	mg/L	1	06-Jun-2023 15:47
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:47
Calcium	65.9		0.0340	0.500	mg/L	1	06-Jun-2023 15:47
Chromium	0.00201	J	0.000400	0.00400	mg/L	1	06-Jun-2023 15:47
Iron	0.118	J	0.0120	0.200	mg/L	1	06-Jun-2023 15:47
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:47
Magnesium	12.0		0.0100	0.200	mg/L	1	06-Jun-2023 15:47
Manganese	0.389		0.000700	0.00500	mg/L	1	06-Jun-2023 15:47
Nickel	0.00114	J	0.000600	0.00200	mg/L	1	06-Jun-2023 15:47
Potassium	2.17		0.0180	0.200	mg/L	1	06-Jun-2023 15:47
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:47
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:47
Sodium	155		0.0140	0.200	mg/L	1	06-Jun-2023 15:47
Strontium	0.479		0.000200	0.00500	mg/L	1	06-Jun-2023 15:47
Vanadium	0.00324	J	0.000600	0.00500	mg/L	1	06-Jun-2023 15:47
Zinc	0.0448		0.00200	0.00400	mg/L	1	06-Jun-2023 15:47
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 07-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:45
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	26-May-2023 17:14
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	880		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	149		5.00	5.00	mg/L	1	30-May-2023 21:09
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 21:09
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.75	H	0.100	0.100	pH Units	1	30-May-2023 21:09
Temp Deg C @pH	21.9	H	0	0	°C	1	30-May-2023 21:09
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	U		0.0300	0.100	mg/L	1	05-Jun-2023 14:41
Chloride	322		2.00	5.00	mg/L	10	05-Jun-2023 17:19
Sulfate	89.6		0.200	0.500	mg/L	1	05-Jun-2023 14:41

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: 22-May-2023 13:40

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 08:13
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 08:13
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 08:13
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 08:13
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 08:13
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 08:13
<i>Surr: 1,2-Dichloroethane-d4</i>	89.8			70-126	%REC	1	25-May-2023 08:13
<i>Surr: 4-Bromofluorobenzene</i>	91.7			77-113	%REC	1	25-May-2023 08:13
<i>Surr: Dibromofluoromethane</i>	90.0			77-123	%REC	1	25-May-2023 08:13
<i>Surr: Toluene-d8</i>	98.8			82-127	%REC	1	25-May-2023 08:13
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 15:31
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 15:31
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 15:31
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	122			70-130	%REC	1	24-May-2023 15:31
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	24-May-2023 15:31
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Prep:SW3510 / 02-Jun-2023						<b>Analyst: SAM</b>	
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 20:43
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 20:43
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 20:43
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 20:43
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 20:43
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 20:43
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 20:43
<i>Surr: 1-Chlorooctadecane</i>	70.4			40-140	%REC	1	02-Jun-2023 20:43
<i>Surr: 2-Bromonaphthalene</i>	103			40-140	%REC	1	02-Jun-2023 20:43
<i>Surr: 2-Fluorobiphenyl</i>	67.0			40-140	%REC	1	02-Jun-2023 20:43
<i>Surr: o-Terphenyl</i>	92.8			40-140	%REC	1	02-Jun-2023 20:43

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: 22-May-2023 13:40

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-04  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 05-Jun-2023 Analyst: JC
Arsenic	U		0.000400	0.00200	mg/L	1	06-Jun-2023 15:20
<b>Barium</b>	<b>0.216</b>		<b>0.00190</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:20
<b>Calcium</b>	<b>24.1</b>		<b>0.0340</b>	<b>0.500</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
Chromium	U		0.000400	0.00400	mg/L	1	06-Jun-2023 15:20
Iron	1.81		0.0120	0.200	mg/L	1	06-Jun-2023 15:20
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:20
<b>Magnesium</b>	<b>7.19</b>		<b>0.0100</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
<b>Manganese</b>	<b>0.317</b>		<b>0.000700</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
Nickel	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:20
<b>Potassium</b>	<b>2.62</b>		<b>0.0180</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:20
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:20
<b>Sodium</b>	<b>27.4</b>		<b>0.0140</b>	<b>0.200</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
<b>Strontium</b>	<b>0.212</b>		<b>0.000200</b>	<b>0.00500</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
Vanadium	U		0.000600	0.00500	mg/L	1	06-Jun-2023 15:20
<b>Zinc</b>	<b>0.0107</b>		<b>0.00200</b>	<b>0.00400</b>	<b>mg/L</b>	<b>1</b>	06-Jun-2023 15:20
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 07-Jun-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:47
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	26-May-2023 17:14
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	266		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	114		5.00	5.00	mg/L	1	30-May-2023 21:15
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 21:15
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	7.30	H	0.100	0.100	pH Units	1	30-May-2023 21:15
Temp Deg C @pH	22.0	H	0	0	°C	1	30-May-2023 21:15
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	0.169		0.0300	0.100	mg/L	1	05-Jun-2023 14:47
Chloride	38.7		0.200	0.500	mg/L	1	05-Jun-2023 14:47
Sulfate	3.30		0.200	0.500	mg/L	1	05-Jun-2023 14:47

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: 22-May-2023 14:00

**ANALYTICAL REPORT**

WorkOrder:HS23051546  
 Lab ID:HS23051546-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>							
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 08:36
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 08:36
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 08:36
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 08:36
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 08:36
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 08:36
<i>Surr: 1,2-Dichloroethane-d4</i>	89.2			70-126	%REC	1	25-May-2023 08:36
<i>Surr: 4-Bromofluorobenzene</i>	91.1			77-113	%REC	1	25-May-2023 08:36
<i>Surr: Dibromofluoromethane</i>	91.5			77-123	%REC	1	25-May-2023 08:36
<i>Surr: Toluene-d8</i>	101			82-127	%REC	1	25-May-2023 08:36
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>							
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 16:09
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 16:09
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 16:09
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	123			70-130	%REC	1	24-May-2023 16:09
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	123			70-130	%REC	1	24-May-2023 16:09
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>							
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 21:15
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 21:15
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 21:15
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 21:15
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 21:15
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 21:15
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 21:15
<i>Surr: 1-Chlorooctadecane</i>	66.0			40-140	%REC	1	02-Jun-2023 21:15
<i>Surr: 2-Bromonaphthalene</i>	122			40-140	%REC	1	02-Jun-2023 21:15
<i>Surr: 2-Fluorobiphenyl</i>	117			40-140	%REC	1	02-Jun-2023 21:15
<i>Surr: o-Terphenyl</i>	119			40-140	%REC	1	02-Jun-2023 21:15

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: 22-May-2023 14:00

**ANALYTICAL REPORT**  
 WorkOrder:HS23051546  
 Lab ID:HS23051546-05  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 05-Jun-2023			Analyst: JC
Arsenic	0.000418	J	0.000400	0.00200	mg/L	1	06-Jun-2023 15:49
Barium	0.232		0.00190	0.00400	mg/L	1	06-Jun-2023 15:49
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:49
Calcium	24.6		0.0340	0.500	mg/L	1	06-Jun-2023 15:49
Chromium	U		0.000400	0.00400	mg/L	1	06-Jun-2023 15:49
Iron	6.13		0.0120	0.200	mg/L	1	06-Jun-2023 15:49
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:49
Magnesium	7.36		0.0100	0.200	mg/L	1	06-Jun-2023 15:49
Manganese	0.408		0.000700	0.00500	mg/L	1	06-Jun-2023 15:49
Nickel	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:49
Potassium	2.55		0.0180	0.200	mg/L	1	06-Jun-2023 15:49
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:49
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:49
Sodium	27.8		0.0140	0.200	mg/L	1	06-Jun-2023 15:49
Strontium	0.218		0.000200	0.00500	mg/L	1	06-Jun-2023 15:49
Vanadium	U		0.000600	0.00500	mg/L	1	06-Jun-2023 15:49
Zinc	0.0190		0.00200	0.00400	mg/L	1	06-Jun-2023 15:49
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 07-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:49
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	26-May-2023 17:14
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	248		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	120		5.00	5.00	mg/L	1	30-May-2023 21:20
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 21:20
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.37	H	0.100	0.100	pH Units	1	30-May-2023 21:20
Temp Deg C @pH	22.1	H	0	0	°C	1	30-May-2023 21:20
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	0.168		0.0300	0.100	mg/L	1	05-Jun-2023 14:53
Chloride	38.1		0.200	0.500	mg/L	1	05-Jun-2023 14:53
Sulfate	2.90		0.200	0.500	mg/L	1	05-Jun-2023 14:53

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: 22-May-2023 14:20

**ANALYTICAL REPORT**

WorkOrder:HS23051546  
 Lab ID:HS23051546-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>							
Benzene	U		0.20	1.0	ug/L	1	25-May-2023 08:58
Ethylbenzene	U		0.30	1.0	ug/L	1	25-May-2023 08:58
m,p-Xylene	U		0.50	2.0	ug/L	1	25-May-2023 08:58
o-Xylene	U		0.30	1.0	ug/L	1	25-May-2023 08:58
Toluene	U		0.20	1.0	ug/L	1	25-May-2023 08:58
Xylenes, Total	U		0.30	1.0	ug/L	1	25-May-2023 08:58
<i>Surr: 1,2-Dichloroethane-d4</i>	88.8			70-126	%REC	1	25-May-2023 08:58
<i>Surr: 4-Bromofluorobenzene</i>	91.2			77-113	%REC	1	25-May-2023 08:58
<i>Surr: Dibromofluoromethane</i>	89.4			77-123	%REC	1	25-May-2023 08:58
<i>Surr: Toluene-d8</i>	101			82-127	%REC	1	25-May-2023 08:58
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>							
Aliphatics >C6 - C8	U		0.0100	0.0100	mg/L	1	24-May-2023 16:48
Aliphatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 16:48
Aromatics >C8 - C10	U		0.0100	0.0100	mg/L	1	24-May-2023 16:48
<i>Surr: 2,5-Dibromotoluene (Aliphatic)</i>	124			70-130	%REC	1	24-May-2023 16:48
<i>Surr: 2,5-Dibromotoluene (Aromatic)</i>	122			70-130	%REC	1	24-May-2023 16:48
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>							
Aliphatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 21:47
Aliphatics >C12 - C16	U		0.00200	0.00200	mg/L	1	02-Jun-2023 21:47
Aliphatics >C16 - C35	U		0.00800	0.00800	mg/L	1	02-Jun-2023 21:47
Aromatics >C10 - C12	U		0.00100	0.00100	mg/L	1	02-Jun-2023 21:47
Aromatics >C12 - C16	U		0.00400	0.00400	mg/L	1	02-Jun-2023 21:47
Aromatics >C16 - C21	U		0.00300	0.00300	mg/L	1	02-Jun-2023 21:47
Aromatics >C21 - C35	U		0.00900	0.00900	mg/L	1	02-Jun-2023 21:47
<i>Surr: 1-Chlorooctadecane</i>	63.5			40-140	%REC	1	02-Jun-2023 21:47
<i>Surr: 2-Bromonaphthalene</i>	101			40-140	%REC	1	02-Jun-2023 21:47
<i>Surr: 2-Fluorobiphenyl</i>	54.0			40-140	%REC	1	02-Jun-2023 21:47
<i>Surr: o-Terphenyl</i>	112			40-140	%REC	1	02-Jun-2023 21:47

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: 22-May-2023 14:20

**ANALYTICAL REPORT**

WorkOrder:HS23051546  
 Lab ID:HS23051546-06  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b> <b>Method:SW6020A</b>				Prep:SW3010A / 05-Jun-2023			Analyst: JC
Arsenic	0.000497	J	0.000400	0.00200	mg/L	1	06-Jun-2023 15:51
Barium	0.207		0.00190	0.00400	mg/L	1	06-Jun-2023 15:51
Cadmium	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:51
Calcium	24.8		0.0340	0.500	mg/L	1	06-Jun-2023 15:51
Chromium	U		0.000400	0.00400	mg/L	1	06-Jun-2023 15:51
Iron	2.11		0.0120	0.200	mg/L	1	06-Jun-2023 15:51
Lead	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:51
Magnesium	7.47		0.0100	0.200	mg/L	1	06-Jun-2023 15:51
Manganese	0.403		0.000700	0.00500	mg/L	1	06-Jun-2023 15:51
Nickel	U		0.000600	0.00200	mg/L	1	06-Jun-2023 15:51
Potassium	2.61		0.0180	0.200	mg/L	1	06-Jun-2023 15:51
Selenium	U		0.00110	0.00200	mg/L	1	06-Jun-2023 15:51
Silver	U		0.000200	0.00200	mg/L	1	06-Jun-2023 15:51
Sodium	30.5		0.0140	0.200	mg/L	1	06-Jun-2023 15:51
Strontium	0.223		0.000200	0.00500	mg/L	1	06-Jun-2023 15:51
Vanadium	U		0.000600	0.00500	mg/L	1	06-Jun-2023 15:51
Zinc	U		0.00200	0.00400	mg/L	1	06-Jun-2023 15:51
<b>MERCURY BY SW7470A</b> <b>Method:SW7470A</b>				Prep:SW7470A / 07-Jun-2023			Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	07-Jun-2023 17:50
<b>HYDROGEN SULFIDE BY E376.1</b> <b>Method:E376.1</b>				Analyst: CD			
Hydrogen Sulfide	U		0.500	1.00	mg/L	1	26-May-2023 17:14
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b> <b>Method:M2540C</b>				Analyst: DC			
Total Dissolved Solids (Residue, Filterable)	222		5.00	10.0	mg/L	1	25-May-2023 14:36
<b>ALKALINITY BY SM 2320B-2011</b> <b>Method:SM2320B</b>				Analyst: DW			
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	128		5.00	5.00	mg/L	1	30-May-2023 21:36
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	30-May-2023 21:36
<b>SULFIDE BY SM4500 S2-F-2011</b> <b>Method:SM4500 S2-F</b>				Analyst: CD			
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b> <b>Method:SM4500H+ B</b>				Analyst: DW			
pH	7.55	H	0.100	0.100	pH Units	1	30-May-2023 21:36
Temp Deg C @pH	22.3	H	0	0	°C	1	30-May-2023 21:36
<b>ANIONS BY SW9056A</b> <b>Method:SW9056</b>				Analyst: TH			
Bromide	0.164		0.0300	0.100	mg/L	1	05-Jun-2023 14:59
Chloride	34.1		0.200	0.500	mg/L	1	05-Jun-2023 14:59
Sulfate	2.53		0.200	0.500	mg/L	1	05-Jun-2023 14:59

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

**Weight / Prep Log****Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23051546**Batch ID:** 194645**Start Date:** 02 Jun 2023 10:38**End Date:** 02 Jun 2023 10:38**Method:** MA EPH EXTRACTION-FRACTIONATION**Prep Code:** MA EPH\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051546-01	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051546-02	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051546-03	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051546-04	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051546-05	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2
HS23051546-06	1	1000 (mL)	2 (mL)	0.002	1-litre amber glass, HCL to pH <2

**Batch ID:** 194743**Start Date:** 05 Jun 2023 12:30**End Date:** 05 Jun 2023 12:30**Method:** WATER - SW3010A**Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051546-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-06		10 (mL)	10 (mL)	1	120 plastic HNO3

**Batch ID:** 194893**Start Date:** 07 Jun 2023 08:30**End Date:** 07 Jun 2023 08:30**Method:** MERCURY PREP BY 7470A- WATER**Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051546-01		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-02		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-03		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-04		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-05		10 (mL)	10 (mL)	1	120 plastic HNO3
HS23051546-06		10 (mL)	10 (mL)	1	120 plastic HNO3

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 194645 ( 0 )	<b>Test Name :</b> MASSACHUSETTS EPH R2.1, DEC 2019					<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34		02 Jun 2023 10:38	02 Jun 2023 19:08	1
HS23051546-01	BS-4	22 May 2023 10:34		02 Jun 2023 10:38	02 Jun 2023 19:08	1
HS23051546-02	BS-24	22 May 2023 11:15		02 Jun 2023 10:38	02 Jun 2023 19:39	1
HS23051546-02	BS-24	22 May 2023 11:15		02 Jun 2023 10:38	02 Jun 2023 19:39	1
HS23051546-03	BS-3	22 May 2023 11:50		02 Jun 2023 10:38	02 Jun 2023 20:11	1
HS23051546-03	BS-3	22 May 2023 11:50		02 Jun 2023 10:38	02 Jun 2023 20:11	1
HS23051546-04	019-580	22 May 2023 13:40		02 Jun 2023 10:38	02 Jun 2023 20:43	1
HS23051546-04	019-580	22 May 2023 13:40		02 Jun 2023 10:38	02 Jun 2023 20:43	1
HS23051546-05	019-582	22 May 2023 14:00		02 Jun 2023 10:38	02 Jun 2023 21:15	1
HS23051546-05	019-582	22 May 2023 14:00		02 Jun 2023 10:38	02 Jun 2023 21:15	1
HS23051546-06	019-995	22 May 2023 14:20		02 Jun 2023 10:38	02 Jun 2023 21:47	1
HS23051546-06	019-995	22 May 2023 14:20		02 Jun 2023 10:38	02 Jun 2023 21:47	1
<b>Batch ID:</b> 194743 ( 0 )	<b>Test Name :</b> ICP-MS METALS BY SW6020A					<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34		05 Jun 2023 12:30	06 Jun 2023 15:33	1
HS23051546-02	BS-24	22 May 2023 11:15		05 Jun 2023 12:30	06 Jun 2023 15:35	1
HS23051546-03	BS-3	22 May 2023 11:50		05 Jun 2023 12:30	06 Jun 2023 15:47	1
HS23051546-04	019-580	22 May 2023 13:40		05 Jun 2023 12:30	06 Jun 2023 15:20	1
HS23051546-05	019-582	22 May 2023 14:00		05 Jun 2023 12:30	06 Jun 2023 15:49	1
HS23051546-06	019-995	22 May 2023 14:20		05 Jun 2023 12:30	06 Jun 2023 15:51	1
<b>Batch ID:</b> 194893 ( 0 )	<b>Test Name :</b> MERCURY BY SW7470A					<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34		07 Jun 2023 08:30	07 Jun 2023 17:42	1
HS23051546-02	BS-24	22 May 2023 11:15		07 Jun 2023 08:30	07 Jun 2023 17:44	1
HS23051546-03	BS-3	22 May 2023 11:50		07 Jun 2023 08:30	07 Jun 2023 17:45	1
HS23051546-04	019-580	22 May 2023 13:40		07 Jun 2023 08:30	07 Jun 2023 17:47	1
HS23051546-05	019-582	22 May 2023 14:00		07 Jun 2023 08:30	07 Jun 2023 17:49	1
HS23051546-06	019-995	22 May 2023 14:20		07 Jun 2023 08:30	07 Jun 2023 17:50	1
<b>Batch ID:</b> R436204 ( 0 )	<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1					<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			24 May 2023 13:36	1
HS23051546-02	BS-24	22 May 2023 11:15			24 May 2023 14:14	1
HS23051546-03	BS-3	22 May 2023 11:50			24 May 2023 14:53	1
HS23051546-04	019-580	22 May 2023 13:40			24 May 2023 15:31	1
HS23051546-05	019-582	22 May 2023 14:00			24 May 2023 16:09	1
HS23051546-06	019-995	22 May 2023 14:20			24 May 2023 16:48	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436208 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			25 May 2023 07:06	1
HS23051546-02	BS-24	22 May 2023 11:15			25 May 2023 07:29	1
HS23051546-03	BS-3	22 May 2023 11:50			25 May 2023 07:51	1
HS23051546-04	019-580	22 May 2023 13:40			25 May 2023 08:13	1
HS23051546-05	019-582	22 May 2023 14:00			25 May 2023 08:36	1
HS23051546-06	019-995	22 May 2023 14:20			25 May 2023 08:58	1
<b>Batch ID:</b> R436267 ( 0 )		<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			24 May 2023 13:36	1
HS23051546-02	BS-24	22 May 2023 11:15			24 May 2023 14:14	1
HS23051546-03	BS-3	22 May 2023 11:50			24 May 2023 14:53	1
HS23051546-04	019-580	22 May 2023 13:40			24 May 2023 15:31	1
HS23051546-05	019-582	22 May 2023 14:00			24 May 2023 16:09	1
HS23051546-06	019-995	22 May 2023 14:20			24 May 2023 16:48	1
<b>Batch ID:</b> R436310 ( 0 )		<b>Test Name :</b> SULFIDE BY SM4500 S2-F-2011				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			25 May 2023 17:41	1
<b>Batch ID:</b> R436391 ( 0 )		<b>Test Name :</b> SULFIDE BY SM4500 S2-F-2011				<b>Matrix:</b> Water
HS23051546-02	BS-24	22 May 2023 11:15			26 May 2023 13:43	1
HS23051546-03	BS-3	22 May 2023 11:50			26 May 2023 13:43	1
HS23051546-04	019-580	22 May 2023 13:40			26 May 2023 13:43	1
HS23051546-05	019-582	22 May 2023 14:00			26 May 2023 13:43	1
HS23051546-06	019-995	22 May 2023 14:20			26 May 2023 13:43	1
<b>Batch ID:</b> R436397 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			25 May 2023 14:36	1
HS23051546-02	BS-24	22 May 2023 11:15			25 May 2023 14:36	1
HS23051546-03	BS-3	22 May 2023 11:50			25 May 2023 14:36	1
HS23051546-04	019-580	22 May 2023 13:40			25 May 2023 14:36	1
HS23051546-05	019-582	22 May 2023 14:00			25 May 2023 14:36	1
HS23051546-06	019-995	22 May 2023 14:20			25 May 2023 14:36	1
<b>Batch ID:</b> R436602 ( 0 )		<b>Test Name :</b> HYDROGEN SULFIDE BY E376.1				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			25 May 2023 16:40	1
<b>Batch ID:</b> R436614 ( 0 )		<b>Test Name :</b> ALKALINITY BY SM 2320B-2011				<b>Matrix:</b> Water
HS23051546-01	BS-4	22 May 2023 10:34			30 May 2023 20:59	1
HS23051546-02	BS-24	22 May 2023 11:15			30 May 2023 21:04	1
HS23051546-03	BS-3	22 May 2023 11:50			30 May 2023 21:09	1
HS23051546-04	019-580	22 May 2023 13:40			30 May 2023 21:15	1
HS23051546-05	019-582	22 May 2023 14:00			30 May 2023 21:20	1
HS23051546-06	019-995	22 May 2023 14:20			30 May 2023 21:36	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> R436676 ( 0 )		<b>Test Name :</b> PH BY SM4500H+ B-2011			<b>Matrix:</b> Water	
HS23051546-01	BS-4	22 May 2023 10:34			30 May 2023 20:59	1
HS23051546-02	BS-24	22 May 2023 11:15			30 May 2023 21:04	1
HS23051546-03	BS-3	22 May 2023 11:50			30 May 2023 21:09	1
HS23051546-04	019-580	22 May 2023 13:40			30 May 2023 21:15	1
HS23051546-05	019-582	22 May 2023 14:00			30 May 2023 21:20	1
HS23051546-06	019-995	22 May 2023 14:20			30 May 2023 21:36	1
<b>Batch ID:</b> R436709 ( 0 )		<b>Test Name :</b> HYDROGEN SULFIDE BY E376.1			<b>Matrix:</b> Water	
HS23051546-02	BS-24	22 May 2023 11:15			26 May 2023 17:14	1
HS23051546-03	BS-3	22 May 2023 11:50			26 May 2023 17:14	1
HS23051546-04	019-580	22 May 2023 13:40			26 May 2023 17:14	1
HS23051546-05	019-582	22 May 2023 14:00			26 May 2023 17:14	1
HS23051546-06	019-995	22 May 2023 14:20			26 May 2023 17:14	1
<b>Batch ID:</b> R437110 ( 0 )		<b>Test Name :</b> ANIONS BY SW9056A			<b>Matrix:</b> Water	
HS23051546-01	BS-4	22 May 2023 10:34			05 Jun 2023 17:07	10
HS23051546-01	BS-4	22 May 2023 10:34			05 Jun 2023 14:18	1
HS23051546-02	BS-24	22 May 2023 11:15			05 Jun 2023 17:13	10
HS23051546-02	BS-24	22 May 2023 11:15			05 Jun 2023 14:36	1
HS23051546-03	BS-3	22 May 2023 11:50			05 Jun 2023 17:19	10
HS23051546-03	BS-3	22 May 2023 11:50			05 Jun 2023 14:41	1
HS23051546-04	019-580	22 May 2023 13:40			05 Jun 2023 14:47	1
HS23051546-05	019-582	22 May 2023 14:00			05 Jun 2023 14:53	1
HS23051546-06	019-995	22 May 2023 14:20			05 Jun 2023 14:59	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194645 (0)      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK	Sample ID:	MLBK-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 17:32			
Client ID:	Run ID:	FID-7_436996	SeqNo:	7340556	PrepDate:	02-Jun-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	0.0201	0	0.04	0	50.2	40 - 140		

MLBK	Sample ID:	MLBK-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 17:32			
Client ID:	Run ID:	FID-8_436999	SeqNo:	7340679	PrepDate:	02-Jun-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	0.04408	0	0.04	0	110	40 - 140		
Surr: 2-Fluorobiphenyl	0.03184	0	0.04	0	79.6	40 - 140		
Surr: o-Terphenyl	0.03465	0	0.04	0	86.6	40 - 140		

LCS	Sample ID:	LCS-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 13:49			
Client ID:	Run ID:	FID-7_436996	SeqNo:	7341724	PrepDate:	02-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	0.05924	0.00100	0.05	0	118	40 - 140		
Aliphatics >C12 - C16	0.1277	0.00200	0.1	0	128	40 - 140		
Aliphatics >C16 - C35	0.4718	0.00800	0.4	0	118	40 - 140		
Surr: 1-Chlorooctadecane	0.03185	0	0.04	0	79.6	40 - 140		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

Batch ID: 194645 ( 0 )		Instrument: FID-7		Method: MASSACHUSETTS EPH R2.1, DEC 2019					
LCS	Sample ID: LCS-194645			Units: mg/L		Analysis Date: 05-Jun-2023 12:08			
Client ID:		Run ID: FID-8_436999		SeqNo: 7341721		PrepDate: 02-Jun-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	0.04873	0.00100	0.05	0	97.5	40 - 140			
Aromatics >C12 - C16	0.1884	0.00400	0.2	0	94.2	40 - 140			
Aromatics >C16 - C21	0.1524	0.00300	0.15	0	102	40 - 140			
Aromatics >C21 - C35	0.3701	0.00900	0.45	0	82.2	40 - 140			
Surr: 2-Bromonaphthalene	0.0328	0	0.04	0	82.0	40 - 140			
Surr: 2-Fluorobiphenyl	0.02594	0	0.04	0	64.8	40 - 140			
Surr: o-Terphenyl	0.03038	0	0.04	0	76.0	40 - 140			
LCSD	Sample ID: LCSD-194645			Units: mg/L		Analysis Date: 02-Jun-2023 14:20			
Client ID:		Run ID: FID-7_436996		SeqNo: 7341725		PrepDate: 02-Jun-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	0.05095	0.00100	0.05	0	102	40 - 140	0.05924	15	50
Aliphatics >C12 - C16	0.1085	0.00200	0.1	0	108	40 - 140	0.1277	16.3	50
Aliphatics >C16 - C35	0.398	0.00800	0.4	0	99.5	40 - 140	0.4718	17	50
Surr: 1-Chlorooctadecane	0.02691	0	0.04	0	67.3	40 - 140	0.03185	16.8	50
LCSD	Sample ID: LCSD-194645			Units: mg/L		Analysis Date: 05-Jun-2023 12:39			
Client ID:		Run ID: FID-8_436999		SeqNo: 7341722		PrepDate: 02-Jun-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	0.05654	0.00100	0.05	0	113	40 - 140	0.04873	14.8	50
Aromatics >C12 - C16	0.2222	0.00400	0.2	0	111	40 - 140	0.1884	16.5	50
Aromatics >C16 - C21	0.1775	0.00300	0.15	0	118	40 - 140	0.1524	15.3	50
Aromatics >C21 - C35	0.4192	0.00900	0.45	0	93.2	40 - 140	0.3701	12.5	50
Surr: 2-Bromonaphthalene	0.03865	0	0.04	0	96.6	40 - 140	0.0328	16.4	50
Surr: 2-Fluorobiphenyl	0.03084	0	0.04	0	77.1	40 - 140	0.02594	17.3	50
Surr: o-Terphenyl	0.03525	0	0.04	0	88.1	40 - 140	0.03038	14.8	50
The following samples were analyzed in this batch:				HS23051546-01	HS23051546-02	HS23051546-03	HS23051546-04		
				HS23051546-05	HS23051546-06				

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

Batch ID: R436204 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1					
MLBK	Sample ID: MBLK-230524			Units: mg/L		Analysis Date: 24-May-2023 12:58			
Client ID:		Run ID: FID-14_436204		SeqNo: 7322962	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)	0.3005	0.0100	0.25	0	120	70 - 130			
LCS	Sample ID: LCS-230524			Units: mg/L		Analysis Date: 24-May-2023 11:03			
Client ID:		Run ID: FID-14_436204		SeqNo: 7322959	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02472	0.0100	0.025	0	98.9	70 - 130			
Aliphatics >C8 - C10	0.02237	0.0100	0.025	0	89.5	70 - 130			
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3037	0.0100	0.25	0	121	70 - 130			
LCSD	Sample ID: LCSD-230524			Units: mg/L		Analysis Date: 24-May-2023 11:41			
Client ID:		Run ID: FID-14_436204		SeqNo: 7322960	PrepDate:	DF: 1			
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02366	0.0100	0.025	0	94.7	70 - 130	0.02472	4.36	25
Aliphatics >C8 - C10	0.02195	0.0100	0.025	0	87.8	70 - 130	0.02237	1.9	25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3018	0.0100	0.25	0	121	70 - 130	0.3037	0.617	25
The following samples were analyzed in this batch:		HS23051546-01	HS23051546-02	HS23051546-03	HS23051546-04	HS23051546-05	HS23051546-06		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

Batch ID: R436267 ( 0 )		Instrument: FID-15		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1	
MLBK	Sample ID: MBLK-230524	Units: mg/L		Analysis Date: 24-May-2023 12:58	
Client ID:		Run ID: FID-15_436267	SeqNo: 7324167	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	U	0.0100			RPD Limit Qual
Surr: 2,5-Dibromotoluene (Aromatic)	0.3045	0.0100	0.25	0 122	70 - 130
LCS	Sample ID: LCS-230524	Units: mg/L		Analysis Date: 24-May-2023 11:03	
Client ID:		Run ID: FID-15_436267	SeqNo: 7324165	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08088	0.0100	0.1	0 80.9	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.2978	0.0100	0.25	0 119	70 - 130
LCSD	Sample ID: LCSD-230524	Units: mg/L		Analysis Date: 24-May-2023 11:41	
Client ID:		Run ID: FID-15_436267	SeqNo: 7324166	PrepDate:	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value %REC	Control Limit RPD Ref Value %RPD
Aromatics >C8 - C10	0.08596	0.0100	0.1	0 86.0	70 - 130 0.08088 6.08 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.2987	0.0100	0.25	0 119	70 - 130 0.2978 0.301 25
The following samples were analyzed in this batch:		HS23051546-01	HS23051546-02	HS23051546-03	HS23051546-04
		HS23051546-05	HS23051546-06		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-194743	Units:	mg/L	Analysis Date: 06-Jun-2023 15:16				
Client ID:		Run ID:	ICPMS06_437150	SeqNo:	7345603	PrepDate:	05-Jun-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	0.1274	0.200							J
Strontium	U	0.00500							
Vanadium	U	0.00500							
Zinc	U	0.00400							

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

LCS	Sample ID:	Units: mg/L		Analysis Date: 06-Jun-2023 15:18				
Client ID:		Run ID:	ICPMS06_437150	SeqNo: 7345604	PrepDate: 05-Jun-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD	RPD Limit Qual
Arsenic	0.04504	0.00200	0.05	0	90.1	80 - 120		
Barium	0.04488	0.00400	0.05	0	89.8	80 - 120		
Cadmium	0.04564	0.00200	0.05	0	91.3	80 - 120		
Calcium	4.627	0.500	5	0	92.5	80 - 120		
Chromium	0.04105	0.00400	0.05	0	82.1	80 - 120		
Iron	4.471	0.200	5	0	89.4	80 - 120		
Lead	0.04478	0.00200	0.05	0	89.6	80 - 120		
Magnesium	4.51	0.200	5	0	90.2	80 - 120		
Manganese	0.04443	0.00500	0.05	0	88.9	80 - 120		
Nickel	0.04246	0.00200	0.05	0	84.9	80 - 120		
Potassium	4.595	0.200	5	0	91.9	80 - 120		
Selenium	0.05023	0.00200	0.05	0	100	80 - 120		
Silver	0.04486	0.00200	0.05	0	89.7	80 - 120		
Sodium	4.462	0.200	5	0	89.2	80 - 120		
Strontium	0.09136	0.00500	0.1	0	91.4	80 - 120		
Vanadium	0.0421	0.00500	0.05	0	84.2	80 - 120		
Zinc	0.04564	0.00400	0.05	0	91.3	80 - 120		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23051546-04MS		Units:	mg/L	Analysis Date: 06-Jun-2023 15:27			
Client ID:	019-580	Run ID: ICPMS06_437150		SeqNo:	7345607	PrepDate:	05-Jun-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.04614	0.00200	0.05	0.000235	91.8	80 - 120		
Barium		0.2604	0.00400	0.05	0.2155	89.8	80 - 120		O
Cadmium		0.04628	0.00200	0.05	0.000022	92.5	80 - 120		
Calcium		28.37	0.500	5	24.14	84.5	80 - 120		O
Chromium		0.04222	0.00400	0.05	-0.000651	85.7	80 - 120		
Iron		6.27	0.200	5	1.807	89.2	80 - 120		
Lead		0.04587	0.00200	0.05	0.000147	91.4	80 - 120		
Magnesium		11.45	0.200	5	7.191	85.1	80 - 120		
Manganese		0.3566	0.00500	0.05	0.3169	79.6	80 - 120		SO
Nickel		0.04293	0.00200	0.05	0.000102	85.7	80 - 120		
Potassium		7.043	0.200	5	2.615	88.6	80 - 120		
Selenium		0.04913	0.00200	0.05	-0.00017	98.6	80 - 120		
Silver		0.04436	0.00200	0.05	0.000002	88.7	80 - 120		
Sodium		31.29	0.200	5	27.39	78.0	80 - 120		SO
Strontium		0.2989	0.00500	0.1	0.2121	86.8	80 - 120		
Vanadium		0.04349	0.00500	0.05	0.000049	86.9	80 - 120		
Zinc		0.05664	0.00400	0.05	0.0107	91.9	80 - 120		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23051546-04MSD		Units:	mg/L		Analysis Date: 06-Jun-2023 15:29			
Client ID:	019-580	Run ID: ICPMS06_437150		SeqNo:	7345608	PrepDate:	05-Jun-2023	DF:	1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Arsenic		0.04658	0.00200	0.05	0.000235	92.7	80 - 120	0.04614	0.945 20	
Barium		0.2624	0.00400	0.05	0.2155	93.7	80 - 120	0.2604	0.754 20 O	
Cadmium		0.04642	0.00200	0.05	0.000022	92.8	80 - 120	0.04628	0.289 20	
Calcium		28.27	0.500	5	24.14	82.5	80 - 120	28.37	0.362 20 O	
Chromium		0.04229	0.00400	0.05	-0.000651	85.9	80 - 120	0.04222	0.163 20	
Iron		6.236	0.200	5	1.807	88.6	80 - 120	6.27	0.545 20	
Lead		0.04644	0.00200	0.05	0.000147	92.6	80 - 120	0.04587	1.25 20	
Magnesium		11.36	0.200	5	7.191	83.5	80 - 120	11.45	0.707 20	
Manganese		0.3537	0.00500	0.05	0.3169	73.6	80 - 120	0.3566	0.84 20 SO	
Nickel		0.0422	0.00200	0.05	0.000102	84.2	80 - 120	0.04293	1.71 20	
Potassium		6.977	0.200	5	2.615	87.2	80 - 120	7.043	0.939 20	
Selenium		0.04979	0.00200	0.05	-0.00017	99.9	80 - 120	0.04913	1.35 20	
Silver		0.04468	0.00200	0.05	0.000002	89.4	80 - 120	0.04436	0.728 20	
Sodium		31.12	0.200	5	27.39	74.6	80 - 120	31.29	0.555 20 SO	
Strontium		0.2977	0.00500	0.1	0.2121	85.6	80 - 120	0.2989	0.396 20	
Vanadium		0.04323	0.00500	0.05	0.000049	86.4	80 - 120	0.04349	0.604 20	
Zinc		0.05662	0.00400	0.05	0.0107	91.8	80 - 120	0.05664	0.0424 20	

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23051546-04PDS		Units:	mg/L	Analysis Date: 06-Jun-2023 15:31			
Client ID:	019-580	Run ID: ICPMS06_437150		SeqNo:	7345609	PrepDate:	05-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	0.09556	0.00200	0.1	0.000235	95.3	75 - 125			
Barium	0.3014	0.00400	0.1	0.2155	85.9	75 - 125			
Cadmium	0.09485	0.00200	0.1	0.000022	94.8	75 - 125			
Calcium	32.59	0.500	10	24.14	84.5	75 - 125			
Chromium	0.08781	0.00400	0.1	-0.000651	88.5	75 - 125			
Iron	11.01	0.200	10	1.807	92.0	75 - 125			
Lead	0.0948	0.00200	0.1	0.000147	94.6	75 - 125			
Magnesium	15.93	0.200	10	7.191	87.4	75 - 125			
Manganese	0.3944	0.00500	0.1	0.3169	77.5	75 - 125			
Nickel	0.08837	0.00200	0.1	0.000102	88.3	75 - 125			
Potassium	11.63	0.200	10	2.615	90.2	75 - 125			
Selenium	0.1014	0.00200	0.1	-0.00017	102	75 - 125			
Silver	0.09115	0.00200	0.1	0.000002	91.1	75 - 125			
Sodium	35.3	0.200	10	27.39	79.1	75 - 125			
Strontium	0.3084	0.00500	0.1	0.2121	96.3	75 - 125			
Vanadium	0.08943	0.00500	0.1	0.000049	89.4	75 - 125			
Zinc	0.1077	0.00400	0.1	0.0107	97.0	75 - 125			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194743 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID:	HS23051546-04SD		Units:	mg/L	Analysis Date: 06-Jun-2023 15:25			
Client ID:	019-580	Run ID: ICPMS06_437150		SeqNo:	7345606	PrepDate:	05-Jun-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					0.000235	0	10
Barium	0.2182	0.0200					0.2155	1.24	10
Cadmium	U	0.0100					0.000022	0	10
Calcium	24.45	2.50					24.14	1.25	10
Chromium	U	0.0200					-0.000651	0	10
Iron	1.874	1.00					1.807	3.67	10
Lead	U	0.0100					0.000147	0	10
Magnesium	7.698	1.00					7.191	7.06	10
Manganese	0.3163	0.0250					0.3169	0.174	10
Nickel	U	0.0100					0.000102	0	10
Potassium	2.607	1.00					2.615	0.309	10
Selenium	U	0.0100					-0.00017	0	10
Silver	U	0.0100					0.000002	0	10
Sodium	28.21	1.00					27.39	2.99	10
Strontium	0.2217	0.0250					0.2121	4.54	10
Vanadium	U	0.0250					0.000049	0	10
Zinc	0.01091	0.0200					0.0107	0	10

The following samples were analyzed in this batch: HS23051546-01 HS23051546-02 HS23051546-03 HS23051546-04  
                                   HS23051546-05 HS23051546-06

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** 194893 ( 0 )      **Instrument:** HG04      **Method:** MERCURY BY SW7470A

MLBK	Sample ID:	MLBK-194893	Units:	mg/L	Analysis Date: 07-Jun-2023 17:38			
Client ID:		Run ID:	HG04_437338	SeqNo:	7350695	PrepDate:	07-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          U    0.000200

LCS	Sample ID:	LCS-194893	Units:	mg/L	Analysis Date: 07-Jun-2023 17:40			
Client ID:		Run ID:	HG04_437338	SeqNo:	7350696	PrepDate:	07-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00436    0.000200    0.005    0    87.2    80 - 120

MS	Sample ID:	HS23051843-01MS	Units:	mg/L	Analysis Date: 07-Jun-2023 18:37			
Client ID:		Run ID:	HG04_437338	SeqNo:	7350704	PrepDate:	07-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00456    0.000200    0.005    -0.000021    91.6    75 - 125

MSD	Sample ID:	HS23051843-01MSD	Units:	mg/L	Analysis Date: 07-Jun-2023 18:47			
Client ID:		Run ID:	HG04_437338	SeqNo:	7350707	PrepDate:	07-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury                          0.00458    0.000200    0.005    -0.000021    92.0    75 - 125    0.00456    0.438 20

The following samples were analyzed in this batch:	HS23051546-01	HS23051546-02	HS23051546-03	HS23051546-04
	HS23051546-05	HS23051546-06		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

Batch ID: R436208 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230524			Units: ug/L		Analysis Date: 25-May-2023 00:23			
Client ID:		Run ID: VOA9_436208		SeqNo: 7323020		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene		U	1.0						
Ethylbenzene		U	1.0						
m,p-Xylene		U	2.0						
o-Xylene		U	1.0						
Toluene		U	1.0						
Xylenes, Total		U	1.0						
Surr: 1,2-Dichloroethane-d4	44.39	1.0	50	0	88.8	70 - 123			
Surr: 4-Bromofluorobenzene	45.42	1.0	50	0	90.8	77 - 113			
Surr: Dibromofluoromethane	44.63	1.0	50	0	89.3	73 - 126			
Surr: Toluene-d8	50.75	1.0	50	0	102	81 - 120			
LCS	Sample ID: VLCSW-230524			Units: ug/L		Analysis Date: 24-May-2023 23:38			
Client ID:		Run ID: VOA9_436208		SeqNo: 7323019		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	19.38	1.0	20	0	96.9	74 - 120			
Ethylbenzene	18.79	1.0	20	0	93.9	77 - 117			
m,p-Xylene	37.58	2.0	40	0	94.0	77 - 122			
o-Xylene	18.98	1.0	20	0	94.9	75 - 119			
Toluene	19.7	1.0	20	0	98.5	77 - 118			
Xylenes, Total	56.56	1.0	60	0	94.3	75 - 122			
Surr: 1,2-Dichloroethane-d4	50.5	1.0	50	0	101	70 - 123			
Surr: 4-Bromofluorobenzene	46.97	1.0	50	0	93.9	77 - 113			
Surr: Dibromofluoromethane	52.25	1.0	50	0	104	73 - 126			
Surr: Toluene-d8	48.79	1.0	50	0	97.6	81 - 120			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

Batch ID: R436208 ( 0 )		Instrument: VOA9		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23051456-11MS			Units: ug/L		Analysis Date: 25-May-2023 02:15		
Client ID:		Run ID: VOA9_436208		SeqNo: 7323025	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	19.95	1.0	20	0	99.8	70 - 127		
Ethylbenzene	20.76	1.0	20	0	104	70 - 124		
m,p-Xylene	42.42	2.0	40	0	106	70 - 130		
o-Xylene	20.47	1.0	20	0	102	70 - 124		
Toluene	21.02	1.0	20	0	105	70 - 123		
Xylenes, Total	62.89	1.0	60	0	105	70 - 130		
Surr: 1,2-Dichloroethane-d4	43.77	1.0	50	0	87.5	70 - 126		
Surr: 4-Bromofluorobenzene	48.21	1.0	50	0	96.4	77 - 113		
Surr: Dibromofluoromethane	45.16	1.0	50	0	90.3	77 - 123		
Surr: Toluene-d8	50.48	1.0	50	0	101	82 - 127		
MSD	Sample ID: HS23051456-11MSD			Units: ug/L		Analysis Date: 25-May-2023 02:37		
Client ID:		Run ID: VOA9_436208		SeqNo: 7323026	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	18.92	1.0	20	0	94.6	70 - 127	19.95	5.32 20
Ethylbenzene	19.75	1.0	20	0	98.7	70 - 124	20.76	4.99 20
m,p-Xylene	39.98	2.0	40	0	99.9	70 - 130	42.42	5.94 20
o-Xylene	19.45	1.0	20	0	97.2	70 - 124	20.47	5.11 20
Toluene	20.18	1.0	20	0	101	70 - 123	21.02	4.11 20
Xylenes, Total	59.42	1.0	60	0	99.0	70 - 130	62.89	5.67 20
Surr: 1,2-Dichloroethane-d4	43.05	1.0	50	0	86.1	70 - 126	43.77	1.65 20
Surr: 4-Bromofluorobenzene	48.18	1.0	50	0	96.4	77 - 113	48.21	0.0793 20
Surr: Dibromofluoromethane	45.11	1.0	50	0	90.2	77 - 123	45.16	0.103 20
Surr: Toluene-d8	50.42	1.0	50	0	101	82 - 127	50.48	0.11 20
The following samples were analyzed in this batch:		HS23051546-01		HS23051546-02		HS23051546-03		HS23051546-04
		HS23051546-05		HS23051546-06				

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436310 ( 0 )      **Instrument:** WetChem\_HS      **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R436310	Units:	mg/L	Analysis Date: 25-May-2023 17:41			
Client ID:		Run ID: WetChem_HS_436310 SeqNo: 7324788	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-R436310	Units:	mg/L	Analysis Date: 25-May-2023 17:41			
Client ID:		Run ID: WetChem_HS_436310 SeqNo: 7324787	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Sulfide                          21.64                          2.00                          25                          0                          86.6                          85 - 115

LCSD	Sample ID:	LCSD-R436310	Units:	mg/L	Analysis Date: 25-May-2023 17:41			
Client ID:		Run ID: WetChem_HS_436310 SeqNo: 7324786	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Sulfide                          21.44                          2.00                          25                          0                          85.8                          85 - 115                          21.64                          0.929 20

MS	Sample ID:	HS23051546-01MS	Units:	mg/L	Analysis Date: 25-May-2023 17:41			
Client ID:	BS-4	Run ID: WetChem_HS_436310 SeqNo: 7324789	PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Sulfide                          21.64                          2.00                          25                          -4.76                          106                          80 - 120

The following samples were analyzed in this batch: HS23051546-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436391 ( 0 )      **Instrument:** WetChem\_HS      **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326586	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          U                          2.00

LCS	Sample ID:	LCS-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326585	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.6                          2.00                          25                          0                          90.4                          85 - 115

LCSD	Sample ID:	LCSD-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326587	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.4                          2.00                          25                          0                          89.6                          85 - 115                          22.6                          0.889 20

MS	Sample ID:	HS23051748-06MS	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326584	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.4                          2.00                          25                          -4.6                          108                          80 - 120

The following samples were analyzed in this batch:	HS23051546-02	HS23051546-03	HS23051546-04	HS23051546-05
	HS23051546-06			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436397 (0)      **Instrument:** Balance1      **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-05252023	Units:	mg/L	Analysis Date: 25-May-2023 14:36		
Client ID:		Run ID:	Balance1_436397	SeqNo: 7326727	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      U      10.0

LCS	Sample ID:	LCS-052523	Units:	mg/L	Analysis Date: 25-May-2023 14:36		
Client ID:		Run ID:	Balance1_436397	SeqNo: 7326726	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      1094      10.0      1000      0      109      85 - 115

DUP	Sample ID:	HS23051546-06DUP	Units:	mg/L	Analysis Date: 25-May-2023 14:36		
Client ID:	019-995	Run ID:	Balance1_436397	SeqNo: 7326723	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      224      10.0      222      0.897      20

DUP	Sample ID:	HS23051412-06DUP	Units:	mg/L	Analysis Date: 25-May-2023 14:36		
Client ID:		Run ID:	Balance1_436397	SeqNo: 7326711	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      364      10.0      366      0.548      20

The following samples were analyzed in this batch: HS23051546-01      HS23051546-02      HS23051546-03      HS23051546-04  
                                   HS23051546-05      HS23051546-06

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436602 ( 0 )      **Instrument:** WetChem\_HS      **Method:** HYDROGEN SULFIDE BY E376.1

MLBK		Sample ID: MBLK-R436602		Units: mg/L		Analysis Date: 25-May-2023 16:40			
Client ID:		Run ID: WetChem_HS_436602 SeqNo: 7331124		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	U	1.00							

LCS		Sample ID: LCS-R436602		Units: mg/L		Analysis Date: 25-May-2023 16:40			
Client ID:		Run ID: WetChem_HS_436602 SeqNo: 7331123		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	22.99	1.00	25	0	92.0	80 - 120			

LCSD		Sample ID: LCSD-R436602		Units: mg/L		Analysis Date: 25-May-2023 16:40			
Client ID:		Run ID: WetChem_HS_436602 SeqNo: 7331122		PrepDate:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual	
Hydrogen Sulfide	22.78	1.00	25	0	91.1	80 - 120	22.99	0.929 20	

The following samples were analyzed in this batch: HS23051546-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436614 (0)      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

MLBK	Sample ID:	MLBK-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:27			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331693	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						

MLBK	Sample ID:	MLBK-05302023	Units: mg/L		Analysis Date: 30-May-2023 16:48			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331666	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-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:34			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331694	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)	893	5.00	1000	0	89.3	85 - 115		

LCS	Sample ID:	LCS-05302023	Units: mg/L		Analysis Date: 30-May-2023 16:54			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331667	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)	909.4	5.00	1000	0	90.9	85 - 115		

LCSD	Sample ID:	LCSD-05302023	Units: mg/L		Analysis Date: 30-May-2023 17:00			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331668	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)	906.8	5.00	1000	0	90.7	85 - 115	909.4	0.286 20

LCSD	Sample ID:	LCSD-05302023	Units: mg/L		Analysis Date: 30-May-2023 19:40			
Client ID:	Run ID:	Skalar 03_436614	SeqNo:	7331695	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)	895.2	5.00	1000	0	89.5	85 - 115	909.4	1.57 20

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436614 ( 0 )      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

DUP	Sample ID:	HS23051827-01DUP		Units: mg/L		Analysis Date: 30-May-2023 20:32			
Client ID:		Run ID: Skalar 03_436614		SeqNo: 7331704	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)		216.4	5.00					219.5	1.42 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

DUP	Sample ID:	HS23051456-14DUP		Units: mg/L		Analysis Date: 30-May-2023 17:15			
Client ID:		Run ID: Skalar 03_436614		SeqNo: 7331671	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)		184.7	5.00					183	0.925 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

<b>The following samples were analyzed in this batch:</b>	HS23051546-01	HS23051546-02	HS23051546-03	HS23051546-04
	HS23051546-05	HS23051546-06		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436676 ( 0 )      **Instrument:** Skalar 03      **Method:** PH BY SM4500H+ B-2011

DUP	Sample ID:	HS23051456-14DUP	Units:	pH Units	Analysis Date: 30-May-2023 17:15			
Client ID:	Run ID:	Skalar 03_436676	SeqNo:	7332686	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
pH	8.03	0.100				8.02	0.125	10
Temp Deg C @pH	21.6	0				21.8	0.922	10

The following samples were analyzed in this batch: HS23051546-01 HS23051546-02 HS23051546-03 HS23051546-04  
HS23051546-05 HS23051546-06

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R436709 ( 0 )      **Instrument:** WetChem\_HS      **Method:** HYDROGEN SULFIDE BY E376.1

MLBK	Sample ID:	MLBK-R436709	Units:	mg/L	Analysis Date: 26-May-2023 17:14			
Client ID:	Run ID:	WetChem_HS_436709	SeqNo:	7333260	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	U	1.00						

LCS	Sample ID:	LCS-R436709	Units:	mg/L	Analysis Date: 26-May-2023 17:14			
Client ID:	Run ID:	WetChem_HS_436709	SeqNo:	7333259	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	24.01	1.00	25	0	96.0	80 - 120		

LCSD	Sample ID:	LCSD-R436709	Units:	mg/L	Analysis Date: 26-May-2023 17:14			
Client ID:	Run ID:	WetChem_HS_436709	SeqNo:	7333258	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.8	1.00	25	0	95.2	80 - 120	24.01	0.889 20

The following samples were analyzed in this batch: HS23051546-02 HS23051546-03 HS23051546-04 HS23051546-05  
HS23051546-06

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QC BATCH REPORT**

**Batch ID:** R437110 (0)      **Instrument:** ICS-Integriion      **Method:** ANIONS BY SW9056A

MBLK		Sample ID: MBLK		Units: mg/L		Analysis Date: 05-Jun-2023 13:55			
Client ID:		Run ID: ICS-Integriion_437110		SeqNo: 7343273		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: 05-Jun-2023 14:01			
Client ID:		Run ID: ICS-Integriion_437110		SeqNo: 7343274		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		4.385	0.100	4	0	110	80 - 120		
Chloride		21.08	0.500	20	0	105	80 - 120		
Sulfate		21.38	0.500	20	0	107	80 - 120		

MS		Sample ID: HS23051546-01MS		Units: mg/L		Analysis Date: 05-Jun-2023 14:24			
Client ID: BS-4		Run ID: ICS-Integriion_437110		SeqNo: 7343276		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1.618	0.100	2	0	80.9	80 - 120		
Chloride		345.6	0.500	10	349.7	-40.5	80 - 120		SEO
Sulfate		91	0.500	10	83.52	74.7	80 - 120		SO

MSD		Sample ID: HS23051546-01MSD		Units: mg/L		Analysis Date: 05-Jun-2023 14:30			
Client ID: BS-4		Run ID: ICS-Integriion_437110		SeqNo: 7343277		PrepDate:		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Bromide		1.66	0.100	2	0	83.0	80 - 120	1.618	2.53 20
Chloride		344.5	0.500	10	349.7	-52.2	80 - 120	345.6	0.338 20 SEO
Sulfate		90.67	0.500	10	83.52	71.5	80 - 120	91	0.357 20 SO

The following samples were analyzed in this batch: HS23051546-01 HS23051546-02 HS23051546-03 HS23051546-04  
HS23051546-05 HS23051546-06

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051546

**QUALIFIERS,  
ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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

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

<b><u>Unit Reported</u></b>	<b><u>Description</u></b>
mg/L	Milligrams per Liter

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

<b>Agency</b>	<b>Number</b>	<b>Expire Date</b>
Arkansas	88-00356	27-Mar-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-37	30-Jun-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932022-13	31-Jul-2023

**Sample Receipt Checklist**

**Work Order ID:** HS23051546  
**Client Name:** ERMSW-HOU

**Date/Time Received:** 23-May-2023 10:08  
**Received by:** Malcolm Burleson

<b>Completed By:</b> <u>/S/ Nilesh D. Ranchod</u>	23-May-2023 11:52	<b>Reviewed by:</b> <u>/S/ Bernadette A. Fini</u>	23-May-2023 16:00
eSignature	Date/Time	eSignature	Date/Time

Matrices: W Carrier name: Client

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	1 Page(s)
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	COC IDs:290334
Samplers name present on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Temperature(s)/Thermometer(s):	1.0C/0.9C,2.5C/2.4C UC/C	IR31
Cooler(s)/Kit(s):	50720/50487	
Date/Time sample(s) sent to storage:	05/23/2023 11:59	

Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>

pH adjusted by:	Si Ma
-----------------	-------

Login Notes: BS-24 & 019-995 Bottle 2 of 2 MA EPH pH>2(7)Preserved with 5mil HCL on 05/23/2023 @ 11:45 Lot # 3100605321 By Sima After preserved pH (1)

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

--

Corrective Action:

--

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

## Chain of Custody Form

HS23051546

Environmental Resources Mgmt.  
Sulphur DomePage 1 of 1

COC ID: 290334

ALS Project Manager:



Customer Information		Project Information		
Purchase Order	0688077	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, SO <sub>4</sub> , Br)
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four	E ALK_W 2320B (carb, bicarb, pH)
			840 W. Sam Houston Pkwy., Suite 6	F H2S_W (H2S)
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G HG_W (Mercury)
Phone	(281) 600-1000	Phone	(281) 600-1000	H ICP_TW (As, Ba, Cd, Ca, Cr, Fe, Pb, Mg, Mn, K, Se, Ag, Na, Sr, Zn) N; V
Fax	(281) 600-1001	Fax	(281) 600-1001	I SULFD_4500S F (Sulfide)
e-Mail Address	scott.himes@erm.com	e-Mail Address	ERMNAccountsPayable@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	BS-4	5/22/23	1034	W		12	X	X	X	X	X	X	X	X	X	X	
2	BS-24		1115				X	X	X	X	X	X	X	X	X	X	
3	BS-3		1150				X	X	X	X	X	X	X	X	X	X	
4	019-580		1346				X	X	X	X	X	X	X	X	X	X	
5	019-582		1400				X	X	X	X	X	X	X	X	X	X	
6	019-995		1420				X	X	X	X	X	X	X	X	X	X	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method	Required Turnaround Time: (Check Box)	<input type="checkbox"/> Other _____	Results Due Date:
--------------------------------	--	-----------------	---------------------------------------	--------------------------------------	-------------------

Relinquished by:	Date: 5/23/23	Time: 1008	Received by:	Notes: ERM Sulphur Dome												
Relinquished by:	Date: 5/23/23	Time: 1008	Received by (Laboratory): 05/23/2023 1008	Cooler ID: 1231	Cooler Temp: 1231	QC Package: (Check One Box Below)										
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory): 50720 1.0 mg	50497 2.5 mg	-0.16	<input checked="" type="checkbox"/> Level II Std QC <input type="checkbox"/> Level III Std QC/Raw Data <input type="checkbox"/> Level IV SVB46/CLP <input type="checkbox"/> Other										
Preservative Key:	1-HCl	2-HNO <sub>3</sub>	3-H <sub>2</sub> SO <sub>4</sub>	4-NaOH	5-Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	6-NaHSO <sub>4</sub>	7-Other	8-4°C	9-5035							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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10450 Stancliff Rd. Suite 210  
Houston, TX 77099  
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F: +1 281 530 5887

June 09, 2023

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

Work Order: **HS23051794**

Laboratory Results for: **Sulphur Dome**

Dear Scott Himes,

ALS Environmental received 1 sample(s) on May 25, 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:** HS23051794

**SAMPLE SUMMARY**

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS23051794-01	Tank Battery	Water		25-May-2023 12:45	25-May-2023 17:05	<input type="checkbox"/>

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**Work Order:** HS23051794

**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: 194645****Sample ID: Tank Battery (HS23051794-01)**

- Surrogate recoveries were outside of the control limits due to matrix interference.

**GC Volatiles by Method MA VPH****Batch ID: R437125,R437127**

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

**GCMS Volatiles by Method SW8260****Batch ID: R436801****Sample ID: Tank Battery (HS23051794-01)**

- Lowest practical dilution due to sample matrix and/or high concentration of non-target analytes.

**Metals by Method SW7470A****Batch ID: 194911**

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

**Metals by Method SW6020A****Batch ID: 194848****Sample ID: HS23051746-01MS**

- MS and MSD are for an unrelated sample

**Sample ID: Tank Battery (HS23051794-01)**

- Sample ran at a 20X dilution due to high concentration of Sodium.

**WetChemistry by Method SW9056****Batch ID: R437236**

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

**WetChemistry by Method SM2320B****Batch ID: R437360**

- 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:** HS23051794

**CASE NARRATIVE****WetChemistry by Method SM4500H+ B****Batch ID: R437361**

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

**WetChemistry by Method M2540C****Batch ID: R436825**

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

**WetChemistry by Method E376.1****Batch ID: R436789**

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

**WetChemistry by Method SM4500 S2-F****Batch ID: R436391**

- 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: Tank Battery  
 Collection Date: 25-May-2023 12:45

**ANALYTICAL REPORT**  
 WorkOrder:HS23051794  
 Lab ID:HS23051794-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>LOW LEVEL VOLATILES BY SW8260C</b>		<b>Method:SW8260</b>					
Benzene	U		2.0	10	ug/L	10	01-Jun-2023 19:23
Ethylbenzene	U		3.0	10	ug/L	10	01-Jun-2023 19:23
m,p-Xylene	U		5.0	20	ug/L	10	01-Jun-2023 19:23
o-Xylene	U		3.0	10	ug/L	10	01-Jun-2023 19:23
Toluene	U		2.0	10	ug/L	10	01-Jun-2023 19:23
Xylenes, Total	U		3.0	10	ug/L	10	01-Jun-2023 19:23
Surr: 1,2-Dichloroethane-d4	97.8			70-126	%REC	10	01-Jun-2023 19:23
Surr: 4-Bromofluorobenzene	94.4			77-113	%REC	10	01-Jun-2023 19:23
Surr: Dibromofluoromethane	97.0			77-123	%REC	10	01-Jun-2023 19:23
Surr: Toluene-d8	97.2			82-127	%REC	10	01-Jun-2023 19:23
<b>MASSACHUSETTS VPH, FEB 2018, REV 2.1</b>		<b>Method:MA VPH</b>					
Aliphatics >C6 - C8	0.144		0.0100	0.0100	mg/L	1	05-Jun-2023 23:51
Aliphatics >C8 - C10	0.0131		0.0100	0.0100	mg/L	1	05-Jun-2023 23:51
Aromatics >C8 - C10	0.0557		0.0100	0.0100	mg/L	1	05-Jun-2023 23:51
Surr: 2,5-Dibromotoluene (Aliphatic)	121			70-130	%REC	1	05-Jun-2023 23:51
Surr: 2,5-Dibromotoluene (Aromatic)	117			70-130	%REC	1	05-Jun-2023 23:51
<b>MASSACHUSETTS EPH R2.1, DEC 2019</b>		<b>Method:MA EPH</b>					
Aliphatics >C10 - C12	0.969		0.0200	0.0200	mg/L	20	05-Jun-2023 12:08
Aliphatics >C12 - C16	3.77		0.0400	0.0400	mg/L	20	05-Jun-2023 12:08
Aliphatics >C16 - C35	4.44		0.160	0.160	mg/L	20	05-Jun-2023 12:08
Aromatics >C10 - C12	0.211		0.00500	0.00500	mg/L	5	03-Jun-2023 02:33
Aromatics >C12 - C16	1.29		0.0200	0.0200	mg/L	5	03-Jun-2023 02:33
Aromatics >C16 - C21	1.09		0.0150	0.0150	mg/L	5	03-Jun-2023 02:33
Aromatics >C21 - C35	1.05		0.0450	0.0450	mg/L	5	03-Jun-2023 02:33
Surr: 1-Chlorooctadecane	195	S		40-140	%REC	20	05-Jun-2023 12:08
Surr: 2-Bromonaphthalene	128			40-140	%REC	5	03-Jun-2023 02:33
Surr: 2-Fluorobiphenyl	116			40-140	%REC	5	03-Jun-2023 02:33
Surr: o-Terphenyl	138			40-140	%REC	5	03-Jun-2023 02:33

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

Client: Environmental Resources Mgmt.  
 Project: Sulphur Dome  
 Sample ID: Tank Battery  
 Collection Date: 25-May-2023 12:45

**ANALYTICAL REPORT**

WorkOrder:HS23051794  
 Lab ID:HS23051794-01  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>ICP-MS METALS BY SW6020A</b>		<b>Method:SW6020A</b>					Prep:SW3010A / 07-Jun-2023 Analyst: JC
Arsenic	U		0.00800	0.0400	mg/L	20	08-Jun-2023 18:19
<b>Barium</b>	<b>60.1</b>		<b>3.80</b>	<b>8.00</b>	<b>mg/L</b>	<b>2000</b>	<b>09-Jun-2023 13:37</b>
Cadmium	U		0.00400	0.0400	mg/L	20	08-Jun-2023 18:19
<b>Calcium</b>	<b>2,940</b>		<b>0.680</b>	<b>10.0</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
<b>Chromium</b>	<b>0.0717</b>	J	<b>0.00800</b>	<b>0.0800</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
Iron	1.94	J	0.240	4.00	mg/L	20	08-Jun-2023 18:19
Lead	U		0.0120	0.0400	mg/L	20	08-Jun-2023 18:19
<b>Magnesium</b>	<b>971</b>		<b>0.200</b>	<b>4.00</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
<b>Manganese</b>	<b>1.43</b>		<b>0.0140</b>	<b>0.100</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
Nickel	U		0.0120	0.0400	mg/L	20	08-Jun-2023 18:19
<b>Potassium</b>	<b>185</b>		<b>0.360</b>	<b>4.00</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
Selenium	U		0.0220	0.0400	mg/L	20	08-Jun-2023 18:19
Silver	U		0.00400	0.0400	mg/L	20	08-Jun-2023 18:19
<b>Sodium</b>	<b>44,000</b>		<b>28.0</b>	<b>400</b>	<b>mg/L</b>	<b>2000</b>	<b>09-Jun-2023 13:37</b>
<b>Strontium</b>	<b>134</b>		<b>0.400</b>	<b>10.0</b>	<b>mg/L</b>	<b>2000</b>	<b>09-Jun-2023 13:37</b>
Vanadium	U		0.0120	0.100	mg/L	20	08-Jun-2023 18:19
<b>Zinc</b>	<b>0.0695</b>	J	<b>0.0400</b>	<b>0.0800</b>	<b>mg/L</b>	<b>20</b>	<b>08-Jun-2023 18:19</b>
<b>MERCURY BY SW7470A</b>		<b>Method:SW7470A</b>					Prep:SW7470A / 08-Jun-2023 Analyst: JS
Mercury	U		0.0000300	0.000200	mg/L	1	08-Jun-2023 14:44
<b>HYDROGEN SULFIDE BY E376.1</b>		<b>Method:E376.1</b>					Analyst: CD
Hydrogen Sulfide	1.70		0.500	1.00	mg/L	1	26-May-2023 13:32
<b>TOTAL DISSOLVED SOLIDS BY SM2540C -2011</b>		<b>Method:M2540C</b>					Analyst: DC
Total Dissolved Solids (Residue, Filterable)	161,000		5.00	10.0	mg/L	1	31-May-2023 16:11
<b>ALKALINITY BY SM 2320B-2011</b>		<b>Method:SM2320B</b>					Analyst: DW
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	204		5.00	5.00	mg/L	1	07-Jun-2023 17:53
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	U		5.00	5.00	mg/L	1	07-Jun-2023 17:53
<b>SULFIDE BY SM4500 S2-F-2011</b>		<b>Method:SM4500 S2-F</b>					Analyst: CD
Sulfide	U		1.70	2.00	mg/L	1	26-May-2023 13:43
<b>PH BY SM4500H+ B-2011</b>		<b>Method:SM4500H+ B</b>					Analyst: DW
pH	6.97	H	0.100	0.100	pH Units	1	07-Jun-2023 17:53
Temp Deg C @pH	20.4	H	0	0	°C	1	07-Jun-2023 17:53
<b>ANIONS BY SW9056A</b>		<b>Method:SW9056</b>					Analyst: TH
Bromide	79.5		1.50	5.00	mg/L	50	06-Jun-2023 21:03
Chloride	79,900		500	1250	mg/L	2500	06-Jun-2023 21:09
Sulfate	1,340		500	1250	mg/L	2500	06-Jun-2023 21:09

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

**Weight / Prep Log****Client:** Environmental Resources Mgmt.**Project:** Sulphur Dome**WorkOrder:** HS23051794**Batch ID:** 194645      **Start Date:** 02 Jun 2023 10:38      **End Date:** 02 Jun 2023 10:38**Method:** MA EPH EXTRACTION-FRACTIONATION      **Prep Code:** MA EPH\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051794-01	1	1000 (mL)	2 (mL)	0.002	1-liter amber glass, HCl to pH <2

**Batch ID:** 194848      **Start Date:** 07 Jun 2023 13:00      **End Date:** 07 Jun 2023 13:00**Method:** WATER - SW3010A      **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051794-01		10 (mL)	10 (mL)	1	120 plastic HNO3

**Batch ID:** 194911      **Start Date:** 08 Jun 2023 08:00      **End Date:** 08 Jun 2023 08:00**Method:** MERCURY PREP BY 7470A- WATER      **Prep Code:** HG\_WPR

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor	
HS23051794-01		10 (mL)	10 (mL)	1	120 plastic HNO3

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**DATES REPORT**

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
<b>Batch ID:</b> 194645 ( 0 )		<b>Test Name :</b> MASSACHUSETTS EPH R2.1, DEC 2019				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45		02 Jun 2023 10:38	05 Jun 2023 12:08	20
HS23051794-01	Tank Battery	25 May 2023 12:45		02 Jun 2023 10:38	03 Jun 2023 02:33	5
<b>Batch ID:</b> 194848 ( 0 )		<b>Test Name :</b> ICP-MS METALS BY SW6020A				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45		07 Jun 2023 13:00	09 Jun 2023 13:37	2000
HS23051794-01	Tank Battery	25 May 2023 12:45		07 Jun 2023 13:00	08 Jun 2023 18:19	20
<b>Batch ID:</b> 194911 ( 0 )		<b>Test Name :</b> MERCURY BY SW7470A				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45		08 Jun 2023 08:00	08 Jun 2023 14:44	1
<b>Batch ID:</b> R436391 ( 0 )		<b>Test Name :</b> SULFIDE BY SM4500 S2-F-2011				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			26 May 2023 13:43	1
<b>Batch ID:</b> R436789 ( 0 )		<b>Test Name :</b> HYDROGEN SULFIDE BY E376.1				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			26 May 2023 13:32	1
<b>Batch ID:</b> R436801 ( 0 )		<b>Test Name :</b> LOW LEVEL VOLATILES BY SW8260C				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			01 Jun 2023 19:23	10
<b>Batch ID:</b> R436825 ( 0 )		<b>Test Name :</b> TOTAL DISSOLVED SOLIDS BY SM2540C-2011				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			31 May 2023 16:11	1
<b>Batch ID:</b> R437125 ( 0 )		<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			05 Jun 2023 23:51	1
<b>Batch ID:</b> R437127 ( 0 )		<b>Test Name :</b> MASSACHUSETTS VPH, FEB 2018, REV 2.1				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			05 Jun 2023 23:51	1
<b>Batch ID:</b> R437236 ( 0 )		<b>Test Name :</b> ANIONS BY SW9056A				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			06 Jun 2023 21:09	2500
HS23051794-01	Tank Battery	25 May 2023 12:45			06 Jun 2023 21:03	50
<b>Batch ID:</b> R437360 ( 0 )		<b>Test Name :</b> ALKALINITY BY SM 2320B-2011				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			07 Jun 2023 17:53	1
<b>Batch ID:</b> R437361 ( 0 )		<b>Test Name :</b> PH BY SM4500H+ B-2011				<b>Matrix:</b> Water
HS23051794-01	Tank Battery	25 May 2023 12:45			07 Jun 2023 17:53	1

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194645 ( 0 )      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

MLBK	Sample ID:	MLBK-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 17:32			
Client ID:	Run ID:	FID-7_436996	SeqNo:	7340556	PrepDate:	02-Jun-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	0.0201	0	0.04	0	50.2	40 - 140		

MLBK	Sample ID:	MLBK-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 17:32			
Client ID:	Run ID:	FID-8_436999	SeqNo:	7340679	PrepDate:	02-Jun-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	0.04408	0	0.04	0	110	40 - 140		
Surr: 2-Fluorobiphenyl	0.03184	0	0.04	0	79.6	40 - 140		
Surr: o-Terphenyl	0.03465	0	0.04	0	86.6	40 - 140		

LCS	Sample ID:	LCS-194645	Units:	mg/L	Analysis Date: 02-Jun-2023 13:49			
Client ID:	Run ID:	FID-7_436996	SeqNo:	7341724	PrepDate:	02-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12	0.05924	0.00100	0.05	0	118	40 - 140		
Aliphatics >C12 - C16	0.1277	0.00200	0.1	0	128	40 - 140		
Aliphatics >C16 - C35	0.4718	0.00800	0.4	0	118	40 - 140		
Surr: 1-Chlorooctadecane	0.03185	0	0.04	0	79.6	40 - 140		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194645 (0)      **Instrument:** FID-7      **Method:** MASSACHUSETTS EPH R2.1, DEC 2019

LCS	Sample ID:	LCS-194645		Units: mg/L		Analysis Date: 05-Jun-2023 12:08			
Client ID:		Run ID: FID-8_436999		SeqNo: 7341721		PrepDate: 02-Jun-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.04873	0.00100	0.05	0	97.5	40 - 140		
Aromatics >C12 - C16		0.1884	0.00400	0.2	0	94.2	40 - 140		
Aromatics >C16 - C21		0.1524	0.00300	0.15	0	102	40 - 140		
Aromatics >C21 - C35		0.3701	0.00900	0.45	0	82.2	40 - 140		
Surr: 2-Bromonaphthalene		0.0328	0	0.04	0	82.0	40 - 140		
Surr: 2-Fluorobiphenyl		0.02594	0	0.04	0	64.8	40 - 140		
Surr: o-Terphenyl		0.03038	0	0.04	0	76.0	40 - 140		

LCSD	Sample ID:	LCSD-194645		Units: mg/L		Analysis Date: 02-Jun-2023 14:20			
Client ID:		Run ID: FID-7_436996		SeqNo: 7341725		PrepDate: 02-Jun-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C10 - C12		0.05095	0.00100	0.05	0	102	40 - 140	0.05924	15 50
Aliphatics >C12 - C16		0.1085	0.00200	0.1	0	108	40 - 140	0.1277	16.3 50
Aliphatics >C16 - C35		0.398	0.00800	0.4	0	99.5	40 - 140	0.4718	17 50
Surr: 1-Chlorooctadecane		0.02691	0	0.04	0	67.3	40 - 140	0.03185	16.8 50

LCSD	Sample ID:	LCSD-194645		Units: mg/L		Analysis Date: 05-Jun-2023 12:39			
Client ID:		Run ID: FID-8_436999		SeqNo: 7341722		PrepDate: 02-Jun-2023	DF: 1		
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aromatics >C10 - C12		0.05654	0.00100	0.05	0	113	40 - 140	0.04873	14.8 50
Aromatics >C12 - C16		0.2222	0.00400	0.2	0	111	40 - 140	0.1884	16.5 50
Aromatics >C16 - C21		0.1775	0.00300	0.15	0	118	40 - 140	0.1524	15.3 50
Aromatics >C21 - C35		0.4192	0.00900	0.45	0	93.2	40 - 140	0.3701	12.5 50
Surr: 2-Bromonaphthalene		0.03865	0	0.04	0	96.6	40 - 140	0.0328	16.4 50
Surr: 2-Fluorobiphenyl		0.03084	0	0.04	0	77.1	40 - 140	0.02594	17.3 50
Surr: o-Terphenyl		0.03525	0	0.04	0	88.1	40 - 140	0.03038	14.8 50

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

Batch ID: R437125 (0)		Instrument: FID-14		Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1				
MLBK	Sample ID: MBLK-230605			Units: mg/L		Analysis Date: 05-Jun-2023 13:45		
Client ID:		Run ID: FID-14_437125		SeqNo: 7343751	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)	0.296	0.0100	0.25	0	118	70 - 130		
LCS	Sample ID: LCS-230605			Units: mg/L		Analysis Date: 05-Jun-2023 11:50		
Client ID:		Run ID: FID-14_437125		SeqNo: 7343749	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.0224	0.0100	0.025	0	89.6	70 - 130		
Aliphatics >C8 - C10	0.02037	0.0100	0.025	0	81.5	70 - 130		
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3088	0.0100	0.25	0	124	70 - 130		
LCSD	Sample ID: LCSD-230605			Units: mg/L		Analysis Date: 05-Jun-2023 12:29		
Client ID:		Run ID: FID-14_437125		SeqNo: 7343750	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Aliphatics >C6 - C8	0.02074	0.0100	0.025	0	83.0	70 - 130	0.0224	7.68 25
Aliphatics >C8 - C10	0.02019	0.0100	0.025	0	80.7	70 - 130	0.02037	0.902 25
Surr: 2,5-Dibromotoluene (Aliphatic)	0.3075	0.0100	0.25	0	123	70 - 130	0.3088	0.439 25

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

Batch ID: R437127 ( 0 )	Instrument: FID-15	Method: MASSACHUSETTS VPH, FEB 2018, REV 2.1
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MLBK	Sample ID: MBLK-230605	Units: mg/L	Analysis Date: 05-Jun-2023 13:45					
Client ID:	Run ID: FID-15_437127	SeqNo: 7343787	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	U	0.0100				
Surr: 2,5-Dibromotoluene (Aromatic)	0.2926	0.0100	0.25	0	117	70 - 130

LCS	Sample ID: LCS-230605	Units: mg/L	Analysis Date: 05-Jun-2023 11:50					
Client ID:	Run ID: FID-15_437127	SeqNo: 7343785	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	0.07887	0.0100	0.1	0	78.9	70 - 130
Surr: 2,5-Dibromotoluene (Aromatic)	0.308	0.0100	0.25	0	123	70 - 130

LCSD	Sample ID: LCSD-230605	Units: mg/L	Analysis Date: 05-Jun-2023 12:29					
Client ID:	Run ID: FID-15_437127	SeqNo: 7343786	PrepDate:					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Aromatics >C8 - C10	0.07932	0.0100	0.1	0	79.3	70 - 130	0.07887	0.57 25
Surr: 2,5-Dibromotoluene (Aromatic)	0.3053	0.0100	0.25	0	122	70 - 130	0.308	0.882 25

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MLBK	Sample ID:	MLBK-194848	Units:	mg/L	Analysis Date: 08-Jun-2023 17:10				
Client ID:		Run ID:	ICPMS06_437390	SeqNo:	7353235	PrepDate:	07-Jun-2023	DF:	1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Arsenic	U	0.00200							
Barium	U	0.00400							
Cadmium	U	0.00200							
Calcium	U	0.500							
Chromium	0.000498	0.00400							J
Iron	U	0.200							
Lead	U	0.00200							
Magnesium	0.01432	0.200							J
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:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

LCS	Sample ID:	Units: mg/L		Analysis Date: 08-Jun-2023 17:12				
Client ID:		Run ID:	ICPMS06_437390	SeqNo: 7353236	PrepDate: 07-Jun-2023	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic	0.04968	0.00200	0.05	0	99.4	80 - 120		
Barium	0.0486	0.00400	0.05	0	97.2	80 - 120		
Cadmium	0.05054	0.00200	0.05	0	101	80 - 120		
Calcium	5.038	0.500	5	0	101	80 - 120		
Chromium	0.04971	0.00400	0.05	0	99.4	80 - 120		
Iron	5.04	0.200	5	0	101	80 - 120		
Lead	0.0496	0.00200	0.05	0	99.2	80 - 120		
Magnesium	5.312	0.200	5	0	106	80 - 120		
Manganese	0.04964	0.00500	0.05	0	99.3	80 - 120		
Nickel	0.0512	0.00200	0.05	0	102	80 - 120		
Potassium	5.084	0.200	5	0	102	80 - 120		
Selenium	0.0502	0.00200	0.05	0	100	80 - 120		
Silver	0.0475	0.00200	0.05	0	95.0	80 - 120		
Sodium	5.325	0.200	5	0	106	80 - 120		
Strontium	0.0952	0.00500	0.1	0	95.2	80 - 120		
Vanadium	0.04865	0.00500	0.05	0	97.3	80 - 120		
Zinc	0.05489	0.00400	0.05	0	110	80 - 120		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MS	Sample ID:	HS23051746-01MS		Units:	mg/L	Analysis Date: 08-Jun-2023 17:22			
Client ID:		Run ID: ICPMS06_437390		SeqNo:	7353410	PrepDate:	07-Jun-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05758	0.00200	0.05	0.004761	106	80 - 120		
Barium		0.2449	0.00400	0.05	0.1886	113	80 - 120		
Cadmium		0.05232	0.00200	0.05	0.000042	105	80 - 120		
Calcium		116.2	0.500	5	108.5	154	80 - 120		SO
Chromium		0.05136	0.00400	0.05	0.000644	101	80 - 120		
Iron		11.33	0.200	5	6.02	106	80 - 120		
Lead		0.05155	0.00200	0.05	0.000126	103	80 - 120		
Magnesium		17.01	0.200	5	11.29	114	80 - 120		
Manganese		0.4968	0.00500	0.05	0.4245	145	80 - 120		SO
Nickel		0.05423	0.00200	0.05	0.003536	101	80 - 120		
Potassium		23.77	0.200	5	17.93	117	80 - 120		
Selenium		0.05086	0.00200	0.05	-0.000562	103	80 - 120		
Silver		0.04828	0.00200	0.05	0.000006	96.6	80 - 120		
Sodium		39.86	0.200	5	33.7	123	80 - 120		SO
Strontium		0.4239	0.00500	0.1	0.3256	98.3	80 - 120		
Vanadium		0.0525	0.00500	0.05	0.00116	103	80 - 120		
Zinc		0.06021	0.00400	0.05	0.00495	111	80 - 120		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

MSD	Sample ID:	HS23051746-01MSD		Units:	mg/L	Analysis Date: 08-Jun-2023 17:24			
Client ID:		Run ID: ICPMS06_437390		SeqNo:	7353411	PrepDate:	07-Jun-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.05668	0.00200	0.05	0.004761	104	80 - 120	0.05758	1.58 20
Barium		0.2483	0.00400	0.05	0.1886	119	80 - 120	0.2449	1.37 20
Cadmium		0.05332	0.00200	0.05	0.000042	107	80 - 120	0.05232	1.89 20
Calcium		116.4	0.500	5	108.5	159	80 - 120	116.2	0.212 20 SO
Chromium		0.05189	0.00400	0.05	0.000644	102	80 - 120	0.05136	1.04 20
Iron		11.37	0.200	5	6.02	107	80 - 120	11.33	0.328 20
Lead		0.05172	0.00200	0.05	0.000126	103	80 - 120	0.05155	0.32 20
Magnesium		16.64	0.200	5	11.29	107	80 - 120	17.01	2.25 20
Manganese		0.5036	0.00500	0.05	0.4245	158	80 - 120	0.4968	1.37 20 SO
Nickel		0.05459	0.00200	0.05	0.003536	102	80 - 120	0.05423	0.652 20
Potassium		23.58	0.200	5	17.93	113	80 - 120	23.77	0.782 20
Selenium		0.05252	0.00200	0.05	-0.000562	106	80 - 120	0.05086	3.21 20
Silver		0.04895	0.00200	0.05	0.000006	97.9	80 - 120	0.04828	1.38 20
Sodium		39.36	0.200	5	33.7	113	80 - 120	39.86	1.26 20 O
Strontium		0.4212	0.00500	0.1	0.3256	95.6	80 - 120	0.4239	0.655 20
Vanadium		0.05241	0.00500	0.05	0.00116	103	80 - 120	0.0525	0.164 20
Zinc		0.06017	0.00400	0.05	0.00495	110	80 - 120	0.06021	0.0581 20

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

PDS	Sample ID:	HS23051746-01PDS		Units:	mg/L	Analysis Date: 08-Jun-2023 17:26			
Client ID:		Run ID: ICPMS06_437390		SeqNo:	7353412	PrepDate:	07-Jun-2023	DF:	1
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Arsenic		0.1084	0.00200	0.1	0.004761	104	75 - 125		
Barium		0.2883	0.00400	0.1	0.1886	99.7	75 - 125		
Cadmium		0.1034	0.00200	0.1	0.000042	103	75 - 125		
Calcium		116.8	0.500	10	108.5	83.0	75 - 125	O	
Chromium		0.1017	0.00400	0.1	0.000644	101	75 - 125		
Iron		16.25	0.200	10	6.02	102	75 - 125		
Lead		0.1034	0.00200	0.1	0.000126	103	75 - 125		
Magnesium		21.36	0.200	10	11.29	101	75 - 125		
Manganese		0.5203	0.00500	0.1	0.4245	95.8	75 - 125	O	
Nickel		0.1028	0.00200	0.1	0.003536	99.3	75 - 125		
Potassium		28.06	0.200	10	17.93	101	75 - 125		
Selenium		0.1044	0.00200	0.1	-0.000562	105	75 - 125		
Silver		0.1024	0.00200	0.1	0.000006	102	75 - 125		
Sodium		43.4	0.200	10	33.7	97.0	75 - 125		
Strontium		0.4248	0.00500	0.1	0.3256	99.2	75 - 125		
Vanadium		0.1033	0.00500	0.1	0.00116	102	75 - 125		
Zinc		0.1093	0.00400	0.1	0.00495	104	75 - 125		

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194848 ( 0 )      **Instrument:** ICPMS06      **Method:** ICP-MS METALS BY SW6020A

SD	Sample ID:	HS23051746-01SD		Units:	mg/L	Analysis Date: 08-Jun-2023 17:20				
Client ID:		Run ID: ICPMS06_437390		SeqNo:	7353409	PrepDate:	07-Jun-2023	DF:	5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit Qual
Arsenic		0.004426	0.0100					0.004761	0	10 J
Barium		0.1864	0.0200					0.1886	1.17	10
Cadmium		U	0.0100					0.000042	0	10
Calcium		112.3	2.50					108.5	3.51	10
Chromium		U	0.0200					0.000644	0	10
Iron		6.127	1.00					6.02	1.78	10
Lead		U	0.0100					0.000126	0	10
Magnesium		11.62	1.00					11.29	2.89	10
Manganese		0.4261	0.0250					0.4245	0.391	10
Nickel		0.003372	0.0100					0.003536	0	10 J
Potassium		18.24	1.00					17.93	1.74	10
Selenium		U	0.0100					-0.000562	0	10
Silver		U	0.0100					0.000006	0	10
Sodium		33.83	1.00					33.7	0.38	10
Strontium		0.3304	0.0250					0.3256	1.47	10
Vanadium		U	0.0250					0.00116	0	10
Zinc		U	0.0200					0.00495	0	10

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** 194911 ( 0 )      **Instrument:** HG04      **Method:** MERCURY BY SW7470A

<b>MLBK</b>	Sample ID:	MLBK-194911	Units:	mg/L	Analysis Date: 08-Jun-2023 14:27			
Client ID:		Run ID:	HG04_437445	SeqNo:	7352879	PrepDate:	08-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury	0.00003	0.000200						J
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<b>LCS</b>	Sample ID:	LCS-194911	Units:	mg/L	Analysis Date: 08-Jun-2023 14:29			
Client ID:		Run ID:	HG04_437445	SeqNo:	7352880	PrepDate:	08-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury	0.00464	0.000200	0.005	0	92.8	80 - 120		
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<b>LCSD</b>	Sample ID:	LCSD-194911	Units:	mg/L	Analysis Date: 08-Jun-2023 14:31			
Client ID:		Run ID:	HG04_437445	SeqNo:	7352881	PrepDate:	08-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury	0.00487	0.000200	0.005	0	97.4	80 - 120	0.00464	4.84 20
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<b>MS</b>	Sample ID:	HS23060064-05MS	Units:	mg/L	Analysis Date: 08-Jun-2023 14:59			
Client ID:		Run ID:	HG04_437445	SeqNo:	7352891	PrepDate:	08-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury	0.00473	0.000200	0.005	0.00003	94.0	75 - 125		
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<b>MSD</b>	Sample ID:	HS23060064-05MSD	Units:	mg/L	Analysis Date: 08-Jun-2023 15:01			
Client ID:		Run ID:	HG04_437445	SeqNo:	7352892	PrepDate:	08-Jun-2023	DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual

Mercury	0.00472	0.000200	0.005	0.00003	93.8	75 - 125	0.00473	0.212 20
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The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

Batch ID: R436801 ( 0 )		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C					
MLBK	Sample ID: VBLKW-230601			Units: ug/L		Analysis Date: 01-Jun-2023 10:34			
Client ID:		Run ID: VOA7_436801		SeqNo: 7335471	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	U	1.0							
Ethylbenzene	U	1.0							
m,p-Xylene	U	2.0							
o-Xylene	U	1.0							
Toluene	U	1.0							
Xylenes, Total	U	1.0							
Surr: 1,2-Dichloroethane-d4	47.5	1.0	50	0	95.0	70 - 123			
Surr: 4-Bromofluorobenzene	47.15	1.0	50	0	94.3	77 - 113			
Surr: Dibromofluoromethane	48.45	1.0	50	0	96.9	73 - 126			
Surr: Toluene-d8	49.23	1.0	50	0	98.5	81 - 120			
LCS	Sample ID: VLCSW-230601			Units: ug/L		Analysis Date: 01-Jun-2023 09:51			
Client ID:		Run ID: VOA7_436801		SeqNo: 7335469	PrepDate:	DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit Qual
Benzene	17.51	1.0	20	0	87.5	74 - 120			
Ethylbenzene	17.86	1.0	20	0	89.3	77 - 117			
m,p-Xylene	35.64	2.0	40	0	89.1	77 - 122			
o-Xylene	17.97	1.0	20	0	89.9	75 - 119			
Toluene	17.51	1.0	20	0	87.5	77 - 118			
Xylenes, Total	53.62	1.0	60	0	89.4	75 - 122			
Surr: 1,2-Dichloroethane-d4	49.78	1.0	50	0	99.6	70 - 123			
Surr: 4-Bromofluorobenzene	48.92	1.0	50	0	97.8	77 - 113			
Surr: Dibromofluoromethane	48.49	1.0	50	0	97.0	73 - 126			
Surr: Toluene-d8	48.63	1.0	50	0	97.3	81 - 120			

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

Batch ID: R436801 (0)		Instrument: VOA7		Method: LOW LEVEL VOLATILES BY SW8260C				
MS	Sample ID: HS23052052-04MS			Units: ug/L		Analysis Date: 01-Jun-2023 14:44		
Client ID:		Run ID: VOA7_436801		SeqNo: 7336987	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	16.55	1.0	20	0	82.8	70 - 127		
Ethylbenzene	17.31	1.0	20	0	86.5	70 - 124		
m,p-Xylene	34.32	2.0	40	0	85.8	70 - 130		
o-Xylene	17	1.0	20	0	85.0	70 - 124		
Toluene	16.76	1.0	20	0	83.8	70 - 123		
Xylenes, Total	51.32	1.0	60	0	85.5	70 - 130		
Surr: 1,2-Dichloroethane-d4	49.23	1.0	50	0	98.5	70 - 126		
Surr: 4-Bromofluorobenzene	48.36	1.0	50	0	96.7	77 - 113		
Surr: Dibromofluoromethane	48.04	1.0	50	0	96.1	77 - 123		
Surr: Toluene-d8	48.92	1.0	50	0	97.8	82 - 127		

MSD	Sample ID: HS23052052-04MSD			Units: ug/L		Analysis Date: 01-Jun-2023 15:06		
Client ID:		Run ID: VOA7_436801		SeqNo: 7336988	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Benzene	16.12	1.0	20	0	80.6	70 - 127	16.55	2.65 20
Ethylbenzene	16.77	1.0	20	0	83.9	70 - 124	17.31	3.14 20
m,p-Xylene	33.52	2.0	40	0	83.8	70 - 130	34.32	2.37 20
o-Xylene	16.36	1.0	20	0	81.8	70 - 124	17	3.83 20
Toluene	16.11	1.0	20	0	80.5	70 - 123	16.76	3.95 20
Xylenes, Total	49.87	1.0	60	0	83.1	70 - 130	51.32	2.85 20
Surr: 1,2-Dichloroethane-d4	48.89	1.0	50	0	97.8	70 - 126	49.23	0.694 20
Surr: 4-Bromofluorobenzene	48.55	1.0	50	0	97.1	77 - 113	48.36	0.391 20
Surr: Dibromofluoromethane	49.76	1.0	50	0	99.5	77 - 123	48.04	3.51 20
Surr: Toluene-d8	48.41	1.0	50	0	96.8	82 - 127	48.92	1.04 20

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** R436391 ( 0 )      **Instrument:** WetChem\_HS      **Method:** SULFIDE BY SM4500 S2-F-2011

MBLK	Sample ID:	MBLK-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326586	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          U                          2.00

LCS	Sample ID:	LCS-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326585	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.6                          2.00                          25                          0                          90.4                          85 - 115

LCSD	Sample ID:	LCSD-R436391	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326587	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.4                          2.00                          25                          0                          89.6                          85 - 115                          22.6                          0.889 20

MS	Sample ID:	HS23051748-06MS	Units:	mg/L	Analysis Date: 26-May-2023 13:43		
Client ID:		Run ID: WetChem_HS_436391 SeqNo: 7326584	PrepDate:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Sulfide                          22.4                          2.00                          25                          -4.6                          108                          80 - 120

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** R436789 ( 0 )      **Instrument:** WetChem\_HS      **Method:** HYDROGEN SULFIDE BY E376.1

MLBK	Sample ID:	MLBK-R436789	Units:	mg/L	Analysis Date: 26-May-2023 13:32			
Client ID:	Run ID:	WetChem_HS_436789	SeqNo:	7335361	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	U		1.00					

LCS	Sample ID:	LCS-R436789	Units:	mg/L	Analysis Date: 26-May-2023 13:32			
Client ID:	Run ID:	WetChem_HS_436789	SeqNo:	7335360	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	24.01	1.00	25	0	96.0	80 - 120		

LCSD	Sample ID:	LCSD-R436789	Units:	mg/L	Analysis Date: 26-May-2023 13:32			
Client ID:	Run ID:	WetChem_HS_436789	SeqNo:	7335359	PrepDate:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD Limit Qual
Hydrogen Sulfide	23.8	1.00	25	0	95.2	80 - 120	24.01	0.889 20

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** R436825 (0)      **Instrument:** Balance1      **Method:** TOTAL DISSOLVED SOLIDS BY SM2540C-2011

MBLK	Sample ID:	WBLK-05312023	Units:	mg/L	Analysis Date: 31-May-2023 16:11		
Client ID:		Run ID:	Balance1_436825	SeqNo: 7336037	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      U      10.0

LCS	Sample ID:	LCS-05312023	Units:	mg/L	Analysis Date: 31-May-2023 16:11		
Client ID:		Run ID:	Balance1_436825	SeqNo: 7336036	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      1070      10.0      1000      0      107      85 - 115

DUP	Sample ID:	HS23051974-01DUP	Units:	mg/L	Analysis Date: 31-May-2023 16:11		
Client ID:		Run ID:	Balance1_436825	SeqNo: 7336029	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      2814      10.0      2816      0.071      20

DUP	Sample ID:	HS23051969-01DUP	Units:	mg/L	Analysis Date: 31-May-2023 16:11		
Client ID:		Run ID:	Balance1_436825	SeqNo: 7336026	PrepDate:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value %RPD Limit Qual

Total Dissolved Solids (Residue, Filterable)      3336      10.0      3472      4      20

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** R437236 (0)      **Instrument:** ICS-Integriion      **Method:** ANIONS BY SW9056A

MLBK		Sample ID: MBLK		Units: mg/L		Analysis Date: 06-Jun-2023 19:18			
Client ID:		Run ID: ICS-Integriion_437236		SeqNo: 7346299		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	U	0.100							
Chloride	U	0.500							
Sulfate	U	0.500							

LCS		Sample ID: LCS		Units: mg/L		Analysis Date: 06-Jun-2023 19:24			
Client ID:		Run ID: ICS-Integriion_437236		SeqNo: 7346300		PrepDate:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	4.29	0.100	4	0	107	80 - 120			
Chloride	20.81	0.500	20	0	104	80 - 120			
Sulfate	21.07	0.500	20	0	105	80 - 120			

MS		Sample ID: HS23051918-01MS		Units: mg/L		Analysis Date: 06-Jun-2023 21:49			
Client ID:		Run ID: ICS-Integriion_437236		SeqNo: 7346320		PrepDate:		DF: 200	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	444	20.0	400	35.24	102	80 - 120			
Chloride	7856	100	2000	6042	90.7	80 - 120			
Sulfate	2309	100	2000	274.6	102	80 - 120			

MSD		Sample ID: HS23051918-01MSD		Units: mg/L		Analysis Date: 06-Jun-2023 21:55			
Client ID:		Run ID: ICS-Integriion_437236		SeqNo: 7346321		PrepDate:		DF: 200	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit Qual
Bromide	450.3	20.0	400	35.24	104	80 - 120	444	1.4	20
Chloride	7864	100	2000	6042	91.1	80 - 120	7856	0.104	20
Sulfate	2312	100	2000	274.6	102	80 - 120	2309	0.113	20

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QC BATCH REPORT**

**Batch ID:** R437360 (0)      **Instrument:** Skalar 03      **Method:** ALKALINITY BY SM 2320B-2011

MLBK		Sample ID: MBLK-06072023		Units: mg/L		Analysis Date: 07-Jun-2023 17:00			
Client ID:		Run ID: Skalar 03_437360		SeqNo: 7351063		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-06072023		Units: mg/L		Analysis Date: 07-Jun-2023 17:06			
Client ID:		Run ID: Skalar 03_437360		SeqNo: 7351064		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)		885.8	5.00	1000	0	88.6	85 - 115		
LCSD		Sample ID: LCSD-06072023		Units: mg/L		Analysis Date: 07-Jun-2023 17:12			
Client ID:		Run ID: Skalar 03_437360		SeqNo: 7351065		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)		881.4	5.00	1000	0	88.1	85 - 115	885.8	0.498 20
DUP		Sample ID: HS23051932-01DUP		Units: mg/L		Analysis Date: 07-Jun-2023 17:31			
Client ID:		Run ID: Skalar 03_437360		SeqNo: 7351068		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)		376	5.00					383.7	2.03 20
Alkalinity, Carbonate (As CaCO3)		U	5.00					0	0 20

The following samples were analyzed in this batch: HS23051794-01

**Client:** Environmental Resources Mgmt.  
**Project:** Sulphur Dome  
**WorkOrder:** HS23051794

**QUALIFIERS,  
ACRONYMS, UNITS**

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	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

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

<b><u>Unit Reported</u></b>	<b><u>Description</u></b>
mg/L	Milligrams per Liter

**CERTIFICATIONS,ACCREDITATIONS & LICENSES**

Agency	Number	Expire Date
Arkansas	88-00356	27-Mar-2024
Dept of Defense	L23-358	31-May-2025
Florida	E87611-37	30-Jun-2023
Kansas	E-10352; 2022-2023	31-Jul-2023
Louisiana	03087, 2022-2023	30-Jun-2023
Maryland	343, 2022-2023	30-Jun-2023
North Carolina	624-2023	31-Dec-2023
Oklahoma	2022-141	31-Aug-2023
Texas	T104704231-23-31	30-Apr-2024
Utah	TX026932022-13	31-Jul-2023

**Sample Receipt Checklist**

**Work Order ID:** HS23051794  
**Client Name:** ERMSW-HOU

**Date/Time Received:** 25-May-2023 17:05  
**Received by:** Corey Grandits

**Completed By:** /S/ Nilesh D. Ranchod

eSignature

25-May-2023 19:44

**Reviewed by:** /S/ Bernadette A. Fini

26-May-2023 11:09

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  1 Page(s)

Chain of custody signed when relinquished and received?

Yes  No  COC IDs:241201

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):

5.7C/5.6C UC/C | IR 31

Cooler(s)/Kit(s):

RED

Date/Time sample(s) sent to storage:

05/25/2023 20:00

Water - VOA vials have zero headspace?

Yes  No  No VOA vials submitted 

Water - pH acceptable upon receipt?

Yes  No  N/A 

pH adjusted?

Yes  No  N/A 

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:



Cincinnati, OH

+1 513 733 5336

Everett, WA

+1 425 356 2600

Fort Collins, CO

+1 970 490 1511

Holland, MI

+1 616 399 6070

## Chain of Custody Form

Page 1 of 1

COC ID: 241201

HS23051794

Environmental Resources Mgmt.  
Sulphur Dome

## ALS Project Manager:

Customer Information		Project Information												
Purchase Order	0688077	Project Name	Sulphur Dome	A	8260_LL_W (Low Level VOC (8260) BTEX)									
Work Order		Project Number		B	MA_EPH_W_La (MA EPH)									
Company Name	Environmental Resources Mgmt.	Bill To Company	Environmental Resources Mgmt.	C	MA_VPH_LA_W (MA VPH)									
Send Report To	Scott Himes	Invoice Attn	Accounts Payable	D	9056_anions_W (Cl,SO4,Br)									
Address	CityCentre Four 840 W. Sam Houston Pkwy., Suite 6	Address	CityCentre Four	E	ALK_W 2320B (carb, bicarb),pH									
			840 W. Sam Houston Pkwy., Suite 6	F	H2S_W (H2S)									
City/State/Zip	Houston, TX 77024	City/State/Zip	Houston TX 77024	G	HG_W (Mercury)									
Phone	(281) 600-1000	Phone	(281) 600-1000	H	ICP_TW (As,Ba,Cd,Ca,Cr,Fe,Pb,Mg,Mn,K,Se,Ag,Na,Sr,Zn) N <sub>i</sub> , 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	Tank Battery	5/25/23	1245	W		12	X	X	X	X	X	X	X	X	X		
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign	<u>Scott Himes</u>	Shipment Method	Required Turnaround Time: (Check Box)	<input type="checkbox"/> Other _____	Results Due Date:		
		Drop off	<input checked="" type="checkbox"/> STD 10 Wk Days	<input type="checkbox"/> 5 Wk Days	<input type="checkbox"/> 2 Wk Days	<input type="checkbox"/> 24 Hour	
Relinquished by:	<u>Scott Himes</u>	Date: 5/25/23	Time: 1705	Received by:	Notes: ERM Sulphur Dome		
Relinquished by:		Date:	Time:	Received by (Laboratory): <u>CA S-25-23 1705</u>	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory): <u>REI</u>	<input checked="" type="checkbox"/> Level II Std QC	<input type="checkbox"/> TRRP Checklist	
					<input type="checkbox"/> Level III Std QC/Raw Data	<input type="checkbox"/> TRRP Level IV	
					<input type="checkbox"/> Level IV SW846/CLP		
					<input type="checkbox"/> Other		

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

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## Certificate of Analysis

Number: 1030-23060115-001A

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

June 19, 2023

Station Name: Cavern 4  
Method: ASTM D-86  
Analyzed: 06/06/2023 11:17:00 by FSN

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 10:15  
Sample Conditions:

### ASTM D-86 Distillation

% Recovery	°F @ 765 mm Hg
Initial Boiling Point	176
5	234
10	286
20	376
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	400
Volume % Recovery	23.0
Volume % Residue	77.0
Volume % Loss	0.0

**Comments:** Temperatures are uncorrected for barometric pressure.  
Visual color is Crude.  
IBP to 400°F Naphtha Cut Mass Fraction = 0.1980

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: 1030-23060115-001A

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

June 19, 2023

Station Name: Cavern 4  
Sample Conditions:

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 10:15

### Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	10.4	lbs/1000 bbls		MG	06/06/2023
Sulfur Content by X-ray	ASTM D-4294	1.548	wt%		MG	06/07/2023
Organic Chloride	ASTM D-4929	<1.0	ppmw		FSN	06/07/2023
API Gravity @ 60.01 °F	ASTM D-5002	31.21	°		MG	06/07/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.8696	—		MG	06/07/2023
Density @ 60.01 °F	ASTM D-5002	0.8688	g/ml		MG	06/07/2023
Nickel	ASTM D-5708A	9	ppmw		CMN	06/18/2023
Vanadium	ASTM D-5708A	42	ppmw		CMN	06/18/2023
Iron	ASTM D-5708A	4	ppmw		CMN	06/18/2023

#### Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.  
Mass Fraction = 0.1980

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: 1030-23060115-002A

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

June 19, 2023

Station Name: Cavern 7B  
Method: ASTM D-86  
Analyzed: 06/06/2023 11:17:00 by FSN

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 10:45  
Sample Conditions:

### ASTM D-86 Distillation

% Recovery	°F @ 765 mm Hg
Initial Boiling Point	138
5	214
10	264
20	350
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	400
Volume % Recovery	26.0
Volume % Residue	74.0
Volume % Loss	0.0

**Comments:** Temperatures are uncorrected for barometric pressure.  
Visual color is Crude.  
IBP to 400°F Naphtha Cut Mass Fraction = 0.2288

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: 1030-23060115-002A

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

June 19, 2023

Station Name: Cavern 7B  
Sample Conditions:

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 10:45

### Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	5.0	lbs/1000 bbls		MG	06/06/2023
Sulfur Content by X-ray	ASTM D-4294	1.401	wt%		MG	06/07/2023
Organic Chloride	ASTM D-4929	<1.0	ppmw		FSN	06/07/2023
API Gravity @ 60.01 °F	ASTM D-5002	33.52	°		FSN	06/19/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.8575	—		FSN	06/19/2023
Density @ 60.01 °F	ASTM D-5002	0.8566	g/ml		FSN	06/19/2023
Nickel	ASTM D-5708A	6	ppmw		CMN	06/18/2023
Vanadium	ASTM D-5708A	23	ppmw		CMN	06/18/2023
Iron	ASTM D-5708A	<1	ppmw		CMN	06/18/2023

#### Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.  
Mass Fraction = 0.2288  
AS-D-5002: RERUN

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: 1030-23060115-003A

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

June 19, 2023

Station Name: 210185  
Method: ASTM D-86  
Analyzed: 06/06/2023 17:51:00 by FSN

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 11:10  
Sample Conditions:

### ASTM D-86 Distillation

% Recovery	°F @ 764 mm Hg
Initial Boiling Point	206
5	438
10	500
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	10.0
Volume % Residue	90.0
Volume % Loss	0.0

**Comments:** Temperatures are uncorrected for barometric pressure.  
Visual color is Crude.  
IBP to 400°F Naphtha Cut Mass Fraction = 0.0899

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: 1030-23060115-003A

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

June 19, 2023

Station Name: 210185  
Sample Conditions:

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 11:10

### Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	9.8	lbs/1000 bbls		MG	06/06/2023
Sulfur Content by X-ray	ASTM D-4294	0.476	wt%		MG	06/07/2023
Organic Chloride	ASTM D-4929	<1.0	ppmw		FSN	06/07/2023
API Gravity @ 60.01 °F	ASTM D-5002	22.79	°		MG	06/07/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.9171	—		MG	06/07/2023
Density @ 60.01 °F	ASTM D-5002	0.9162	g/ml		MG	06/07/2023
Nickel	ASTM D-5708A	10	ppmw		CMN	06/18/2023
Vanadium	ASTM D-5708A	2	ppmw		CMN	06/18/2023
Iron	ASTM D-5708A	59	ppmw		CMN	06/18/2023

#### Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.  
Mass Fraction = 0.0899

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: 1030-23060115-004A

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

June 19, 2023

Station Name: Tank Battery  
Method: ASTM D-86  
Analyzed: 06/06/2023 17:51:00 by FSN

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 12:45  
Sample Conditions:

### ASTM D-86 Distillation

% Recovery	°F @ 764 mm Hg
Initial Boiling Point	226
5	318
10	398
20	NR
30	NR
40	NR
50	NR
60	NR
70	NR
80	NR
85	NR
90	NR
95	NR
Final Boiling Point	400
Volume % Recovery	10.0
Volume % Residue	90.0
Volume % Loss	0.0

**Comments:** Temperatures are uncorrected for barometric pressure.  
Visual color is Crude.  
IBP to 400°F Naphtha Cut Mass Fraction = 0.0909

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: 1030-23060115-004A

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

June 19, 2023

Station Name: Tank Battery  
Sample Conditions:

Sampled By: DS  
Sample Of: Liquid Spot  
Sample Date: 05/25/2023 12:45

### Analytical Data

Test	Method	Result	Units	Detection Limit	Lab Tech.	Analysis Date
Salt in Crude Oil	ASTM D-3230	32.0	lbs/1000 bbls		MG	06/06/2023
Sulfur Content by X-ray	ASTM D-4294	0.327	wt%		MG	06/07/2023
Organic Chloride	ASTM D-4929	<1.0	ppmw		FSN	06/07/2023
API Gravity @ 60.01 °F	ASTM D-5002	26.95	°		MG	06/07/2023
Specific Gravity @ 60.01/60.01 °F	ASTM D-5002	0.8930	—		MG	06/07/2023
Density @ 60.01 °F	ASTM D-5002	0.8921	g/ml		MG	06/07/2023
Nickel	ASTM D-5708A	6	ppmw		CMN	06/18/2023
Vanadium	ASTM D-5708A	1	ppmw		CMN	06/18/2023
Iron	ASTM D-5708A	15	ppmw		CMN	06/18/2023

#### Comments:

AS-D-4929: Sample analyzed by ASTM D-4929 procedure B.  
Mass Fraction = 0.0909

Data reviewed by: Michael Staley, ASTM Manager

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

## SPL, Inc.

## Analysis Request Chain of Custody Record

		SPL Work Order No.: Project/Station Name: Special Instructions:				Acct. Mate Code: Project/Station Number: Project/Station Location:		Dept. Code:		Page	Pages			
<b>Report To:</b> (Company Name):	ERM										1	1		
<b>Address:</b>	840 W. Sam Houston Parkway North Suite 600										Requested TAT*			
<b>City/State/Zip:</b>	Houston	TX	77024-4613									10 business days		
<b>Contact:</b>	Scott Himes	Scott.Himes@erm.com		Indicate Billing Type: (Place "X", where appropriate)		Net 30 day Acct.		Check #						
<b>Phone:</b>	832-209-8811	Fax:				Credit Card		<<<Contact SPL, Inc for CC payment arrangements.						
<b>Invoice To:</b> (Company Name):	ERM						Requested Analysis (Place an "X" next to Sample ID below)				* Surcharges May Apply (See quote for details)			
<b>Address:</b>	840 W. Sam Houston Parkway North Suite 600													
<b>City/State/Zip:</b>	Houston	TX	77024-4613											
<b>Contact:</b>	Scott Himes	Scott.Himes@erm.com												
<b>Phone:</b>	832-209-8811	Fax:												
<b>Client PO# or Ref. No.:</b>	0688077													
<b>Contract/Proposal #:</b> (i.e. SPLQ###)	SPLQ10978													
<b>Sample ID</b> (used to log/track sample)	Sample Date	Sample Time	Sample Type (Gas/Liq. /Solid)	Duplicate	Composite	Spot	Cylinder Tracking Info <sup>†</sup>						Comments	
							Cylinder #	Date Out	Date In	X	X	X		
Cavern 4	05/25/23	10:15	Liq		X									
Cavern 7B	05/25/23	10:45	Liq		X									
210185	05/25/23	11:10	Liq		X									
Tank Battery	05/25/23	12:45	Liq		X									
Sampled By-Print Name: Signature:	David Sangiusti D. S. J.				Received By-Company:									
Relinquished By-Print Name: Signature:	David Sangiusti D. S. J.		Date:	Time:	Received By-Print Name: Signature:				Hannah Bakci H. Bakci		Date:	Time:		
Relinquished By-Print Name: Signature:			5/6/23											
Relinquished By-Print Name: Signature:			Date:	Time:	Received By-Print Name: Signature:						Date:	Time:		
Relinquished By-Print Name: Signature:			Date:	Time:	Received By-Print Name: Signature:						Date:	Time:		

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

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



Lab #: 870407 Job #: 54512 IS-102884 Co. Job#:  
Sample Name: 209459-1, cyl. #3123 Co. Lab#:  
Company: Environmental Resources Management (ERM) Cylinder: 3123  
API/Well:  
Container: Cylinder  
Field/Site Name: Sulphur Dome  
Location: Sulphur, Louisiana  
Formation:  
Sampling Point:  
Date Sampled: 5/02/2023 14:10 Date Received: 5/08/2023 Date Reported: 6/23/2023

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	1.40			
Argon -----	0.0086			
Oxygen -----	0.015			
Nitrogen -----	0.38			
Carbon Dioxide -----	1.34			
Methane -----	88.34	-45.41	-168.6	
Ethane -----	3.11			
Ethylene -----	nd			
Propane -----	2.78			
Propylene -----	nd			
Iso-butane -----	0.701			
N-butane -----	0.905			
Iso-pentane -----	0.270			
N-pentane -----	0.191			
Hexanes + -----	0.562			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1124

Specific gravity, calculated: 0.650

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. %.