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July 11, 2024

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Second Quarter 2024 – SVE System Update
Hare #14M
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NRM2028852747

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Second Quarter 2024 – SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the Hare #14M natural gas production well (Site), located in Unit D of Section 10, Township 29 North, Range 10 West, San Juan County, New Mexico (Figure 1). The SVE system was put into operation on June 6, 2023, to remediate subsurface soil impacts resulting from approximately 36 barrels (bbls) of natural gas condensate released from an aboveground storage tank. This report summarizes Site activities performed in April, May, and June of 2024.

SVE SYSTEM SPECIFICATIONS

The SVE system at the Site consists of a 3-phase, 6 horsepower Atlantic Blower AB-802 regenerative blower capable of producing 399 cubic feet per minute (cfm) flow and 125 inches of water column (IWC) vacuum. The system is powered by a permanent power drop and is intended to run 24 hours per day. Seven SVE wells were previously in operation through June 4, 2024, and are shown on Figures 2 and 3. SVE wells SVE01, SVE07, and SVE09 are screened within "shallow zone" soil at depths up to 25 feet below ground surface (bgs). SVE wells SVE02, SVE03, SVE06, and SVE08 are screened within "deep zone" soil at depths up to 40 feet bgs.

SECOND QUARTER 2024 ACTIVITIES

The SVE system began operation on June 6, 2023. Based on the New Mexico Oil Conservation Division (NMOCD) Conditions of Approval (COAs), dated November 7, 2022, field data measurements were collected bi-weekly from the system during the second quarter of 2024 and included the following parameters: total system flow, flow rates from each SVE well, photoionization detector (PID) measurements of volatile organic compounds (VOCs) from each SVE well and the total system influent, and oxygen/carbon dioxide measurements via hand-held analyzers from each SVE well. Field notes taken during operations and maintenance (O&M) visits are presented in Appendix A.

On June 4 and June 26, 2024, five of the seven SVE wells were taken offline due to low PID readings. As of June 26, 2024, the SVE system is focused on vapor extraction at wells SVE01 and SVE07 in order to maximize mass removal from the impacted soil zones. Between March 21,

2024, and June 26, 2024, the SVE system operated for 2,331.6 hours for a runtime efficiency of 100 percent (%). Appendix B presents photographs of the runtime meter for calculating the second quarter 2024 runtime efficiency. Table 1 presents the SVE system operational hours and calculated percentage runtime.

Based on the November 2022 COAs, vapor samples are required to be collected every other month during the second through fourth quarters of the first year of operation. To comply with the aforementioned COAs, a vapor sample was collected in May 2024. The vapor sample was collected from a sample port located between the SVE piping manifold and the SVE blower using a high vacuum air sampler. Prior to collection, the sample was field screened with a PID for organic vapor monitoring (OVM). The sample was collected directly into two 1-Liter Tedlar® bags and submitted to Eurofins Environment Testing (Eurofins) in Albuquerque, New Mexico for analysis of total volatile petroleum hydrocarbons (TVPH – also known as total petroleum hydrocarbons – gasoline range organics (TPH-GRO)) following United States Environmental Protection Agency (EPA) Method 8015D, VOCs following EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide following Gas Processors Association (GPA) Method 2261. A summary of field measurements and analytical data collected at the Site are presented in Tables 2 and 3, respectively. The full laboratory analytical report is attached as Appendix C. Oxygen and carbon dioxide levels over time are presented at Graphs 1 and 2, respectively.

Vapor sample data and measured stack flow rates are used to estimate total mass recovered and total emissions generated by the SVE system (Table 4). Based on these estimates, 3,619 pounds (1.81 tons) of TVPH have been removed by the system to date. No phase-separated hydrocarbons were recovered from the SVE wells during the O&M and sampling period described above.

DISCUSSION AND RECOMMENDATIONS

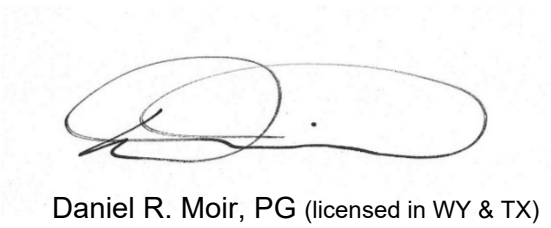
Following a notable drop in both field PID readings and TVPH laboratory analytical results during the March 6, 2024 sampling event, adjustments were made to the SVE system to attempt to maximize vacuum extraction from the two wells with the highest PID readings (SVE01 and SVE07). Following the adjustments, a 30% increase in the system influent PID reading was observed during the subsequent O&M event and the May vapor sample TVPH concentration increased from the result in March 2024, which was below the laboratory reporting limit. Further adjustments were made to the SVE system in June 2024, as discussed above, and an evaluation of system effectiveness will be made following receipt of the third quarter 2024 vapor analytical results.

Bi-weekly O&M visits and bi-monthly (every other month) sampling events will continue to be performed by Ensolum and/or Hilcorp personnel to verify the SVE system is operating within normal working ranges (i.e., temperature, pressure, and vacuum). Deviations from regular operations will be noted on field logs and included in the following quarterly report.

We appreciate the opportunity to provide this report to the NMOCD. If you should have any questions or comments regarding this report, please contact the undersigned.

Sincerely,

Ensolum, LLC



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Attachments:

Figure 1	Site Location Map
Figure 2	SVE System Shallow Zone Wells
Figure 3	SVE System Deep Zone Wells
Table 1	Soil Vapor Extraction System Runtime Calculations
Table 2	Soil Vapor Extraction System Field Measurements
Table 3	Soil Vapor Extraction System Air Analytical Results
Table 4	Soil Vapor Extraction System Mass Removal and Emissions
Graph 1	Oxygen vs Time
Graph 2	Carbon Dioxide vs Time
Appendix A	Field Notes
Appendix B	Project Photographs
Appendix C	Laboratory Analytical Reports

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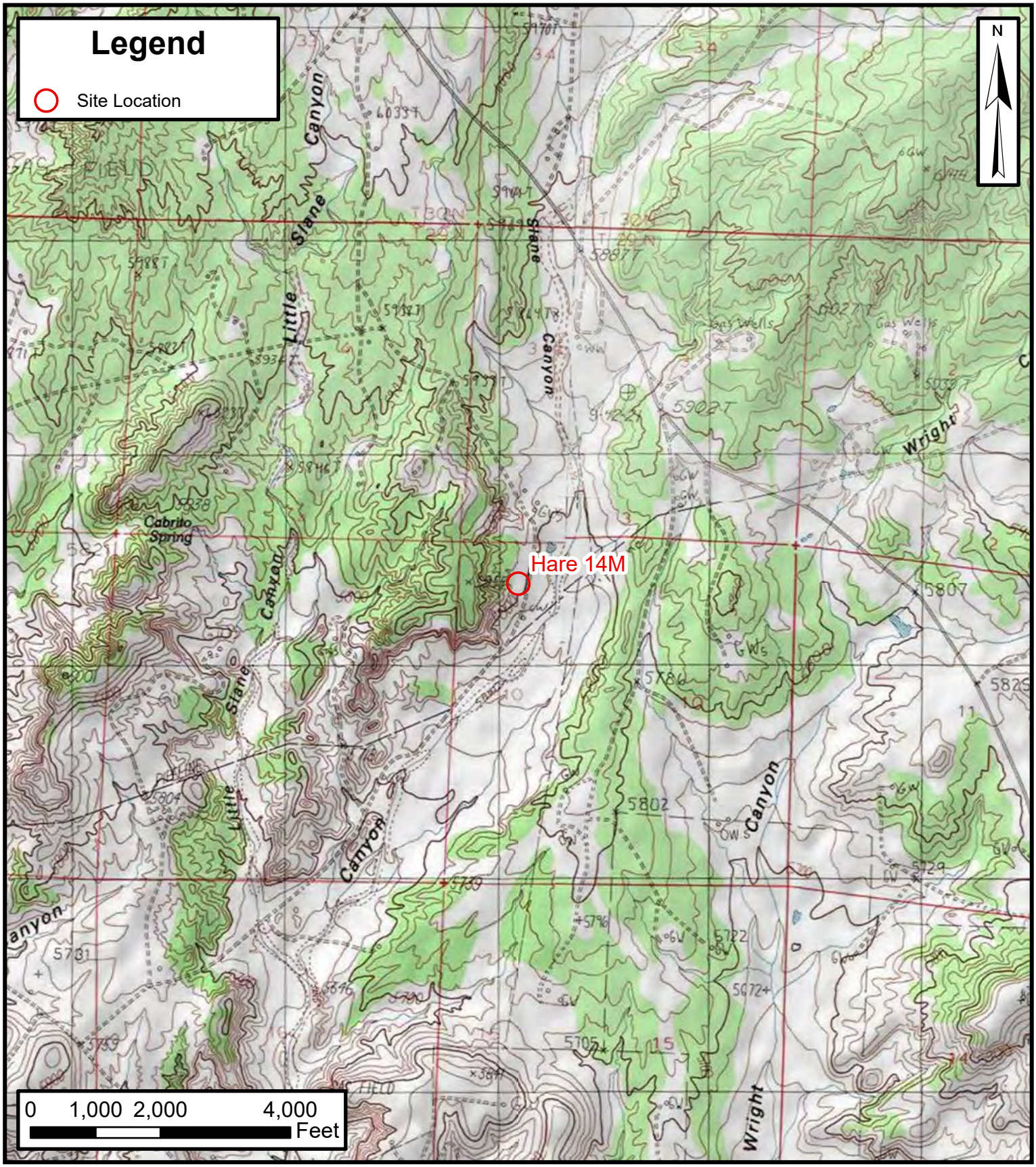
Figures



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Site Location Map

Hare #14M
Hilcorp Energy Company
36.7746141, -107.878021
San Juan County, New Mexico

FIGURE
1

Sources: Environmental Systems Research Institute (ESRI), National Geographic Society, i-cubed

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SVE System Shallow Zone Wells

Hare #14M
Hilcorp Energy Company
36.7746141, -107.878021
San Juan County, New Mexico

FIGURE
2

Sources: Environmental Systems Research Institute (ESRI), Google Earth

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SVE System Deep Zone Wells

Hare #14M
Hilcorp Energy Company
36.7746141, -107.878021
San Juan County, New Mexico

FIGURE
3

Sources: Environmental Systems Research Institute (ESRI), Google Earth

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Tables & Graphs

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TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

Date	Total Operational Hours	Delta Hours	Days	Quarterly Percent Runtime	Cumulative Percent Runtime
9/29/2023	3,056	--	--	--	--
12/20/2023	4,774	1,718.7	82.0	87%	87%
3/21/2024	6,965	2,190.8	92.0	99%	94%
6/26/2024	9,297	2,331.6	97.0	100%	96%

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2][3]	Vacuum (IWC)	Vacuum (psi)	Oxygen (%)	Carbon Dioxide (%)
Influent, All Wells	6/6/2023	1,769	--	--	--	--	--	--	--
	6/7/2023	1,367	--	--	70	78	2.82	--	--
	6/13/2023	1,023	--	--	35	44	1.59	--	--
	6/23/2023	675	--	--	40	40	1.44	--	--
	6/29/2023	781	--	--	40	40	1.44	--	--
	7/13/2023	745	--	--	42	37	1.34	--	--
	7/27/2023	414	--	--	45	36	1.30	--	--
	8/9/2023	403	--	--	48	34	1.23	--	--
	8/24/2023	610	--	--	46	37	1.34	--	--
	9/8/2023	444	--	--	48	36	1.30	--	--
	9/21/2023	398	--	--	46	36	1.30	--	--
	10/31/2023	140	3.3	159	115	33	1.19	--	--
	11/2/2023	--	6.6	225	156	46	1.66	--	--
	12/11/2023	126	6.3	219	152	47	1.70	--	--
	12/20/2023	103	6.23	218	151	49	1.77	--	--
	1/10/2024	85	6.4	221	153	48	1.73	--	--
	1/24/2024	68	6.4	221	152	51	1.84	--	--
	1/30/2024	161	6.7	226	155	51	1.84	20.9	0.08
	2/14/2024	109	5.7	209	139	62	2.24	--	--
	2/22/2024	150	5.6	207	138	61	2.20	--	--
	3/6/2024	71	5.6	207	139	58	2.09	--	--
	3/21/2024	100	5.8	211	142	57	2.06	--	--
	4/8/2024	151	5.7	209	141	58	2.09	--	--
	4/17/2024	101	5.8	211	143	56	2.02	--	--
	5/14/2024	65	5.9	212	146	51	1.84	--	--
	5/23/2024	43	6.1	216	148	51	1.84	--	--
	6/4/2024	107	4.7	190	124	69	2.49	--	--
	6/26/2024	98	4.8	192	125	68	2.45	--	--
SVE01	6/6/2023	1,620	--	--	--	--	--	--	--
	6/7/2023	1,983	--	--	10	61.9	2.23	20.9	2.28
	6/13/2023	1,520	--	--	5.0	29.3	1.06	22.9	0.48
	6/23/2023	1,245	--	--	5.7	23.9	0.86	23.2	0.26
	6/29/2023	1,441	--	--	5.7	24.2	0.87	23.2	0.24
	7/13/2023	1,585	--	--	6.0	--	--	22.9	0.26
	7/27/2023	1,292	--	--	6.4	20.8	0.75	22.5	0.24
	8/9/2023	923	--	--	6.9	18.8	0.68	22.8	0.18
	8/24/2023	982	--	--	6.6	21.2	0.77	22.1	0.12
	9/8/2023	763	--	--	6.9	--	--	22.0	0.14
	9/21/2023	435	--	--	6.6	20.7	0.75	21.4	0.08
	10/31/2023	8.5	--	--	--	--	--	20.9	0.04
	11/2/2023	--	0.20	39	27.2	46	1.66	20.9	0.04
	12/11/2023	397	0.13	32	21.9	47	1.70	20.9	0.04
	12/20/2023	412	0.09	26	18.1	49	1.77	20.9	0.02
	1/10/2024	251	0.15	34	23.4	48	1.73	20.9	0.01
	1/24/2024	318	0.15	34	24.4	33	1.19	20.9	0.01
	1/30/2024	90	0.14	33	23.6	33	1.18	20.9	0.04
	2/14/2024	397	0.06	21	15.0	44	1.59	20.9	0.04
	2/22/2024	508	0.08	25	17.3	44	1.58	20.9	0.04
	3/6/2024	401	--	--	--	42	1.50	20.9	0.02
	3/21/2024	483	0.06	21	15.1	42	1.51	20.9	0.04
	4/8/2024	538	0.07	23	16.4	40	1.46	20.9	0.05
	4/17/2024	399	0.06	21	15.2	39	1.41	20.9	0.05
	5/14/2024	174	0.24	43	30.9	33	1.20	20.9	0.03
	5/23/2024	152	0.25	44	31.6	32	1.17	20.6	0.03
	6/4/2024	210	0.54	64	43.9	52	1.89	20.9	0.05
	6/26/2024	119	0.48	61	41.2	54	1.95	20.9	0.04
SVE02	6/6/2023	738	--	--	--	--	--	--	--
	6/7/2023	195	--	--	10	63.3	2.28	23.2	0.04
	6/13/2023	281	--	--	5.0	30.2	1.09	23.3	0.04
	6/23/2023	98.0	--	--	5.7	24.7	0.89	23.4	0.06
	6/29/2023	120	--	--	5.7	24.7	0.89	23.4	0.00
	7/13/2023	109	--	--	6.0	--	--	23.3	0.00
	7/27/2023	265	--	--	6.4	21.2	0.77	22.6	0.02
	8/9/2023	368	--	--	6.9	19.7	0.71	22.9	0.04
	8/24/2023	248	--	--	6.6	21.8	0.79	22.2	0.02
	9/8/2023	89.6	--	--	6.9	--	--	22.2	0.02
	9/21/2023	135	--	--	6.6	21.1	0.76	21.7	0.04
	10/31/2023	18	--	--	--	--	--	20.9	0.03
	11/2/2023	--	0.20	39.1	27.2	46	1.66	20.9	0.00
	12/11/2023	54	0.01	8.7	6.1	47	1.70	20.9	0.00
	12/20/2023	11.1	0.01	8.7	6.0	49	1.77	20.9	0.00
	1/10/2024	8.7	0.02	12.4	8.6	48	1.73	20.9	0.01
	1/24/2024	13	0.01	8.7	6.3	34	1.23	20.9	0.01
	1/30/2024	44	0.04	17.5	12.6	33	1.20	20.9	0.06
	2/14/2024	19.3	0.00	0.0	0.0	45	1.64	20.9	0.00

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Hare #14M
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San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2][3]	Vacuum (IWC)	Vacuum (psi)	Oxygen (%)	Carbon Dioxide (%)
SVE02	2/22/2024	20.1	0.03	15.1	10.6	44	1.57	20.9	0.00
	3/6/2024	23.8	--	--	--	43	1.55	20.9	0.00
	3/21/2024	13.4	0.02	12.4	8.7	42	1.51	20.9	0.00
	4/8/2024	27.5	0.01	8.7	6.2	41	1.47	20.9	0.00
	4/17/2024	22.0	0.01	8.7	6.2	40	1.45	20.9	0.00
	5/14/2024	11.2	0.04	17.5	12.6	35	1.25	20.9	0.01
	5/23/2024	11.5	0.03	15.1	10.9	34	1.23	20.9	0.02
	6/4/2024	Well Taken Offline							
SVE03	6/6/2023	1,030	--	--	--	--	--	--	--
	6/7/2023	130	--	--	10	61.8	2.23	23.2	0.00
	6/13/2023	35.0	--	--	5.0	30.4	1.10	23.4	0.00
	6/23/2023	15.0	--	--	5.7	25.6	0.92	23.2	0.04
	6/29/2023	29.0	--	--	5.7	25.1	0.91	22.8	0.00
	7/13/2023	56.5	--	--	6.0	--	--	23.3	0.00
	7/27/2023	59.5	--	--	6.4	20.0	0.72	22.5	0.02
	8/9/2023	171	--	--	6.9	17.8	0.64	23.0	0.04
	8/24/2023	108	--	--	6.6	21.2	0.77	21.9	0.18
	9/8/2023	65.2	--	--	6.9	--	--	22.3	0.11
	9/21/2023	64.0	--	--	6.6	19.5	0.70	21.4	0.02
	10/31/2023	7.9	--	--	--	--	--	20.9	0.05
	11/2/2023	--	0.20	39	27.2	46	1.66	20.9	0.01
	12/20/2023	16.3	0.76	76	52.9	47	1.70	20.9	0.01
	12/20/2023	16.3	0.76	76	52.6	49	1.77	20.9	0.01
	1/10/2024	8.1	0.83	80	55.2	48	1.73	20.9	0.01
	1/24/2024	11.7	0.77	77	55.9	29	1.05	20.9	0.01
	1/30/2024	36	0.81	79	56.9	32	1.15	20.9	0.02
	2/14/2024	27.8	0.31	49	36.0	23	0.84	20.9	0.01
	2/22/2024	24.9	0.32	49	36.7	22	0.80	20.9	0.00
	3/6/2024	17.6	--	--	--	21	0.77	20.9	0.00
	3/21/2024	18.5	0.31	49	36.2	22	0.78	20.9	0.00
	4/8/2024	38.2	0.32	49	36.9	20	0.73	20.9	0.02
	4/17/2024	32.5	0.29	47	35.2	19	0.70	20.9	0.02
	5/14/2024	29.3	0.29	47	35.4	17	0.61	20.9	0.02
	5/23/2024	22.3	0.26	45	33.6	16	0.59	20.9	0.02
	6/4/2024	Well Taken Offline							
SVE06	6/6/2023	967	--	--	--	--	--	--	--
	6/7/2023	1,120	--	--	10	62.3	2.25	21.4	2.81
	6/13/2023	814	--	--	5.0	30.8	1.11	22.9	0.56
	6/23/2023	15.0	--	--	5.7	26.3	0.95	23.2	0.06
	6/29/2023	23.0	--	--	5.7	25.4	0.92	23.0	0.00
	7/13/2023	14.2	--	--	6.0	--	--	23.3	0.00
	7/27/2023	174	--	--	6.4	20.8	0.75	22.5	0.04
	8/9/2023	227	--	--	6.9	19.5	0.70	23.0	0.10
	8/24/2023	216	--	--	6.6	21.5	0.78	22.2	0.04
	9/8/2023	178	--	--	6.9	--	--	22.3	0.06
	9/21/2023	180	--	--	6.6	21.7	0.78	21.7	0.00
	10/31/2023	32.8	--	--	--	--	--	20.9	0.05
	11/2/2023	--	0.20	39.1	27.2	46	1.66	20.9	0.00
	12/11/2023	55.1	0.01	8.7	6.1	47	1.70	20.9	0.00
	12/20/2023	11.3	0.01	8.7	6.0	49	1.77	20.9	0.01
	1/10/2024	28.3	0.01	8.7	6.1	48	1.73	20.9	0.01
	1/24/2024	54.5	0.02	12.4	8.9	34	1.23	20.9	0.04
	1/30/2024	143	0.04	17.5	12.6	33	1.20	20.9	0.16
	2/14/2024	53.0	0.00	0.0	0.0	43	1.54	20.9	0.00
	2/22/2024	53.5	0.04	17.5	12.3	43	1.56	20.9	0.00
	3/6/2024	22.4	--	--	--	43	1.53	20.9	0.06
	3/21/2024	53.1	0.04	17.5	12.3	42	1.52	20.9	0.06
	4/8/2024	97.1	0.00	0.0	0.0	40	1.45	20.9	0.00
	4/17/2024	39.4	0.00	0.0	0.0	40	1.43	20.9	0.01
	5/14/2024	23.8	0.05	19.5	14.1	34	1.23	20.9	0.01
	5/23/2024	31.7	0.06	21.4	15.4	34	1.21	20.4	0.01
	6/4/2024	28.6	0.00	0.0	0.0	52	1.87	20.9	0.00
	6/26/2024	Well Taken Offline							
SVE07	6/6/2023	617	--	--	--	--	--	--	--
	6/7/2023	967	--	--	10	61.7	2.23	21.1	2.12
	6/13/2023	786	--	--	5.0	30.2	1.09	22.8	0.52
	6/23/2023	575	--	--	5.7	24.9	0.90	22.9	0.24
	6/29/2023	649	--	--	5.7	24.6	0.89	22.8	0.28
	7/13/2023	605	--	--	6.0	--	--	23.2	0.20
	7/27/2023	582	--	--	6.4	19.9	0.72	22.4	0.24
	8/9/2023	420	--	--	6.9	19.3	0.70	22.8	0.24
	8/24/2023	195	--	--	6.6	20.8	0.75	22.1	0.04
	9/8/2023	439	--	--	6.9	--	--	22.3	0.04
	9/21/2023	335	--	--	6.6	21.5	0.78	21.2	0.12

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2][3]	Vacuum (IWC)	Vacuum (psi)	Oxygen (%)	Carbon Dioxide (%)
SVE07	10/31/2023	148	--	--	--	--	--	20.9	0.08
	11/2/2023	--	0.20	39	27.2	46	1.66	20.9	0.04
	12/11/2023	156	0.35	52	35.9	47	1.70	20.9	0.04
	12/20/2023	149	0.38	54	37.2	49	1.77	20.9	0.03
	1/10/2024	88.0	0.41	56	38.8	48	1.73	20.9	0.02
	1/24/2024	88.5	0.41	56	40.3	34	1.21	20.9	0.02
	1/30/2024	108	0.34	51	36.7	34	1.22	20.9	0.04
	2/14/2024	29.3	0.85	81	56.5	44	1.57	20.9	0.00
	2/22/2024	77.6	0.87	82	57.4	42	1.52	20.9	0.01
	3/6/2024	30.0	--	--	--	41	1.48	20.9	0.00
	3/21/2024	34.8	0.88	82	58.0	40	1.45	20.9	0.01
	4/8/2024	82.5	0.96	86	60.8	39	1.40	20.9	0.02
	4/17/2024	56.5	0.96	86	61.0	38	1.37	20.9	0.02
	5/14/2024	53.6	0.79	78	56.0	33	1.19	20.9	0.03
	5/23/2024	33.4	0.78	77	55.8	32	1.17	20.4	0.03
	6/4/2024	51.6	1.64	112	76.8	51	1.85	20.9	0.04
	6/26/2024	61.3	1.32	100	68.8	52	1.88	20.9	0.04
SVE08	6/6/2023	1,065	--	--	--	--	--	--	--
	6/7/2023	1,168	--	--	10	61.8	2.23	22.2	1.04
	6/13/2023	102	--	--	5.0	28.6	1.03	23.2	0.00
	6/23/2023	55.0	--	--	5.7	25.4	0.92	23.0	0.06
	6/29/2023	68.0	--	--	5.7	25.7	0.93	22.9	0.00
	7/13/2023	58.5	--	--	6.0	--	--	23.3	0.00
	7/27/2023	44.5	--	--	6.4	20.5	0.74	22.5	0.04
	8/9/2023	144	--	--	6.9	19.0	0.69	23.0	0.04
	8/24/2023	112	--	--	6.6	21.6	0.78	22.1	0.06
	9/8/2023	75.7	--	--	6.9	--	--	22.4	0.02
	9/21/2023	91.0	--	--	6.6	20.1	0.73	21.7	0.04
	10/31/2023	10.9	--	--	--	--	--	20.9	0.03
	11/2/2023	--	0.20	39.1	27.2	46	1.66	20.9	0.21
	12/11/2023	479	0.76	76.2	52.9	47	1.70	20.9	0.21
	12/20/2023	11.3	0.02	12.4	8.5	49	1.77	20.9	0.00
	1/10/2024	10.3	0.02	12.4	8.6	48	1.73	20.9	0.00
	1/24/2024	9	0.01	8.7	6.3	33	1.19	20.9	0.00
	1/30/2024	37	0.01	8.7	6.3	32	1.15	20.9	0.00
	2/14/2024	51.5	0.00	0.0	0.0	42	1.50	20.9	0.02
	2/22/2024	64.2	0.00	0.0	0.0	41	1.48	20.9	0.02
	3/6/2024	16.0	--	--	--	41	1.46	20.9	0.00
	3/21/2024	112.6	0.00	0.0	0.0	41	1.47	20.9	0.06
	4/8/2024	93.6	0.03	15.1	10.8	38	1.35	20.9	0.05
	4/17/2024	145.8	0.02	12.4	8.8	39	1.39	20.9	0.08
	5/14/2024	135.0	0.02	12.4	8.9	33	1.20	20.9	0.08
	5/23/2024	184.8	0.02	12.4	8.9	32	1.17	20.7	0.14
	6/4/2024	57.3	0.00	0	0.0	40	1.45	20.9	0.00
	6/26/2024	Well Taken Offline							
SVE09	6/6/2023	1,518	--	--	--	--	--	--	--
	6/7/2023	545	--	--	10	60.3	2.18	22.6	0.78
	6/13/2023	242	--	--	5.0	27.2	0.98	22.9	0.52
	6/23/2023	165	--	--	5.7	24.1	0.87	22.9	0.08
	6/29/2023	425	--	--	5.7	23.8	0.86	22.6	0.30
	7/13/2023	42.5	--	--	6.0	--	--	23.3	0.00
	7/27/2023	277	--	--	6.4	19.3	0.70	22.4	0.18
	8/9/2023	226	--	--	6.9	18.2	0.66	23.0	0.12
	8/24/2023	250	--	--	6.6	20.9	0.75	22.1	0.10
	9/8/2023	41.0	--	--	6.9	--	--	22.4	0.02
	9/21/2023	62.0	--	--	6.6	19.2	0.69	21.7	0.04
	10/31/2023	22.6	--	--	--	--	--	20.9	0.04
	11/2/2023	--	0.20	39	27.2	46	1.66	20.9	0.05
	12/11/2023	139	0.76	76	52.9	47	1.70	20.9	0.05
	12/20/2023	99.3	0.38	54	37.2	49	1.77	20.9	0.00
	1/10/2024	34.6	0.19	38	26.4	48	1.73	20.9	0.01
	1/24/2024	34	0.36	52	38.0	31	1.13	20.9	0.01
	1/30/2024	232	0.29	47	34.0	32	1.17	20.9	0.06
	2/14/2024	51.5	0.32	49	37.2	17	0.63	20.9	0.00
	2/22/2024	47	0.31	49	36.6	17	0.62	20.9	0.01
	3/6/2024	18.0	--	--	--	16	0.56	20.9	0.00
	3/21/2024	36.1	0.32	49	37.4	15	0.54	20.9	0.01
	4/8/2024	65.1	0.32	49	37.0	19	0.69	20.9	0.02
	4/17/2024	36.7	0.31	49	36.9	14	0.50	20.9	0.01
	5/14/2024	25.5	0.31	49	37.1	12	0.43	20.9	0.01
	5/23/2024	16.3	0.31	49	37.1	12	0.42	20.7	0.01
	6/4/2024	Well Taken Offline							

ENSOLUM

TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2][3]	Vacuum (IWC)	Vacuum (psi)	Oxygen (%)	Carbon Dioxide (%)

Notes:

(1): flow rates in scfm estimated based on total flow for total system rotometer field measurements collected between 6/6/2023 and 9/21/2023

(2): flow rates in scfm after 9/21/2023 are calculated based on total system pitot tube differential pressure measurements

(3): flow rates in scfm after 9/21/2023 based on an assumed temperature of 70F

IWC: inches of water column

PID: photoionization detector

ppm: parts per million

acfm: actual cubic feet per minute

scfm: standard cubic feet per minute

%: percent

--: not measured

ENSOLUM

TABLE 3
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
6/6/2023	1,769	84	480	25	270	31,000	15.34	3.53
6/7/2023	1,367	43	280	17	200	14,000	21.26	1.14
6/13/2023	1,023	27	220	14	160	11,000	21.47	0.63
6/23/2023	675	2.7	41	3.9	50	3,400	21.59	0.38
6/29/2023	781	8.8	150	13	160	5,000	21.63	0.31
7/13/2023	745	<5.0	120	11	140	4,500	21.64	0.28
7/27/2023	414	<5.0	62	5.7	73	2,700	21.70	0.22
8/9/2023	403	<5.0	55	5.5	69	2,600	21.73	0.23
8/24/2023	610	<5.0	53	7.5	99	2,700	21.66	0.24
9/8/2023	444	<5.0	37	5.6	74	2,100	21.72	0.20
9/21/2023	398	<5.0	39	6.6	96	2,300	21.75	0.18
12/11/2023	126	0.28	9.6	2.2	31	720	21.64	0.12
1/10/2024	83	<0.25	10.0	1.4	19	560	20.04	0.07
3/6/2024	71	<5.0	<5.0	<5.0	<7.5	<250	22.19	0.12
5/14/2024	65	<0.50	1.8	0.75	14	290	21.73	0.05

Notes:

GRO: gasoline range organics

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

<: result less than the stated laboratory reporting limit (RL)

ENSOLUM

TABLE 4
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Hare #14M
Hilcorp Energy Company
San Juan County, New Mexico

Flow and Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
6/6/2023	1,769	84	480	25	270	31,000
6/7/2023	1,367	43	280	17	200	14,000
6/13/2023	1,023	27	220	14	160	11,000
6/23/2023	675	2.7	41	3.9	50	3,400
6/29/2023	781	8.8	150	13	160	5,000
7/13/2023	745	*5.0*	120	11	140	4,500
7/27/2023	414	*5.0*	62	5.7	73	2,700
8/9/2023	403	*5.0*	55	5.5	69	2,600
8/24/2023	610	*5.0*	53	7.5	99	2,700
9/8/2023	444	*5.0*	37	5.6	74	2,100
9/21/2023	398	*5.0*	39	6.6	96	2,300
12/11/2023	126	0.28	9.6	2.2	31	720
1/10/2024	85	*0.25*	10.0	1.4	19	560
3/6/2024	71	*5.0*	*5.0*	*5.0*	*5.0*	*250*
5/14/2024	65	*0.50*	1.8	0.75	14	290
Average	598	13	104	8	97	5,541

Vapor Extraction Summary

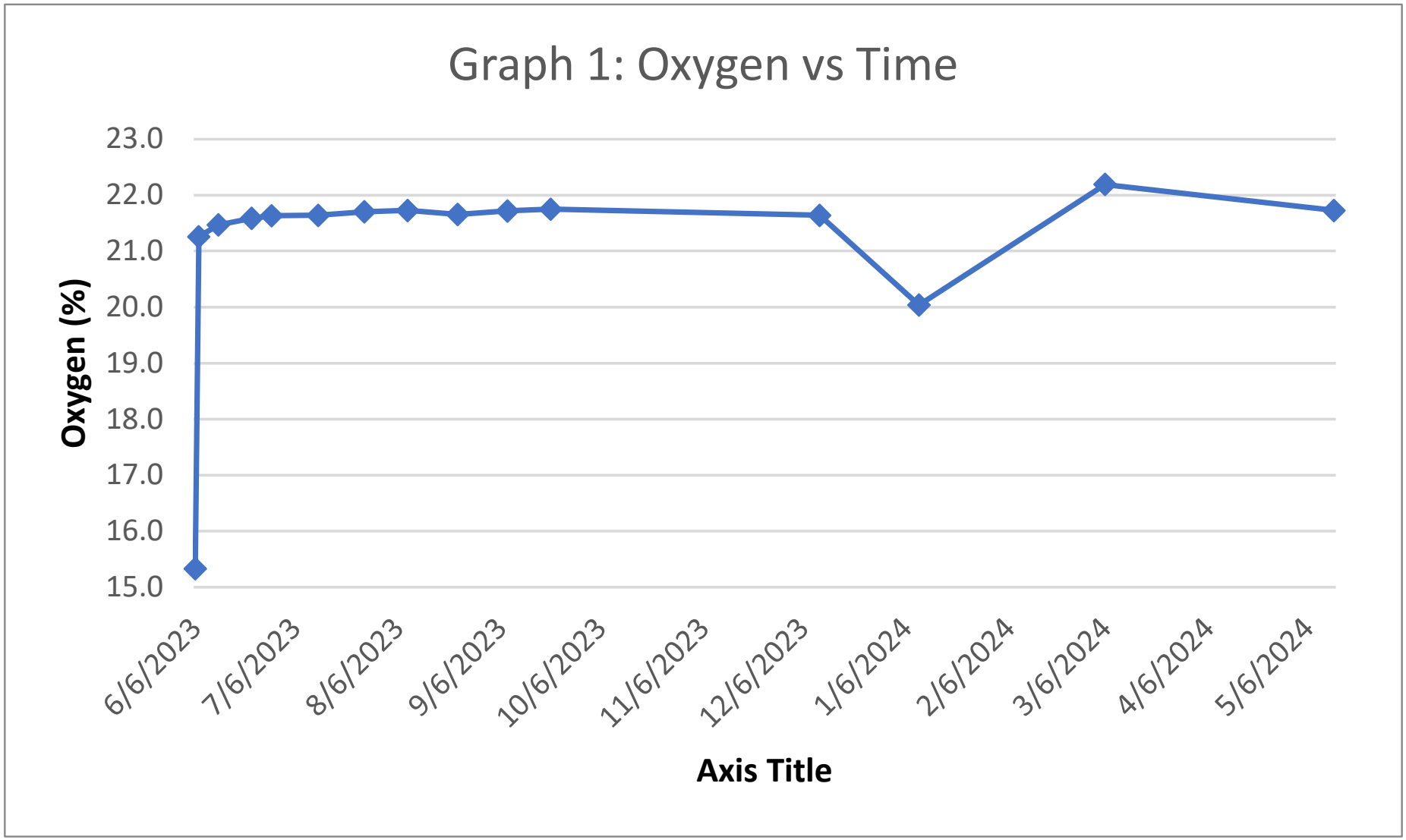
Date	Flow Rate (scfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
6/6/2023	--	System Startup						
6/7/2023	70	117,180	117,180	0.017	0.099	0.0055	0.062	5.9
6/13/2023	35	412,440	295,260	0.0069	0.049	0.0030	0.035	2.5
6/23/2023	40	987,720	575,280	0.0021	0.018	0.0013	0.015	1.0
6/29/2023	40	1,336,440	348,720	0.00086	0.014	0.0013	0.016	0.63
7/13/2023	42	2,187,948	851,508	0.0011	0.021	0.0018	0.023	0.73
7/27/2023	45	3,087,588	899,640	0.00081	0.015	0.0014	0.017	0.59
8/9/2023	48	3,992,484	904,896	0.00087	0.010	0.0010	0.012	0.46
8/24/2023	46	4,912,116	919,632	0.00088	0.0095	0.0011	0.015	0.47
9/8/2023	48	5,817,012	904,896	0.00088	0.0079	0.0012	0.015	0.42
9/21/2023	46	6,685,032	868,020	0.00088	0.0067	0.0011	0.015	0.39
12/11/2023	152	22,137,048	15,452,016	0.00098	0.0090	0.0016	0.024	0.56
1/10/2024	153	28,765,008	6,627,960	0.00015	0.0056	0.0010	0.014	0.37
3/6/2024	142	40,224,408	11,459,400	0.00145	0.0041	0.0018	0.007	0.22
5/14/2024	146	54,558,396	14,333,988	0.00148	0.0018	0.0015	0.005	0.15
			Average	0.0026	0.019	0.0018	0.020	1.0

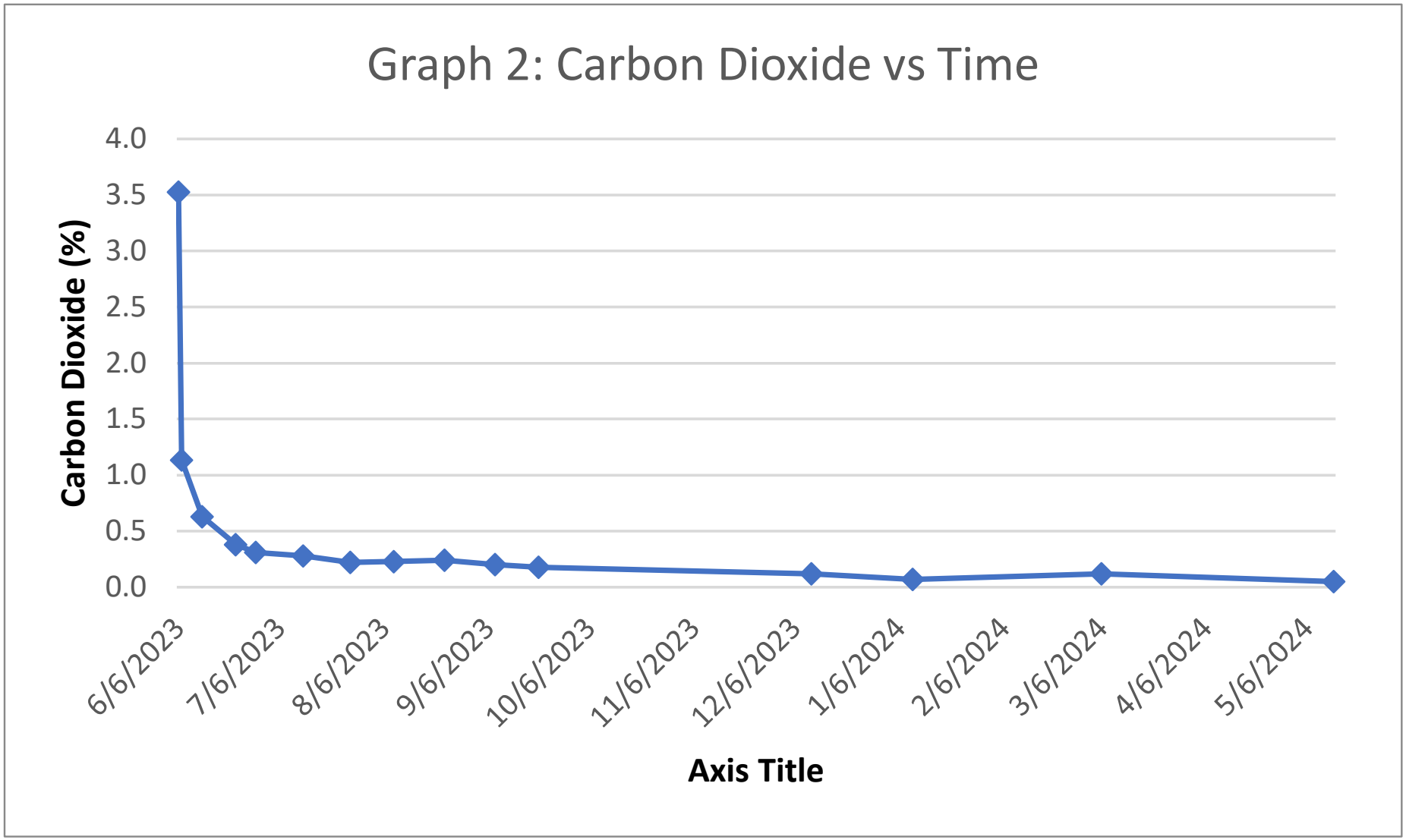
Mass Recovery

Date	Total Operational Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
6/6/2023	292	System Startup						
6/7/2023	319	28	0.464	2.78	0.153	1.7	164	0.082
6/13/2023	460	141	0.966	6.90	0.43	5.0	345	0.173
6/23/2023	700	240	0.499	4.39	0.301	3.53	242	0.121
6/29/2023	845	145	0.125	2.08	0.184	2.28	91	0.046
7/13/2023	1,183	338	0.36	7.0	0.622	7.77	246	0.123
7/27/2023	1,516	333	0.27	4.9	0.45	5.8	195	0.098
8/9/2023	1,830	314	0.27	3.2	0.31	3.9	145	0.072
8/24/2023	2,191	361	0.317	3.4	0.41	5.3	168	0.084
9/8/2023	2,549	358	0.315	2.8	0.41	5.4	151	0.076
9/21/2023	2,864	315	0.276	2.1	0.34	4.7	122	0.061
12/11/2023	4,558	1,694	1.656	15.2	2.76	39.8	947	0.474
1/10/2024	5,280	722	0.109	4.0	0.74	10.3	264	0.132
3/6/2024	6,625	1,345	1.948	5.6	2.37	8.9	301	0.150
5/14/2024	8,261	1,636	2.423	3.0	2.53	8.4	238	0.119
		Total Mass Recovery to Date	10.0	67	12.0	113	3,619	1.81

Notes:

cf: cubic feet
scfm: standard cubic feet per minute
µg/L: micrograms per liter
lb/hr: pounds per hour
--: not sampled
PID: photoionization detector
ppm: parts per million
TVPH: total volatile petroleum hydrocarbons
gray: laboratory reporting limit used for calculating emissions





ENSOLUM

APPENDIX A

Field Notes

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 4-8
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	7397.2	1355
Inlet Vacuum (IWC)	58	
Differential Pressure	5.7	
Inlet PID	150.9	
Exhaust PID	167.6	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

SAMPLE ID:	**SAMPLE TIME:**
Analytes:	Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	

Change in Well Operation:		

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	40.4	0.07	537.5	20.7	500
SVE07	38.7	0.96	82.5	20.9	220
SVE09	14.25	0.32	65.1	20.9	160

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02	40.7	0.01	27.5	20.9	20
SVE03	20.2	0.32	38.2	20.9	160
SVE06	40.3	0.00	97.1	20.9	20
SVE08	37.5	0.03	93.6	20.9	460

COMMENTS/OTHER MAINTENANCE:

sctm 90
Gauged all wells for presence of free product, none found.

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 4-17
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	7615.9	1615
Inlet Vacuum (IWC)	56	
Differential Pressure	5.8	
Inlet PID	100.6	
Exhaust PID	155.9	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

SAMPLE ID:
SAMPLE TIME:
Analytes: Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS

Change In Well Operation:

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	39.2	8.86	399.2	20.9	500
SVE07	38	8.86	36.5	20.9	180
SVE09	15.76	0.31	36.7	20.9	100

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02	40.3	8.91	37	20.9	20
SVE03	19.38	8.29	32.5	20.9	150
SVE06	24.5	0.00	39.4	20.9	50
SVE08	32.6	0.02	145.8	20.9	250

COMMENTS/OTHER MAINTENANCE:

scfm 90

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 5-14
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	8261.3	1245
Inlet Vacuum (IWC)	51	
Differential Pressure	5.9	
Inlet PID	63.4	
Exhaust PID	123.2	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

SAMPLE ID: SVE01 SAMPLE TIME: 1300
Analytes: Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS

Change in Well Operation:

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	33.3	0.24	174.4	20.9	320
SVE07	33.1	0.79	53.6	20.9	340
SVE09	11.83	0.31	25.5	20.9	120

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02	34.5	0.04	142	20.9	80
SVE03	16.77	0.29	29.3	20.9	220
SVE06	34.1	0.05	23.8	20.9	60
SVE08	33.2	0.02	135	20.9	800

COMMENTS/OTHER MAINTENANCE:

scfm 95

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 5-23
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	8479.2	1417
Inlet Vacuum (IWC)	51	
Differential Pressure	6.1	
Inlet PID	42.7	
Exhaust PID	119.4	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	

Change in Well Operation:		

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	32.3	8.25	152.4	20.6	260
SVE07	32.3	8.28	33.4	20.4	280
SVE09	11.72	0.31	16.3	20.7	60

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02	34.1	8.03	11.5	20.9	200
SVE03	16.29	8.29	22.3	20.9	200
SVE06	33.5	0.06	31.7	20.4	140
SVE08	32.4	0.02	184.8	20.7	1420

COMMENTS/OTHER MAINTENANCE:

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 6-4
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	8767.1	1350
Inlet Vacuum (IWC)	69	
Differential Pressure	4.7	
Inlet PID	107.4	
Exhaust PID	200.2	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	

Change in Well Operation:

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%) ppm
SVE01	52.4	0.54	210.4	20.9	480
SVE07	51.2	1.64	51.6	20.9	420
SVE09					

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02					
SVE03					
SVE06	51.7	0	28.6	20.9	20
SVE08	40.1	0	57.3	20.9	40

COMMENTS/OTHER MAINTENANCE:

Closed SVE 02, 03, & 09

scfm 72.

SVE-08 40% closed on arrival

ENSOLUM

HARE 14M SVE SYSTEM
O&M FORM

DATE: 6-26-24
TIME ONSITE: 1445

O&M PERSONNEL: D. Burns
TIME OFFSITE: 1530

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: No — KO TANK HIGH LEVEL

SVE SYSTEM	READING		TIME
Blower Hours (take photo)	9296.6		1450
Inlet Vacuum (IWC)	68		
Differential Pressure	IWC	4.8	
Inlet PID		98.1	
Exhaust PID		147.2	
K/O Tank Liquid Level		NONE	
K/O Liquid Drained (gallons)		NONE	

Inlet flow 80 scfm

SVE SYSTEM SAMPLING

SAMPLE ID: No samples
SAMPLE TIME:
Analytes: Sample Bi-Monthly (every oth Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS: ON: 01 + 07 OFF: 02, 03, 06, 08, 09

Change in Well Operation: None

WELLHEAD MEASUREMENTS
SHALLOW ZONE WELLS

PPM

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	54.1	0.48	118.7	20.9	400
SVE07	52.0	1.32	61.3	20.9	380
SVE09					

DEEP ZONE WELLS

WELL ID	VACUUM (IWC)	DIFF PRESSURE (IWC)	PID HEADSPACE (PPM)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE02					
SVE03					
SVE06					
SVE08					

COMMENTS/OTHER MAINTENANCE:

Exhaust leaking from base + no valve on sampling output

ENSOLUM

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Hare #14M
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on March 21, 2024 at 2:08 PM Hours = 6,964.7	
Photograph 2 Runtime meter taken on June 26, 2024 at 2:50 PM Hours = 9,296.6	

Ensolum, LLC | Environmental & Hydrogeologic Consultants
Durango, Colorado | info@ensolum.com

ENSOLUM

APPENDIX C

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mitch Killough
Hilcorp Energy
PO BOX 4700
Farmington, New Mexico 87499

Generated 6/4/2024 8:33:43 AM

JOB DESCRIPTION

Hare 14M

JOB NUMBER

885-4730-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
6/4/2024 8:33:43 AM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Hare 14M

Laboratory Job ID: 885-4730-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Hilcorp Energy
Project: Hare 14M

Job ID: 885-4730-1

Job ID: 885-4730-1 Eurofins Albuquerque

Job Narrative
885-4730-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The sample was received on 5/17/2024 7:05 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 10.8°C.

Subcontract Work
Method Fixed Gases: This method was subcontracted to Energy Laboratories, Inc. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Client Sample ID: SVE-1

Lab Sample ID: 885-4730-1

Date Collected: 05/14/24 13:00
Matrix: Air
Date Received: 05/17/24 07:05
Sample Container: Tedlar Bag 1L

Method: SW846 8015D - Nonhalogenated Organics using GC/MS -Modified (Gasoline Range Organics)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	**290**	**H**	25		ug/L			05/28/24 15:54	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*52 - 172*		*05/28/24 15:54*	*5*

Method: SW846 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			05/28/24 15:54	5
1,1,1-Trichloroethane	ND		0.50		ug/L			05/28/24 15:54	5
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			05/28/24 15:54	5
1,1,2-Trichloroethane	ND		0.50		ug/L			05/28/24 15:54	5
1,1-Dichloroethane	ND		0.50		ug/L			05/28/24 15:54	5
1,1-Dichloroethene	ND		0.50		ug/L			05/28/24 15:54	5
1,1-Dichloropropene	ND		0.50		ug/L			05/28/24 15:54	5
1,2,3-Trichlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
1,2,3-Trichloropropane	ND		1.0		ug/L			05/28/24 15:54	5
1,2,4-Trichlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
1,2,4-Trimethylbenzene	**1.8**		0.50		ug/L			05/28/24 15:54	5
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			05/28/24 15:54	5
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			05/28/24 15:54	5
1,2-Dichlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
1,2-Dichloroethane (EDC)	ND		0.50		ug/L			05/28/24 15:54	5
1,2-Dichloropropane	ND		0.50		ug/L			05/28/24 15:54	5
1,3,5-Trimethylbenzene	**2.3**		0.50		ug/L			05/28/24 15:54	5
1,3-Dichlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
1,3-Dichloropropane	ND		0.50		ug/L			05/28/24 15:54	5
1,4-Dichlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
1-Methylnaphthalene	ND		2.0		ug/L			05/28/24 15:54	5
2,2-Dichloropropane	ND		1.0		ug/L			05/28/24 15:54	5
2-Butanone	ND		5.0		ug/L			05/28/24 15:54	5
2-Chlorotoluene	ND		0.50		ug/L			05/28/24 15:54	5
2-Hexanone	ND		5.0		ug/L			05/28/24 15:54	5
2-Methylnaphthalene	ND		2.0		ug/L			05/28/24 15:54	5
4-Chlorotoluene	ND		0.50		ug/L			05/28/24 15:54	5
4-Isopropyltoluene	ND		0.50		ug/L			05/28/24 15:54	5
4-Methyl-2-pentanone	ND		5.0		ug/L			05/28/24 15:54	5
Acetone	ND		5.0		ug/L			05/28/24 15:54	5
Benzene	ND		0.50		ug/L			05/28/24 15:54	5
Bromobenzene	ND		0.50		ug/L			05/28/24 15:54	5
Bromodichloromethane	ND		0.50		ug/L			05/28/24 15:54	5
Dibromochloromethane	ND		0.50		ug/L			05/28/24 15:54	5
Bromoform	ND		0.50		ug/L			05/28/24 15:54	5
Bromomethane	ND		1.5		ug/L			05/28/24 15:54	5
Carbon disulfide	ND		5.0		ug/L			05/28/24 15:54	5
Carbon tetrachloride	ND		0.50		ug/L			05/28/24 15:54	5
Chlorobenzene	ND		0.50		ug/L			05/28/24 15:54	5
Chloroethane	ND		1.0		ug/L			05/28/24 15:54	5
Chloroform	ND		0.50		ug/L			05/28/24 15:54	5

Client Sample Results

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Client Sample ID: SVE-1

Lab Sample ID: 885-4730-1

Date Collected: 05/14/24 13:00
Matrix: Air
Date Received: 05/17/24 07:05
Sample Container: Tedlar Bag 1L

Method: SW846 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		1.5		ug/L			05/28/24 15:54	5
cis-1,2-Dichloroethene	ND		0.50		ug/L			05/28/24 15:54	5
cis-1,3-Dichloropropene	ND		0.50		ug/L			05/28/24 15:54	5
Dibromomethane	ND		0.50		ug/L			05/28/24 15:54	5
Dichlorodifluoromethane	ND		0.50		ug/L			05/28/24 15:54	5
Ethylbenzene	**0.75**		0.50		ug/L			05/28/24 15:54	5
Hexachlorobutadiene	ND		0.50		ug/L			05/28/24 15:54	5
Isopropylbenzene	ND		0.50		ug/L			05/28/24 15:54	5
Methyl-tert-butyl Ether (MTBE)	ND		0.50		ug/L			05/28/24 15:54	5
Methylene Chloride	ND		1.5		ug/L			05/28/24 15:54	5
n-Butylbenzene	ND		1.5		ug/L			05/28/24 15:54	5
N-Propylbenzene	ND		0.50		ug/L			05/28/24 15:54	5
Naphthalene	ND		1.0		ug/L			05/28/24 15:54	5
sec-Butylbenzene	ND		0.50		ug/L			05/28/24 15:54	5
Styrene	ND		0.50		ug/L			05/28/24 15:54	5
tert-Butylbenzene	ND		0.50		ug/L			05/28/24 15:54	5
Tetrachloroethene (PCE)	ND		0.50		ug/L			05/28/24 15:54	5
Toluene	**1.8**		0.50		ug/L			05/28/24 15:54	5
trans-1,2-Dichloroethene	ND		0.50		ug/L			05/28/24 15:54	5
trans-1,3-Dichloropropene	ND		0.50		ug/L			05/28/24 15:54	5
Trichloroethene (TCE)	ND		0.50		ug/L			05/28/24 15:54	5
Trichlorofluoromethane	ND		0.50		ug/L			05/28/24 15:54	5
Vinyl chloride	ND		0.50		ug/L			05/28/24 15:54	5
Xylenes, Total	**14**		0.75		ug/L			05/28/24 15:54	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*05/28/24 15:54*	*5*
Toluene-d8 (Surr)	*105*		*70 - 130*		*05/28/24 15:54*	*5*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*		*05/28/24 15:54*	*5*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*05/28/24 15:54*	*5*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Method: 8015D - Nonhalogenated Organics using GC/MS -Modified (Gasoline Range Organics)

Lab Sample ID: MB 885-5784/3
Matrix: Air
Analysis Batch: 5784

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		ug/L			05/28/24 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*52 - 172*		*05/28/24 13:52*	*1*

Lab Sample ID: LCS 885-5784/2
Matrix: Air
Analysis Batch: 5784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			400	518		ug/L		129			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*52 - 172*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 885-5786/3
Matrix: Air
Analysis Batch: 5786

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			05/28/24 13:52	1
1,1,1-Trichloroethane	ND		0.10		ug/L			05/28/24 13:52	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			05/28/24 13:52	1
1,1,2-Trichloroethane	ND		0.10		ug/L			05/28/24 13:52	1
1,1-Dichloroethane	ND		0.10		ug/L			05/28/24 13:52	1
1,1-Dichloroethene	ND		0.10		ug/L			05/28/24 13:52	1
1,1-Dichloropropene	ND		0.10		ug/L			05/28/24 13:52	1
1,2,3-Trichlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,2,3-Trichloropropane	ND		0.20		ug/L			05/28/24 13:52	1
1,2,4-Trichlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,2-Dibromo-3-Chloropropane	ND		0.20		ug/L			05/28/24 13:52	1
1,2-Dibromoethane (EDB)	ND		0.10		ug/L			05/28/24 13:52	1
1,2-Dichlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,2-Dichloroethane (EDC)	ND		0.10		ug/L			05/28/24 13:52	1
1,2-Dichloropropane	ND		0.10		ug/L			05/28/24 13:52	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,3-Dichlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
1,3-Dichloropropane	ND		0.10		ug/L			05/28/24 13:52	1
1,4-Dichlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
1-Methylnaphthalene	ND		0.40		ug/L			05/28/24 13:52	1
2,2-Dichloropropane	ND		0.20		ug/L			05/28/24 13:52	1
2-Butanone	ND		1.0		ug/L			05/28/24 13:52	1
2-Chlorotoluene	ND		0.10		ug/L			05/28/24 13:52	1
2-Hexanone	ND		1.0		ug/L			05/28/24 13:52	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 885-5786/3
Matrix: Air
Analysis Batch: 5786

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.40		ug/L			05/28/24 13:52	1
4-Chlorotoluene	ND		0.10		ug/L			05/28/24 13:52	1
4-Isopropyltoluene	ND		0.10		ug/L			05/28/24 13:52	1
4-Methyl-2-pentanone	ND		1.0		ug/L			05/28/24 13:52	1
Acetone	ND		1.0		ug/L			05/28/24 13:52	1
Benzene	ND		0.10		ug/L			05/28/24 13:52	1
Bromobenzene	ND		0.10		ug/L			05/28/24 13:52	1
Bromodichloromethane	ND		0.10		ug/L			05/28/24 13:52	1
Dibromochloromethane	ND		0.10		ug/L			05/28/24 13:52	1
Bromoform	ND		0.10		ug/L			05/28/24 13:52	1
Bromomethane	ND		0.30		ug/L			05/28/24 13:52	1
Carbon disulfide	ND		1.0		ug/L			05/28/24 13:52	1
Carbon tetrachloride	ND		0.10		ug/L			05/28/24 13:52	1
Chlorobenzene	ND		0.10		ug/L			05/28/24 13:52	1
Chloroethane	ND		0.20		ug/L			05/28/24 13:52	1
Chloroform	ND		0.10		ug/L			05/28/24 13:52	1
Chloromethane	ND		0.30		ug/L			05/28/24 13:52	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			05/28/24 13:52	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			05/28/24 13:52	1
Dibromomethane	ND		0.10		ug/L			05/28/24 13:52	1
Dichlorodifluoromethane	ND		0.10		ug/L			05/28/24 13:52	1
Ethylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
Hexachlorobutadiene	ND		0.10		ug/L			05/28/24 13:52	1
Isopropylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
Methyl-tert-butyl Ether (MTBE)	ND		0.10		ug/L			05/28/24 13:52	1
Methylene Chloride	ND		0.30		ug/L			05/28/24 13:52	1
n-Butylbenzene	ND		0.30		ug/L			05/28/24 13:52	1
N-Propylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
Naphthalene	ND		0.20		ug/L			05/28/24 13:52	1
sec-Butylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
Styrene	ND		0.10		ug/L			05/28/24 13:52	1
tert-Butylbenzene	ND		0.10		ug/L			05/28/24 13:52	1
Tetrachloroethene (PCE)	ND		0.10		ug/L			05/28/24 13:52	1
Toluene	ND		0.10		ug/L			05/28/24 13:52	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			05/28/24 13:52	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			05/28/24 13:52	1
Trichloroethene (TCE)	ND		0.10		ug/L			05/28/24 13:52	1
Trichlorofluoromethane	ND		0.10		ug/L			05/28/24 13:52	1
Vinyl chloride	ND		0.10		ug/L			05/28/24 13:52	1
Xylenes, Total	ND		0.15		ug/L			05/28/24 13:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 130*		*05/28/24 13:52*	*1*
Toluene-d8 (Surr)	*97*		*70 - 130*		*05/28/24 13:52*	*1*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*05/28/24 13:52*	*1*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*05/28/24 13:52*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 885-5786/2
Matrix: Air
Analysis Batch: 5786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			20.1	17.2		ug/L		85			
Benzene			20.1	18.2		ug/L		91			
Chlorobenzene			20.1	20.1		ug/L		100			
Toluene			20.2	20.2		ug/L		100			
Trichloroethene (TCE)			20.2	17.1		ug/L		85			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*
Dibromofluoromethane (Surr)	*87*		*70 - 130*

QC Association Summary

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

GC/MS VOA

Analysis Batch: 5784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4730-1	SVE-1	Total/NA	Air	8015D	
MB 885-5784/3	Method Blank	Total/NA	Air	8015D	
LCS 885-5784/2	Lab Control Sample	Total/NA	Air	8015D	

Analysis Batch: 5786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-4730-1	SVE-1	Total/NA	Air	8260B	
MB 885-5786/3	Method Blank	Total/NA	Air	8260B	
LCS 885-5786/2	Lab Control Sample	Total/NA	Air	8260B	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Client Sample ID: SVE-1

Date Collected: 05/14/24 13:00
Date Received: 05/17/24 07:05

Lab Sample ID: 885-4730-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015D		5	5784	CM	EET ALB	05/28/24 15:54
Total/NA	Analysis	8260B		5	5786	CM	EET ALB	05/28/24 15:54

Laboratory References:

= , 1120 South 27th Street, Billings, MT 59101, TEL (406)252-6325

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D		Air	Gasoline Range Organics [C6 - C10]
8260B		Air	1,1,1,2-Tetrachloroethane
8260B		Air	1,1,1-Trichloroethane
8260B		Air	1,1,2,2-Tetrachloroethane
8260B		Air	1,1,2-Trichloroethane
8260B		Air	1,1-Dichloroethane
8260B		Air	1,1-Dichloroethene
8260B		Air	1,1-Dichloropropene
8260B		Air	1,2,3-Trichlorobenzene
8260B		Air	1,2,3-Trichloropropane
8260B		Air	1,2,4-Trichlorobenzene
8260B		Air	1,2,4-Trimethylbenzene
8260B		Air	1,2-Dibromo-3-Chloropropane
8260B		Air	1,2-Dibromoethane (EDB)
8260B		Air	1,2-Dichlorobenzene
8260B		Air	1,2-Dichloroethane (EDC)
8260B		Air	1,2-Dichloropropane
8260B		Air	1,3,5-Trimethylbenzene
8260B		Air	1,3-Dichlorobenzene
8260B		Air	1,3-Dichloropropane
8260B		Air	1,4-Dichlorobenzene
8260B		Air	1-Methylnaphthalene
8260B		Air	2,2-Dichloropropane
8260B		Air	2-Butanone
8260B		Air	2-Chlorotoluene
8260B		Air	2-Hexanone
8260B		Air	2-Methylnaphthalene
8260B		Air	4-Chlorotoluene
8260B		Air	4-Isopropyltoluene
8260B		Air	4-Methyl-2-pentanone
8260B		Air	Acetone
8260B		Air	Benzene
8260B		Air	Bromobenzene
8260B		Air	Bromodichloromethane
8260B		Air	Bromoform
8260B		Air	Bromomethane
8260B		Air	Carbon disulfide
8260B		Air	Carbon tetrachloride
8260B		Air	Chlorobenzene
8260B		Air	Chloroethane
8260B		Air	Chloroform
8260B		Air	Chloromethane
8260B		Air	cis-1,2-Dichloroethene
8260B		Air	cis-1,3-Dichloropropene
8260B		Air	Dibromochloromethane

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Laboratory: Eurofins Albuquerque (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260B		Air	Dibromomethane
8260B		Air	Dichlorodifluoromethane
8260B		Air	Ethylbenzene
8260B		Air	Hexachlorobutadiene
8260B		Air	Isopropylbenzene
8260B		Air	Methylene Chloride
8260B		Air	Methyl-tert-butyl Ether (MTBE)
8260B		Air	Naphthalene
8260B		Air	n-Butylbenzene
8260B		Air	N-Propylbenzene
8260B		Air	sec-Butylbenzene
8260B		Air	Styrene
8260B		Air	tert-Butylbenzene
8260B		Air	Tetrachloroethene (PCE)
8260B		Air	Toluene
8260B		Air	trans-1,2-Dichloroethene
8260B		Air	trans-1,3-Dichloropropene
8260B		Air	Trichloroethene (TCE)
8260B		Air	Trichlorofluoromethane
8260B		Air	Vinyl chloride
8260B		Air	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015D		Air	Gasoline Range Organics [C6 - C10]
8260B		Air	1,1,1,2-Tetrachloroethane
8260B		Air	1,1,1-Trichloroethane
8260B		Air	1,1,2,2-Tetrachloroethane
8260B		Air	1,1,2-Trichloroethane
8260B		Air	1,1-Dichloroethane
8260B		Air	1,1-Dichloroethene
8260B		Air	1,1-Dichloropropene
8260B		Air	1,2,3-Trichlorobenzene
8260B		Air	1,2,3-Trichloropropane
8260B		Air	1,2,4-Trichlorobenzene
8260B		Air	1,2,4-Trimethylbenzene
8260B		Air	1,2-Dibromo-3-Chloropropane
8260B		Air	1,2-Dibromoethane (EDB)
8260B		Air	1,2-Dichlorobenzene
8260B		Air	1,2-Dichloroethane (EDC)
8260B		Air	1,2-Dichloropropane
8260B		Air	1,3,5-Trimethylbenzene
8260B		Air	1,3-Dichlorobenzene
8260B		Air	1,3-Dichloropropane
8260B		Air	1,4-Dichlorobenzene

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Hare 14M

Job ID: 885-4730-1

Laboratory: Eurofins Albuquerque (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260B		Air	1-Methylnaphthalene
8260B		Air	2,2-Dichloropropane
8260B		Air	2-Butanone
8260B		Air	2-Chlorotoluene
8260B		Air	2-Hexanone
8260B		Air	2-Methylnaphthalene
8260B		Air	4-Chlorotoluene
8260B		Air	4-Isopropyltoluene
8260B		Air	4-Methyl-2-pentanone
8260B		Air	Acetone
8260B		Air	Benzene
8260B		Air	Bromobenzene
8260B		Air	Bromodichloromethane
8260B		Air	Bromoform
8260B		Air	Bromomethane
8260B		Air	Carbon disulfide
8260B		Air	Carbon tetrachloride
8260B		Air	Chlorobenzene
8260B		Air	Chloroethane
8260B		Air	Chloroform
8260B		Air	Chloromethane
8260B		Air	cis-1,2-Dichloroethene
8260B		Air	cis-1,3-Dichloropropene
8260B		Air	Dibromochloromethane
8260B		Air	Dibromomethane
8260B		Air	Dichlorodifluoromethane
8260B		Air	Ethylbenzene
8260B		Air	Hexachlorobutadiene
8260B		Air	Isopropylbenzene
8260B		Air	Methylene Chloride
8260B		Air	Methyl-tert-butyl Ether (MTBE)
8260B		Air	Naphthalene
8260B		Air	n-Butylbenzene
8260B		Air	N-Propylbenzene
8260B		Air	sec-Butylbenzene
8260B		Air	Styrene
8260B		Air	tert-Butylbenzene
8260B		Air	Tetrachloroethene (PCE)
8260B		Air	Toluene
8260B		Air	trans-1,2-Dichloroethene
8260B		Air	trans-1,3-Dichloropropene
8260B		Air	Trichloroethene (TCE)
8260B		Air	Trichlorofluoromethane
8260B		Air	Vinyl chloride
8260B		Air	Xylenes, Total

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ANALYTICAL SUMMARY REPORT

June 03, 2024

Hall Environmental
4901 Hawkins St NE Ste D
Albuquerque, NM 87109-4372

Work Order: B24051994 Quote ID: B15626
Project Name: Hare 14M, 88501698

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 5/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24051994-001	SVE-1 (885-4730-1)	05/14/24 13:00	05/22/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

Energy Laboratories, Inc. verifies the reported results for the analysis has been technically reviewed and approved for release.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Hare 14M, 88501698
Lab ID: B24051994-001
Client Sample ID: SVE-1 (885-4730-1)

Report Date: 06/03/24
Collection Date: 05/14/24 13:00
DateReceived: 05/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.73	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Nitrogen	78.19	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Carbon Dioxide	0.05	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Hexanes plus	0.03	Mol %		0.01		GPA 2261-95	05/29/24 10:05 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
Hexanes plus	0.013	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
GPM Total	0.013	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
GPM Pentanes plus	0.013	gpm		0.001		GPA 2261-95	05/29/24 10:05 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	1			1		GPA 2261-95	05/29/24 10:05 / jrj
Net BTU per cu ft @ std cond. (LHV)	1			1		GPA 2261-95	05/29/24 10:05 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	05/29/24 10:05 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	05/29/24 10:05 / jrj
Specific Gravity @ 60/60F	0.998			0.001		D3588-81	05/29/24 10:05 / jrj
Air, %	99.29			0.01		GPA 2261-95	05/29/24 10:05 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	05/29/24 10:05 / jrj

- BTU, GPM, and specific gravity are corrected for deviation from ideal gas behavior.
- GPM = gallons of liquid at standard conditions per 1000 cu. ft. of moisture free gas @ standard conditions.
- To convert BTU to a water-saturated basis @ standard conditions, multiply by 0.9825.
- Standard conditions: 60 F & 14.73 psi on a dry basis

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B24051994 **Report Date:** 06/03/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R422006
Lab ID: **B24051995-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_240529A				05/29/24 11:44
Oxygen		21.8	Mol %	0.01				0.7	20	
Nitrogen		77.9	Mol %	0.01				0.2	20	
Carbon Dioxide		0.24	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		<0.01	Mol %	0.01					20	
Ethane		<0.01	Mol %	0.01					20	
Propane		<0.01	Mol %	0.01					20	
Isobutane		<0.01	Mol %	0.01					20	
n-Butane		<0.01	Mol %	0.01					20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		0.09	Mol %	0.01				0.0	20	
Lab ID: **LCS052924**	11	Laboratory Control Sample				Run: GCNGA-B_240529A				05/29/24 02:35
Oxygen		0.62	Mol %	0.01	124	70	130			
Nitrogen		5.77	Mol %	0.01	96	70	130			
Carbon Dioxide		1.03	Mol %	0.01	104	70	130			
Methane		75.0	Mol %	0.01	100	70	130			
Ethane		6.04	Mol %	0.01	101	70	130			
Propane		5.04	Mol %	0.01	102	70	130			
Isobutane		1.63	Mol %	0.01	81	70	130			
n-Butane		2.01	Mol %	0.01	100	70	130			
Isopentane		1.01	Mol %	0.01	101	70	130			
n-Pentane		1.01	Mol %	0.01	101	70	130			
Hexanes plus		0.81	Mol %	0.01	101	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B24051994

Login completed by: Crystal M. Jones
Date Received: 5/22/2024

Reviewed by: lleprowse
Received by: JFR

Reviewed Date: 5/28/2024
Carrier name: FedEx NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	16.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

The reference date for Radon analysis is the sample collection date. The reference date for all other Radiochemical analyses is the analysis date. Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

For methods that require zero headspace or require preservation check at the time of analysis due to potential interference, the pH is verified at analysis. Nonconforming sample pH is documented as part of the analysis and included in the sample analysis comments.

Contact and Corrective Action Comments:

None

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Freeman, Andy	Carrier Tracking No(s):	COC No: 885-714.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: andy.freeman@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Energy Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon; State - New Mexico		Job #: 885-4730-1
Address: 1120 South 27th Street, ,	Due Date Requested: 5/30/2024	Analysis Requested		Preservation Codes: -
City: Billings	TAT Requested (days):			
State, Zip: MT, 59101				
Phone: 406-252-6325(Tel)	PO #:			
Email:	WO #:			
Project Name: Hare 14M	Project #: 88501698			
Site:	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Fixed Gases)/ Fixed Gases	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SVE-1 (885-4730-1)	5/14/24	13:00 Mountain		Air			X	1	B24051994

Note: Since laboratory accreditations are subject to change, Eurofins Environment Testing South Central, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Environment Testing South Central, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Environment Testing South Central, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Environment Testing South Central, LLC.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	5/20/24 12:48				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Jaelynn Rooster	Date/Time: 5/22/24 0930	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 04/02/2024

ICOC No:
885-714

Containers

Count	Container Type	Preservative
1	Tedlar Bag 1L	None

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#: brandon.sinclair@hilcorp.com

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Hare 14M

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☐ Yes ~~☐ No~~

# of Coolers: 1 Yogi

Cooler Temp(including CF): 10.6+0.2=10.8 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

885-4730 COC

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	8015 TVPH	Fixed gas O_2 & CO_2			
5-14	1300	air	SVE-1	2 Tedlar										✓			✓	✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/16/24	1609				5/16/24	1609
5/16/24	1740			Courier	5/17/24	7:05

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories This serves as notice of this possibility Any sub-contracted data will be clearly notated on the analytical report

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-4730-1

Login Number: 4730 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 363139

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 363139
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Continue O&M & sampling as stated in report. 2. Submit next quarterly report by October 15, 2024.	8/2/2024