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April 15, 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: First Quarter 2024 – SVE System Update
OH Randel #5
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NVF1602039091

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *First Quarter 2024 – SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the OH Randel #5 natural gas production well (Site), located in Unit D of Section 10, Township 26 North, and Range 11 West in San Juan County, New Mexico (Figure 1). Specifically, this report summarizes Site activities performed in January, February, and March 2024 to the New Mexico Oil Conservation Division (NMOCD).

SVE SYSTEM SPECIFICATIONS

The current operation at the Site consists of two SVE systems, each with a dedicated blower, knockout tank, and control panel. The original SVE system ("SVE Skid 1") was installed at the Site in 2016 by XTO Energy (the previous owner and operator of the Site) and subsequently upgraded by Hilcorp in 2019. This SVE system consists of a 2 horsepower Atlantic Blower AB-301 blower capable of producing 110 standard cubic feet per minute (scfm) of flow and 72 inches of water column (IWC) vacuum. A second SVE system ("SVE Skid 2") was installed at the Site and became operational on March 11, 2022, in order to more efficiently address residual soil impacts at the Site. Specifically, the new system was built with a 3.4 horsepower Republic Manufacturing HRC501 blower capable of producing 221 scfm of flow and 72 IWC vacuum. When operated concurrently, the two SVE systems are able to induce the necessary flow and vacuum on all SVE wells at the Site simultaneously without the need to cycle extraction on subsets of wells.

SVE wells are located and screened in the "Secondary" and "Tertiary" Source Zones, as identified in the WSP USA Inc. *Site Summary Report,* dated October 1, 2021. Once the new SVE Skid 2 was installed at the Site, new manifolds were constructed so SVE Skid 1 operated wells located in the Secondary Source Zone (SVE-5, SVE-8, and SVE-9) and Tertiary Zone (SVE-7, SVE-10, and SVE-12). SVE Skid 2 operated wells located in the Tertiary Source Zone (SVE-13, SVE-14, SVE-15, SVE-16, SVE-17, SVE-18, SVE-19, SVE-20, SVE-21, and SVE-22). The SVE well locations are shown on Figure 2.

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FIRST QUARTER 2024 ACTIVITIES

During the first quarter of 2024, Ensolum and Hilcorp personnel performed bi-weekly operation and maintenance (O&M) visits to verify the system was operating as designed and to perform any required maintenance. Field notes taken during O&M visits are presented in Appendix A. From the beginning of 2024 through January 22, 2024, all SVE wells, except SVE-6 and SVE-11, were operated in order to induce flow in areas with remaining soil impacts. SVE wells SVE-6 and SVE-11 are screened at depths shallower than the remaining soil impacts at the Site and have been turned off in order for the SVE system to induce a higher flow and vacuum on the remaining open wells. On January 22, 2024, the two SVE systems were reconfigured in order to maximize vacuum and flow on the wells with the higher photoionization detector (PID) field measurements. The number of wells operating on each of the two skids were balanced and wells SVE-5, SVE-7, SVE-8, SVE-9, SVE-10, and SVE-12 were taken offline.

Between December 18, 2023, and March 18, 2024, SVE Skid 1 operated for 2,146 hours with a runtime efficiency of 98.3 percent (%) and Skid 2 operated for 2,128 hours with a runtime efficiency of 97.5%. Table 1 presents the SVE system operational hours and percentage runtime. Appendix B presents photographs of the runtime meter for calculating the first quarter runtime efficiency.

Vapor samples were collected from sample ports located between the SVE piping manifold and the SVE blower using a high vacuum air sampler. Prior to collection, the vapor samples were field screened with a PID for organic vapor monitoring (OVM). First quarter 2024 vapor samples were collected from both SVE skids on March 4, 2024. The vapor samples were collected directly into two 1-Liter Tedlar® bags and submitted to Eurofins Environment Testing (Eurofins, formerly Hall Environmental Analysis Laboratory) 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, volatile organic compounds (VOCs) following EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide following Gas Processors Association (GPA) Method 2261.

Table 2 presents a summary of analytical data collected during the sampling events and from historical sampling events, with the full laboratory analytical report included in Appendix C. Vapor sample data and measured stack flow rates are used to estimate total mass recovered and estimated total emissions generated by the SVE systems (Tables 3 and 4). Based on these estimates, a total of 749,065 pounds (375 tons) of TVPH have been removed by the systems to date.

RECOMMENDATIONS

Monthly O&M visits, at a minimum, will continue to be performed by Ensolum and/or Hilcorp personnel to verify the SVE systems are 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 semiannual report, per the conditions issued by the NMOCD on April 9, 2024. Hilcorp will continue operating the SVE systems until asymptotic mass removal rates are observed. At that time, an evaluation of residual petroleum hydrocarbons will be assessed and further recommendations for remedial actions, if any, will be provided to NMOCD.

In addition, based on the remediation timeline presented in the WSP USA, Inc. (WSP) *Site Summary Report* (dated October 1, 2021), it was estimated soil would be remediated to below applicable NMOCD Closure Criteria for the Site by the first quarter of 2024; however, concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and TVPH constituents are still present at levels indicating residual hydrocarbon impacts in soil would not be in compliance with the Closure Criteria in the Tertiary Source Zone. As such, Hilcorp and Ensolum requested an alternative remediation timeline and reporting schedule in the *Fourth Quarter 2023 – SVE System Update* and as described below:

- 1st Quarter 2024 through 2nd Quarter 2026: Reduce the frequency of O&M Site visits to monthly. Prepare bi-annual reports (twice per year) summarizing system performance and vapor sample results. At any point, if vapor concentrations of TVPH collected from the system become asymptotic and/or are below 1.0 milligrams per liter (mg/L), soil samples can be collected and analyzed for TPH and BTEX constituents to determine if concentrations are below applicable NMOCD Closure Criteria. Additionally, the system will be adjusted to maximize performance and address areas with remaining soil impacts.
- 3rd Quarter 2026: Collect soil confirmation samples and analyze for TPH and BTEX constituents for potential Site closure.

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

Stuart Hyde, LG
Senior Geologist
(970) 903-1607
shyde@ensolum.com

Daniel R. Moir, PG
Senior Managing Geologist
(303) 887-2946
dmoir@ensolum.com

Attachments:

Figure 1	Site Location Map
Figure 2	SVE System Layout
Table 1	Soil Vapor Extraction System Runtime Calculations
Table 2	Soil Vapor Extraction System Emissions Analytical Results
Table 3	Soil Vapor Extraction System Mass Removal and Emissions – Skid 1
Table 4	Soil Vapor Extraction System Mass Removal and Emissions – Skid 2
Appendix A	Field Notes
Appendix B	Project Photographs
Appendix C	Laboratory Analytical Reports

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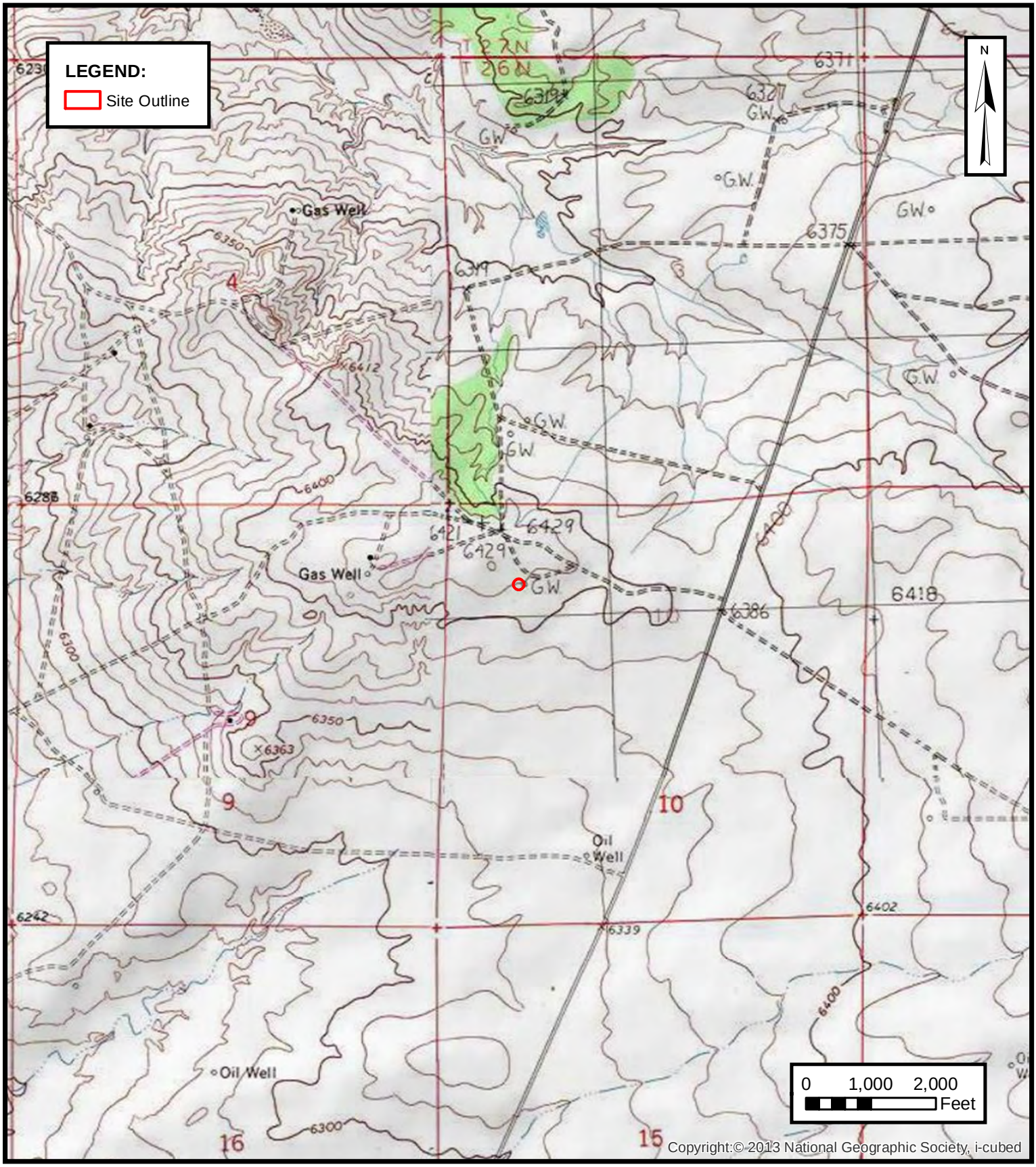
Figures



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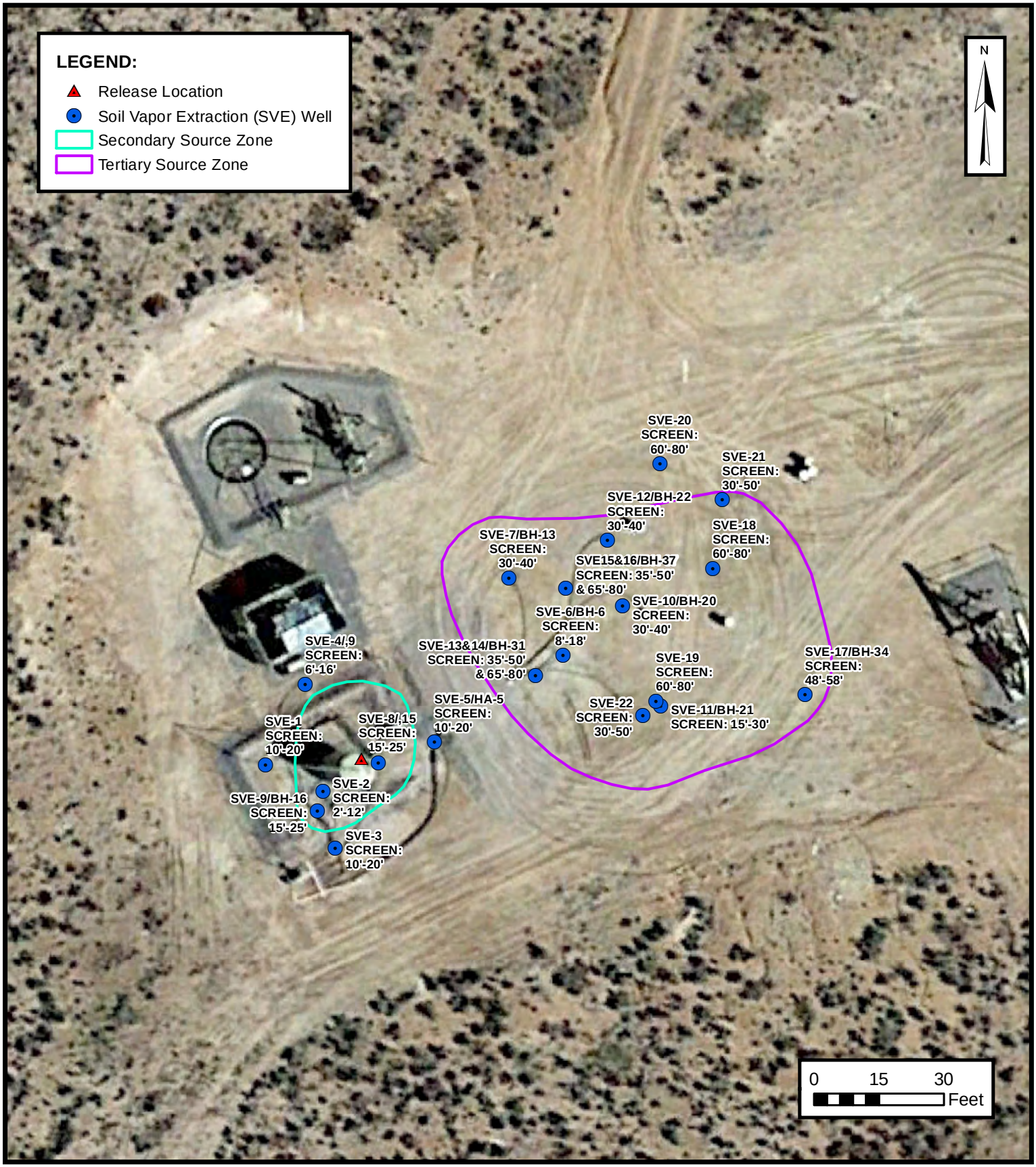
SITE LOCATION MAP

HILCORP ENERGY COMPANY
OH RANDEL #5
NWNW SEC 10 T26N R11W, San Juan County, New Mexico
36.506504° N, 107.996993° W

PROJECT NUMBER: 07A1988025

FIGURE
1



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SVE SYSTEM LAYOUT

HILCORP ENERGY COMPANY
OH RANDEL #5
NWNW SEC 10 T26N R11W, San Juan County, New Mexico
36.506504° N, 107.996993° W

PROJECT NUMBER: 07A1988025

FIGURE
2

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Tables

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TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
OH Randel #5
Hilcorp Energy Company
San Juan County, New Mexico

SVE Skid 1 - Original System Runtime Operation

Date	Total Operational Hours	Delta Hours	Available Runtime Days	Percent Runtime
12/18/2023	47,253.51	--	--	--
3/18/2024	49,399.75	2,146	91	98.3%

SVE Skid 2 - New System Runtime Operation

Date	Total Operational Hours	Delta Hours	Available Runtime Days	Percent Runtime
12/18/2023	14,937.4	--	--	--
3/18/2024	17,065.8	2,128	91	97.5%

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
OH Randel #5
Hilcorp Energy Company
San Juan County, New Mexico

SVE Skid 1 - Original System Analytical Results

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
8/11/2016	4,072	160	1,700	61	500	46,000	--	--
8/17/2018	719	130	230	10	110	8,900	--	--
6/28/2019	1,257	7,200	15,000	360	3,000	460,000	--	--
12/16/2019	1,685	1,800	4,400	83	660	170,000	--	--
3/10/2020	897	1,700	3,300	89	700	130,000	--	--
4/30/2020	1,853	2,440	4,737	128	1,005	186,592	--	--
6/24/2020 (1)	--	--	--	--	--	--	--	--
11/10/2020	1,385	320	1,100	43	380	43,000	21.45%	0.35%
2/10/2021	865	360	950	35	250	32,000	--	--
6/11/2021	400	170	390	11	110	18,000	22.05%	0.15%
9/29/2021	505	99	190	7.0	55	8,200	--	--
12/15/2021	1,163	130	290	6.9	62	37,137	22.21%	0.092%
3/21/2022	274	6.5	23	0.98	11	550	22.38%	0.041%
6/17/2022	88	5.5	19	0.69	7.0	650	21.83%	0.060%
9/22/2022	55	9.0	42	1.9	20	670	21.84%	0.10%
12/7/2022	28	5.2	34	1.5	15	480	21.92%	0.05%
3/10/2023	87	2.5	8.2	<1.0	4.2	260	21.85%	0.06%
6/23/2023	290	4.8	31	2.0	24	670	21.82%	0.07%
8/21/2023	92	22	63	3.1	31	1,900	21.54%	0.13%
11/21/2023	235	2.6	9.6	<0.50	4.8	380	21.61%	0.12%
3/4/2024	1,897	330	600	45	350	43,000	20.65%	0.73%

SVE Skid 2 - New System Analytical Results

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)	Oxygen (%)	Carbon Dioxide (%)
3/21/2022	1,354	310	510	13	120	35,000	21.81%	0.31%
6/17/2022	1,058	200	410	<10	66	33,000	21.27%	0.39%
9/8/2022	1,258	479	1,190	26	1,041	31,900	20.10%	0.50%
12/7/2022	918	230	370	9.1	65	18,000	21.53%	0.36%
3/10/2023	1,790	140	230	7.5	60	12,000	21.71%	0.17%
6/23/2023	1,450	160	430	12	100	18,000	21.29%	0.39%
8/21/2023	1,477	180	400	9.6	78	15,000	21.00%	0.40%
11/21/2023	1,352	160	420	9.5	72	15,000	21.21%	0.35%
3/4/2024	605	39	100	<5.0	18	3,400	21.82%	0.11%

Notes:

(1) - blower not operational for sampling in May and June 2020
GRO: gasoline range organics
µg/L: microgram per liter
PID: photoionization detector
ppm: parts per million
TVPH: total volatile petroleum hydrocarbons
%: percent
--: not sampled/analyzed
<: gray indicates result less than the stated laboratory reporting limit (RL)

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TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS - SKID 1
OH Randel #5
Hilcorp Energy Company
San Juan County, New Mexico

Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
8/11/2016	4,072	160	1,700	61	500	46,000
8/17/2018	719	130	230	10	110	8,900
12/16/2019	1,902	1,800	4,400	83	660	170,000
3/10/2020	897	1,700	3,300	89	700	130,000
4/30/2020	1,853	2,440	4,737	128	1,005	186,592
6/24/2020	Blower Not Operational (1)					
11/10/2021	1,385	320	1,100	43	380	43,000
2/10/2021	865	360	950	35	250	32,000
6/11/2021	400	170	390	11	110	18,000
9/29/2021	505	99	190	7.0	55	8,200
12/15/2021	1,163	130	290	6.9	62	37,137
3/21/2022	274	6.5	23	1.0	11	550
6/17/2022	88	5.5	19	0.7	7.0	650
9/22/2022	55	9.0	42	1.9	20	670
12/7/2022	28	5.2	34	1.5	15	480
3/10/2023	87	2.5	8.2	*1.0*	4.2	260
6/23/2023	290	4.8	31	2.0	24	670
8/21/2023	92	22	63	3.1	31	1,900
11/21/2023	235	2.6	9.6	*0.50*	4.8	380
3/4/2024	1,897	330	600	45	350	43,000
Average	885	405	954	28	226	38,336

Vapor Extraction Summary

Date	Flow Rate (cfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
8/11/2016	105	31,500	31,500	0.063	0.67	0.024	0.20	18
8/17/2018	100	59,647,500	59,616,000	0.054	0.36	0.013	0.11	10
12/16/2019	110	109,635,900	49,988,400	0.40	0.95	0.019	0.16	37
3/10/2020	110	121,707,300	12,071,400	0.72	1.6	0.035	0.28	62
4/30/2020 (1)	105	130,917,900	9,210,600	0.81	1.6	0.043	0.33	62
6/24/2020 (1)	Blower Not Operational							
11/10/2021	105	130,917,900	0	0	0	0	0	0
2/10/2021	92	143,580,780	12,662,880	0.12	0.35	0.013	0.11	13
6/11/2021	90	158,657,580	15,076,800	0.0892	0.2255	0.00774	0.0606	8.4
9/29/2021	69	168,249,960	9,592,380	0.0347	0.0748	0.00232	0.0213	3.4
12/15/2021	90	178,207,560	9,957,600	0.0385	0.0808	0.00234	0.0197	7.6
3/16/2022	70	187,343,904	9,136,344	0.0179	0.0410	0.00103	0.0096	4.9
6/17/2022	70	196,703,520	9,359,616	0.0016	0.0055	0.00022	0.0024	0.2
9/21/2022	65	205,627,890	8,924,370	0.0018	0.0074	0.00031	0.0033	0.2
12/7/2022	70	213,411,456	7,783,566	0.0019	0.0099	0.00045	0.0046	0.2
3/10/2023	73	223,160,241	9,748,785	0.0011	0.0058	0.00034	0.0026	0.1
6/23/2023	60	231,228,093	8,067,852	0.0008	0.0044	0.00034	0.0032	0.1
8/21/2023	62	236,382,227	5,154,134	0.0031	0.0109	0.00059	0.0064	0.3
11/21/2023	50	242,847,707	6,465,480	0.0023	0.0068	0.00034	0.0033	0.2
3/4/2024 (2)	24	246,402,333	3,554,626	0.0149	0.0274	0.00204	0.0159	1.9
			Average	0.12	0.32	0.0087	0.071	12

Mass Recovery

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
8/11/2016	5	5	0.31	3.3	0.12	1.0	90	0.045
8/17/2018	9,941	9,936	539	3,586	132	1,133	102,008	51
12/16/2019	17,515	7,574	3,007	7,214	145	1,200	278,728	139
3/10/2020	19,344	1,829	1,317	2,897	65	512	112,870	56
4/30/2020 (1)	20,806	1,462	1,188	2,307	62	489	90,884	45
6/24/2020 (1)	Blower Not Operational							
11/10/2021	20,806	0	0	0	0	0	0	0
2/10/2021	23,100	2,294	268	809	31	249	29,600	15
6/11/2021	25,892	2,792	249	630	22	169	23,495	12
9/29/2021	28,209	2,317	80	173	5.4	49	7,833	3.9
12/15/2021	30,053	1,844	71	149	4.3	36	14,070	7.0
3/16/2022	32,228	2,175	39	89	2.2	21	10,732	5.4
6/17/2022	34,457	2,228	3.5	12	0.49	5.3	350	0.18
9/21/2022	36,745	2,288	4.0	17	0.72	7.5	367	0.18
12/7/2022	38,598	1,853	3.4	18	0.82	8.5	279	0.14
3/10/2023	40,824	2,226	2.3	13	0.76	5.8	225	0.11
6/23/2023	43,065	2,241	1.8	10	0.75	7.1	234	0.12
8/21/2023	44,451	1,386	4.3	15	0.82	8.8	413	0.21
11/21/2023	46,606	2,155	5.0	15	0.73	7.2	459	0.23
3/4/2024	49,074	2,468	36.8	68	5.04	39.3	4,806	2.40
		Total Mass Recovery to Date	6,820	18,025	478	3,949	677,445	339

Notes:

(1): blower not operational for sampling in May and June 2020
(2): flow rate estimated based on previous data following reconfiguration
cf: cubic feet
cfm: 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: Indicates result less than the stated laboratory reporting limit (RL); RL used for calculating emissions.

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TABLE 4
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS - SKID 2
OH Randel #5
Hilcorp Energy Company
San Juan County, New Mexico

Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
3/21/2022	1,354	310	510	13	120	35,000
6/17/2022	1,058	200	410	*10*	66	33,000
9/8/2022	1,258	479	1,190	26	1,041	31,900
12/7/2022	918	230	370	9.0	65	18,000
3/10/2023	1,790	140	230	7.5	60	12,000
6/23/2023	1,450	160	430	12	100	18,000
8/21/2023	1,477	180	400	9.6	78	15,000
11/21/2023	1,352	160	420	9.5	72	15,000
3/4/2024	605	39	100	*5.0*	18	3,400
Average	1,251	211	451	11	180	20,144

Vapor Extraction Summary

Date	Flow Rate (cfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
3/16/2022	70	499,800	499,800	0.081	0.134	0.0034	0.031	9.2
6/17/2022	60	8,533,560	8,033,760	0.057	0.103	0.0026	0.021	7.6
9/8/2022	56	15,138,648	6,605,088	0.071	0.168	0.0038	0.116	6.8
12/7/2022 [1]	56	22,499,736	7,361,088	0.074	0.163	0.0037	0.116	5.2
3/10/2023	58	30,214,896	7,715,160	0.040	0.065	0.0018	0.014	3.3
6/23/2023	64	37,670,256	7,455,360	0.036	0.079	0.0023	0.019	3.6
8/21/2023	51	42,004,746	4,334,490	0.032	0.079	0.0021	0.017	3.1
11/21/2023	52	48,892,458	6,887,712	0.033	0.080	0.0019	0.015	2.9
3/4/2024 [2]	43	55,189,464	6,297,006	0.016	0.042	0.0012	0.007	1.5
			Average	0.049	0.10	0.0025	0.040	4.8

Mass Recovery

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
3/16/2022	119	119	10	16	0.41	3.7	1,090	0.55
6/17/2022	2,351	2,232	128	230	5.8	47	17,027	8.5
9/8/2022	4,316	1,966	140	329	7.4	228	13,361	6.7
12/7/2022 [1]	6,507	2,191	163	358	8.0	254	11,448	5.7
3/10/2023	8,724	2,217	89	144	4.0	30	7,214	3.6
6/23/2023	10,666	1,942	70	153	4.5	37	6,971	3.5
8/21/2023	12,082	1,417	46	112	2.9	24	4,458	2.2
11/21/2023	14,290	2,208	73	176	4.1	32	6,440	3.2
3/4/2024	16,731	2,441	39	102	2.8	18	3,611	1.8
		Total Mass Recovery to Date	756	1,621	40	673	71,620	36

Notes:

(1): rotameter float frozen in place, flow rate based on 11/16/2022 site visit flow rate and similar applied vacuum recorded during 11/16/2022 and 12/7/2022 site visits

(2): flow rate estimated based on previous data following reconfiguration

cf: cubic feet

cfm: cubic feet per minute

µg/L: micrograms per liter

lb/hr: pounds per hour

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

gray: indicates result less than the stated laboratory reporting limit (RL); RL used for calculating emissions.

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APPENDIX A

Field Notes

Received by OCD: 4/15/2024 3:00:59 PM

OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1-5
TIME ONSITE:

O&M PERSONNEL: B. Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	KO TANK HIGH LEVEL

SVE SYSTEM	Skid 1	Skid 2
Blower Hours (take photo)	47686.04	15369.7
Inlet Vacuum (IWC)	60	58
Inlet Flow from Rotameter (SCFM)	60	58
Exhaust Vacuum (IWC)	-60	-72
Inlet PID	64.7	942.1
Exhaust PID	100.1	1757
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	25	30

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-5		8.2	
SVE-8		13.7	
9		22.5	

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7		261.9	
SVE-10		111.3	
SVE-11			
SVE-12		135.3	
SVE-13		1891	
SVE-14		1237	
SVE-15		807.5	
SVE-16		1758	
SVE-17		527	
SVE-18		339.5	
SVE-19		2037	
SVE-20		668.7	
SVE-21		102.2	
SVE-22		1322	

COMMENTS/OTHER MAINTENANCE:

Released to Imaging: 5/2/2024 7:12:13 AM

Received by OCD: 4/15/2024 3:00:59 PM

OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1-22
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	KO TANK HIGH LEVEL

SVE SYSTEM	Skid 1	Skid 2
Blower Hours (take photo)	48079.68	15728.1
Inlet Vacuum (IWC)	56	57
Inlet Flow from Rotameter (SCFM)	60	58
Exhaust Vacuum (IWC)	-60	-69
Inlet PID	123	1243
Exhaust PID	107	1319
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	26	35

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-5		15.4	
SVE-8			

9 112.2

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7		620.8	
SVE-10		110.1	
SVE-11			
SVE-12		337.6	
SVE-13		1762	
SVE-14		1278	
SVE-15		1093	
SVE-16		1674	
SVE-17		736.9	
SVE-18		800.8	
SVE-19		1824	
SVE-20		1367	
SVE-21		284.5	
SVE-22		706.8	

COMMENTS/OTHER MAINTENANCE:

Skid #2 off on arrival.
5 wells from skid 2 being moved to skid 1 later today; other skid 1 wells to be shut-in.

Released to Imaging: 5/2/2024 7:12:13 AM

Received by OCD: 4/15/2024 3:00:59 PM

OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 2-5
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	KO TANK HIGH LEVEL

SVE SYSTEM	Skid 1	Skid 2
Blower Hours (take photo)	48414.97	16064.1
Inlet Vacuum (IWC)	73	60
Inlet Flow from Rotameter (SCFM)	24	43
Exhaust Vacuum (IWC)	-77	-74
Inlet PID	2222	292.8
Exhaust PID	2045	400.5
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	7	27

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
~~SVE-5~~			
~~SVE-8~~			

9

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
~~SVE-7~~			
~~SVE-10~~			
SVE-11			
~~SVE-12~~			
SVE-13		1616	
SVE-14		2032	
SVE-15		360.1	
SVE-16		1885	
SVE-17		302.3	
SVE-18		458.4	
SVE-19		2107	
SVE-20		410.3	
SVE-21		153.2	
SVE-22		323.3	

COMMENTS/OTHER MAINTENANCE:

Released to Imaging: 5/2/2024 7:12:13 AM

Received by OCD: 4/15/2024 3:00:59 PM

OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 2-19
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)	487.50.16	16399.2
Inlet Vacuum (IWC)	71	60
Inlet Thermal Anemometer Velocity (fpm)		
Exhaust Thermal Anemometer Velocity (fpm)		
Inlet PID	1926	450.9
Exhaust PID	2459	463.8
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	0.5	13

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
~~SVE-5~~				
~~SVE-8~~				

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6				
~~SVE-7~~				
~~SVE-10~~				
SVE-11				
~~SVE-12~~				
SVE-13			2040	
SVE-14			1599	
SVE-15			754.8	
SVE-16			1923	
SVE-17			416	
SVE-18			641.7	
SVE-19			2368	
SVE-20			1326	
SVE-21			253.1	
SVE-22			769.1	

COMMENTS/OTHER MAINTENANCE:

Released to Imaging: 5/2/2024 7:12:13 AM

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OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3-4
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)	44974.32	16730.55
Inlet Vacuum (IWC)	52	59
Inlet Thermal Anemometer Velocity (fpm)		
Exhaust Thermal Anemometer Velocity (fpm)		
Inlet PID	1897	605.3
Exhaust PID	2230	422.7
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	1	2.5

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: skid 1, skid 2 SAMPLE TIME: 1200, 1215
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
~~SVE-5~~				
~~SVE-8~~				

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6				
~~SVE-7~~				
~~SVE-10~~				
SVE-11				
~~SVE-12~~				
SVE-13	51.5		1364	
SVE-14	69.1		1538	
SVE-15	51.2		962.8	
SVE-16	68.8		1702	
SVE-17	51.5		677.3	
SVE-18	66.8		756.7	
SVE-19	67.3		1985	
SVE-20	68.4		1622	
SVE-21	52		453.9	
SVE-22	49.3		458.8	

COMMENTS/OTHER MAINTENANCE:

Released to Imaging: 5/2/2024 7:12:13 AM

Received by OCD: 4/15/2024 3:00:59 PM

OH RANDEL #5 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3-18
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)**	49399.75	17065.8
Inlet Vacuum (IWC)	73	60
Inlet Thermal Anemometer Velocity (fpm)		
Exhaust Thermal Anemometer Velocity (fpm)		
Inlet PID	1763	374.5
Exhaust PID	2537	629.2
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		8

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	**SAMPLE TIME:**
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

ZONES

Change in Well Operation:

Zone A - Secondary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
~~SVE-5~~				
~~SVE-8~~				

Zone B - Tertiary Impacts

LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6				
~~SVE-7~~				
~~SVE-10~~				
SVE-11				
~~SVE-12~~				
SVE-13	51.9		1795	
SVE-14	67.6		1317	
SVE-15	51.4		1214	
SVE-16	67.2		1537	
SVE-17	51.1		571.2	
SVE-18	66.1		651.4	
SVE-19	67.2		1743	
SVE-20	68.2		504.2	
SVE-21	53.1		326.1	
SVE-22	49.1		1475	

COMMENTS/OTHER MAINTENANCE:

	1	2
rotameter	18	43

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APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
OH Randel #5
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on December 18, 2023 from SVE Skid 1 (original SVE system) at 11:30 AM Hours = 47,253.51		
Photograph 2 Runtime meter taken on December 18, 2023 from SVE Skid 2 (new SVE system) at 11:30 AM Hours = 14,937.4		

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

PROJECT PHOTOGRAPHS
OH Randel #5
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 3 Runtime meter taken on March 18, 2024 from SVE Skid 1 (original SVE system) at 1:05 PM Hours = 49,399.75		
Photograph 4 Runtime meter taken on March 18, 2024 from SVE Skid 2 (new SVE system) at 1:05 PM Hours = 17,065.8		

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 4/1/2024 10:23:07 PM Revision 1

JOB DESCRIPTION

O H Randel 5

JOB NUMBER

885-715-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Released to Imaging: 5/2/2024 7:12:15 AM

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
4/1/2024 10:23:07 PM
Revision 1

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

Client: Hilcorp Energy
Project/Site: O H Randel 5

Laboratory Job ID: 885-715-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
S1-	Surrogate recovery exceeds control limits, low biased.
S1+	Surrogate recovery exceeds control limits, high biased.

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: O H Randel 5

Job ID: 885-715-1

Job ID: 885-715-1 Eurofins Albuquerque

Job Narrative
885-715-1

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 samples were received on 3/7/2024 7:15 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice.

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.

GC/MS VOA
Method 8015D_GRO_MS: Surrogate recovery for the following sample Skid 1 (885-715-1) is outside the upper control limit for 4-Bromofluorobenzene (Surr) and Gasoline Range Organics [C6 - C10] .Air bag highest dilution still above GRO UL.

Method 8015D_GRO_MS: Internal standard responses were outside of acceptance limits for the following sample: Skid 1 (885-715-1).
Any detection for the affected analyte(s) is considered estimated. 4-Bromofluorobenzene (Surr) and Gasoline Range Organics [C6 - C10].

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: O H Randel 5

Job ID: 885-715-1

Client Sample ID: Skid 1
Date Collected: 03/04/24 12:00
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-715-1
Matrix: Air

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]	**43000**		25		ug/L			03/12/24 14:28	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*133*	*S1+*	*70 - 130*		*03/12/24 14:28*	*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			03/12/24 14:28	5
1,1,1-Trichloroethane	ND		0.50		ug/L			03/12/24 14:28	5
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			03/12/24 14:28	5
1,1,2-Trichloroethane	ND		0.50		ug/L			03/12/24 14:28	5
1,1-Dichloroethane	ND		0.50		ug/L			03/12/24 14:28	5
1,1-Dichloroethene	ND		0.50		ug/L			03/12/24 14:28	5
1,1-Dichloropropene	ND		0.50		ug/L			03/12/24 14:28	5
1,2,3-Trichlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
1,2,3-Trichloropropane	ND		1.0		ug/L			03/12/24 14:28	5
1,2,4-Trichlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
1,2,4-Trimethylbenzene	**2.3**		0.50		ug/L			03/12/24 14:28	5
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			03/12/24 14:28	5
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			03/12/24 14:28	5
1,2-Dichlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
1,2-Dichloroethane (EDC)	ND		0.50		ug/L			03/12/24 14:28	5
1,2-Dichloropropane	ND		0.50		ug/L			03/12/24 14:28	5
1,3,5-Trimethylbenzene	**2.9**		0.50		ug/L			03/12/24 14:28	5
1,3-Dichlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
1,3-Dichloropropane	ND		0.50		ug/L			03/12/24 14:28	5
1,4-Dichlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
1-Methylnaphthalene	ND		2.0		ug/L			03/12/24 14:28	5
2,2-Dichloropropane	ND		1.0		ug/L			03/12/24 14:28	5
2-Butanone	ND		5.0		ug/L			03/12/24 14:28	5
2-Chlorotoluene	ND		0.50		ug/L			03/12/24 14:28	5
2-Hexanone	ND		5.0		ug/L			03/12/24 14:28	5
2-Methylnaphthalene	ND		2.0		ug/L			03/12/24 14:28	5
4-Chlorotoluene	ND		0.50		ug/L			03/12/24 14:28	5
4-Isopropyltoluene	ND		0.50		ug/L			03/12/24 14:28	5
4-Methyl-2-pentanone	ND		5.0		ug/L			03/12/24 14:28	5
Acetone	ND		5.0		ug/L			03/12/24 14:28	5
Benzene	**330**		10		ug/L			03/18/24 13:42	100
Bromobenzene	ND		0.50		ug/L			03/12/24 14:28	5
Bromodichloromethane	ND		0.50		ug/L			03/12/24 14:28	5
Dibromochloromethane	ND		0.50		ug/L			03/12/24 14:28	5
Bromoform	ND		0.50		ug/L			03/12/24 14:28	5
Bromomethane	ND		1.5		ug/L			03/12/24 14:28	5
Carbon disulfide	ND		5.0		ug/L			03/12/24 14:28	5
Carbon tetrachloride	ND		0.50		ug/L			03/12/24 14:28	5
Chlorobenzene	ND		0.50		ug/L			03/12/24 14:28	5
Chloroethane	ND		1.0		ug/L			03/12/24 14:28	5
Chloroform	ND		0.50		ug/L			03/12/24 14:28	5

Client Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

Client Sample ID: Skid 1
Date Collected: 03/04/24 12:00
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-715-1
Matrix: Air

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			03/12/24 14:28	5
cis-1,2-Dichloroethene	ND		0.50		ug/L			03/12/24 14:28	5
cis-1,3-Dichloropropene	ND		0.50		ug/L			03/12/24 14:28	5
Dibromomethane	ND		0.50		ug/L			03/12/24 14:28	5
Dichlorodifluoromethane	ND		0.50		ug/L			03/12/24 14:28	5
Ethylbenzene	**45**		0.50		ug/L			03/12/24 14:28	5
Hexachlorobutadiene	ND		0.50		ug/L			03/12/24 14:28	5
Isopropylbenzene	**3.2**		0.50		ug/L			03/12/24 14:28	5
Methyl-tert-butyl Ether (MTBE)	ND		0.50		ug/L			03/12/24 14:28	5
Methylene Chloride	ND		1.5		ug/L			03/12/24 14:28	5
n-Butylbenzene	ND		1.5		ug/L			03/12/24 14:28	5
N-Propylbenzene	**1.9**		0.50		ug/L			03/12/24 14:28	5
Naphthalene	ND		1.0		ug/L			03/12/24 14:28	5
sec-Butylbenzene	ND		0.50		ug/L			03/12/24 14:28	5
Styrene	ND		0.50		ug/L			03/12/24 14:28	5
tert-Butylbenzene	ND		0.50		ug/L			03/12/24 14:28	5
Tetrachloroethene (PCE)	ND		0.50		ug/L			03/12/24 14:28	5
Toluene	**600**		10		ug/L			03/18/24 13:42	100
trans-1,2-Dichloroethene	ND		0.50		ug/L			03/12/24 14:28	5
trans-1,3-Dichloropropene	ND		0.50		ug/L			03/12/24 14:28	5
Trichloroethene (TCE)	ND		0.50		ug/L			03/12/24 14:28	5
Trichlorofluoromethane	ND		0.50		ug/L			03/12/24 14:28	5
Vinyl chloride	ND		0.50		ug/L			03/12/24 14:28	5
Xylenes, Total	**350**	**E**	0.75		ug/L			03/12/24 14:28	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*0*	*S1-*	*70 - 130*		*03/12/24 14:28*	*5*
Toluene-d8 (Surr)	*1017*	*S1+*	*70 - 130*		*03/12/24 14:28*	*5*
4-Bromofluorobenzene (Surr)	*128*		*70 - 130*		*03/12/24 14:28*	*5*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*03/12/24 14:28*	*5*

Client Sample ID: Skid 2
Date Collected: 03/04/24 12:15
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-715-2
Matrix: Air

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]	**3400**		250		ug/L			03/12/24 14:52	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*03/12/24 14:52*	*50*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			03/12/24 14:52	50
1,1,1-Trichloroethane	ND		5.0		ug/L			03/12/24 14:52	50
1,1,2,2-Tetrachloroethane	ND		10		ug/L			03/12/24 14:52	50
1,1,2-Trichloroethane	ND		5.0		ug/L			03/12/24 14:52	50

Client Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

Client Sample ID: Skid 2
Date Collected: 03/04/24 12:15
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-715-2
Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1-Dichloroethane	ND		5.0		ug/L			03/12/24 14:52	50
1,1-Dichloroethene	ND		5.0		ug/L			03/12/24 14:52	50
1,1-Dichloropropene	ND		5.0		ug/L			03/12/24 14:52	50
1,2,3-Trichlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,2,3-Trichloropropane	ND		10		ug/L			03/12/24 14:52	50
1,2,4-Trichlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,2,4-Trimethylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			03/12/24 14:52	50
1,2-Dibromoethane (EDB)	ND		5.0		ug/L			03/12/24 14:52	50
1,2-Dichlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,2-Dichloroethane (EDC)	ND		5.0		ug/L			03/12/24 14:52	50
1,2-Dichloropropane	ND		5.0		ug/L			03/12/24 14:52	50
1,3,5-Trimethylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,3-Dichlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
1,3-Dichloropropane	ND		5.0		ug/L			03/12/24 14:52	50
1,4-Dichlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
1-Methylnaphthalene	ND		20		ug/L			03/12/24 14:52	50
2,2-Dichloropropane	ND		10		ug/L			03/12/24 14:52	50
2-Butanone	ND		50		ug/L			03/12/24 14:52	50
2-Chlorotoluene	ND		5.0		ug/L			03/12/24 14:52	50
2-Hexanone	ND		50		ug/L			03/12/24 14:52	50
2-Methylnaphthalene	ND		20		ug/L			03/12/24 14:52	50
4-Chlorotoluene	ND		5.0		ug/L			03/12/24 14:52	50
4-Isopropyltoluene	ND		5.0		ug/L			03/12/24 14:52	50
4-Methyl-2-pentanone	ND		50		ug/L			03/12/24 14:52	50
Acetone	ND		50		ug/L			03/12/24 14:52	50
Benzene	**39**		5.0		ug/L			03/12/24 14:52	50
Bromobenzene	ND		5.0		ug/L			03/12/24 14:52	50
Bromodichloromethane	ND		5.0		ug/L			03/12/24 14:52	50
Dibromochloromethane	ND		5.0		ug/L			03/12/24 14:52	50
Bromoform	ND		5.0		ug/L			03/12/24 14:52	50
Bromomethane	ND		15		ug/L			03/12/24 14:52	50
Carbon disulfide	ND		50		ug/L			03/12/24 14:52	50
Carbon tetrachloride	ND		5.0		ug/L			03/12/24 14:52	50
Chlorobenzene	ND		5.0		ug/L			03/12/24 14:52	50
Chloroethane	ND		10		ug/L			03/12/24 14:52	50
Chloroform	ND		5.0		ug/L			03/12/24 14:52	50
Chloromethane	ND		15		ug/L			03/12/24 14:52	50
cis-1,2-Dichloroethene	ND		5.0		ug/L			03/12/24 14:52	50
cis-1,3-Dichloropropene	ND		5.0		ug/L			03/12/24 14:52	50
Dibromomethane	ND		5.0		ug/L			03/12/24 14:52	50
Dichlorodifluoromethane	ND		5.0		ug/L			03/12/24 14:52	50
Ethylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
Hexachlorobutadiene	ND		5.0		ug/L			03/12/24 14:52	50
Isopropylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
Methyl-tert-butyl Ether (MTBE)	ND		5.0		ug/L			03/12/24 14:52	50
Methylene Chloride	ND		15		ug/L			03/12/24 14:52	50
n-Butylbenzene	ND		15		ug/L			03/12/24 14:52	50

Client Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

Client Sample ID: Skid 2

Date Collected: 03/04/24 12:15
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-715-2

Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
N-Propylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
Naphthalene	ND		10		ug/L			03/12/24 14:52	50
sec-Butylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
Styrene	ND		5.0		ug/L			03/12/24 14:52	50
tert-Butylbenzene	ND		5.0		ug/L			03/12/24 14:52	50
Tetrachloroethene (PCE)	ND		5.0		ug/L			03/12/24 14:52	50
Toluene	**100**		5.0		ug/L			03/12/24 14:52	50
trans-1,2-Dichloroethene	ND		5.0		ug/L			03/12/24 14:52	50
trans-1,3-Dichloropropene	ND		5.0		ug/L			03/12/24 14:52	50
Trichloroethene (TCE)	ND		5.0		ug/L			03/12/24 14:52	50
Trichlorofluoromethane	ND		5.0		ug/L			03/12/24 14:52	50
Vinyl chloride	ND		5.0		ug/L			03/12/24 14:52	50
Xylenes, Total	**18**		7.5		ug/L			03/12/24 14:52	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 130*		*03/12/24 14:52*	*50*
Toluene-d8 (Surr)	*105*		*70 - 130*		*03/12/24 14:52*	*50*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*03/12/24 14:52*	*50*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*03/12/24 14:52*	*50*

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: MB 885-1848/3
Matrix: Air
Analysis Batch: 1848

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			03/12/24 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*03/12/24 13:14*	*1*

Lab Sample ID: LCS 885-1848/2
Matrix: Air
Analysis Batch: 1848

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]			500	478		ug/L		96			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

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

Lab Sample ID: MB 885-1628/3
Matrix: Air
Analysis Batch: 1628

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			03/12/24 13:14	1
1,1,1-Trichloroethane	ND		0.10		ug/L			03/12/24 13:14	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/12/24 13:14	1
1,1,2-Trichloroethane	ND		0.10		ug/L			03/12/24 13:14	1
1,1-Dichloroethane	ND		0.10		ug/L			03/12/24 13:14	1
1,1-Dichloroethene	ND		0.10		ug/L			03/12/24 13:14	1
1,1-Dichloropropene	ND		0.10		ug/L			03/12/24 13:14	1
1,2,3-Trichlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,2,3-Trichloropropane	ND		0.20		ug/L			03/12/24 13:14	1
1,2,4-Trichlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,2-Dibromo-3-Chloropropane	ND		0.20		ug/L			03/12/24 13:14	1
1,2-Dibromoethane (EDB)	ND		0.10		ug/L			03/12/24 13:14	1
1,2-Dichlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,2-Dichloroethane (EDC)	ND		0.10		ug/L			03/12/24 13:14	1
1,2-Dichloropropane	ND		0.10		ug/L			03/12/24 13:14	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,3-Dichlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
1,3-Dichloropropane	ND		0.10		ug/L			03/12/24 13:14	1
1,4-Dichlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
1-Methylnaphthalene	ND		0.40		ug/L			03/12/24 13:14	1
2,2-Dichloropropane	ND		0.20		ug/L			03/12/24 13:14	1
2-Butanone	ND		1.0		ug/L			03/12/24 13:14	1
2-Chlorotoluene	ND		0.10		ug/L			03/12/24 13:14	1
2-Hexanone	ND		1.0		ug/L			03/12/24 13:14	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: MB 885-1628/3
Matrix: Air
Analysis Batch: 1628

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			03/12/24 13:14	1
4-Chlorotoluene	ND		0.10		ug/L			03/12/24 13:14	1
4-Isopropyltoluene	ND		0.10		ug/L			03/12/24 13:14	1
4-Methyl-2-pentanone	ND		1.0		ug/L			03/12/24 13:14	1
Acetone	ND		1.0		ug/L			03/12/24 13:14	1
Benzene	ND		0.10		ug/L			03/12/24 13:14	1
Bromobenzene	ND		0.10		ug/L			03/12/24 13:14	1
Bromodichloromethane	ND		0.10		ug/L			03/12/24 13:14	1
Dibromochloromethane	ND		0.10		ug/L			03/12/24 13:14	1
Bromoform	ND		0.10		ug/L			03/12/24 13:14	1
Bromomethane	ND		0.30		ug/L			03/12/24 13:14	1
Carbon disulfide	ND		1.0		ug/L			03/12/24 13:14	1
Carbon tetrachloride	ND		0.10		ug/L			03/12/24 13:14	1
Chlorobenzene	ND		0.10		ug/L			03/12/24 13:14	1
Chloroethane	ND		0.20		ug/L			03/12/24 13:14	1
Chloroform	ND		0.10		ug/L			03/12/24 13:14	1
Chloromethane	ND		0.30		ug/L			03/12/24 13:14	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			03/12/24 13:14	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			03/12/24 13:14	1
Dibromomethane	ND		0.10		ug/L			03/12/24 13:14	1
Dichlorodifluoromethane	ND		0.10		ug/L			03/12/24 13:14	1
Ethylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
Hexachlorobutadiene	ND		0.10		ug/L			03/12/24 13:14	1
Isopropylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
Methyl-tert-butyl Ether (MTBE)	ND		0.10		ug/L			03/12/24 13:14	1
Methylene Chloride	ND		0.30		ug/L			03/12/24 13:14	1
n-Butylbenzene	ND		0.30		ug/L			03/12/24 13:14	1
N-Propylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
Naphthalene	ND		0.20		ug/L			03/12/24 13:14	1
sec-Butylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
Styrene	ND		0.10		ug/L			03/12/24 13:14	1
tert-Butylbenzene	ND		0.10		ug/L			03/12/24 13:14	1
Tetrachloroethene (PCE)	ND		0.10		ug/L			03/12/24 13:14	1
Toluene	ND		0.10		ug/L			03/12/24 13:14	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			03/12/24 13:14	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			03/12/24 13:14	1
Trichloroethene (TCE)	ND		0.10		ug/L			03/12/24 13:14	1
Trichlorofluoromethane	ND		0.10		ug/L			03/12/24 13:14	1
Vinyl chloride	ND		0.10		ug/L			03/12/24 13:14	1
Xylenes, Total	ND		0.15		ug/L			03/12/24 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 130*		*03/12/24 13:14*	*1*
Toluene-d8 (Surr)	*94*		*70 - 130*		*03/12/24 13:14*	*1*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*03/12/24 13:14*	*1*
Dibromofluoromethane (Surr)	*106*		*70 - 130*		*03/12/24 13:14*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: STOBLK 885-1628/11
Matrix: Air
Analysis Batch: 1628

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

Analyte	STOBLK Result	STOBLK Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			03/12/24 16:30	1
1,1,1-Trichloroethane	ND		1.0		ug/L			03/12/24 16:30	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			03/12/24 16:30	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/12/24 16:30	1
1,1-Dichloroethane	ND		1.0		ug/L			03/12/24 16:30	1
1,1-Dichloroethene	ND		1.0		ug/L			03/12/24 16:30	1
1,1-Dichloropropene	ND		1.0		ug/L			03/12/24 16:30	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,2,3-Trichloropropane	ND		2.0		ug/L			03/12/24 16:30	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			03/12/24 16:30	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			03/12/24 16:30	1
1,2-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,2-Dichloroethane (EDC)	ND		1.0		ug/L			03/12/24 16:30	1
1,2-Dichloropropane	ND		1.0		ug/L			03/12/24 16:30	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,3-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
1,3-Dichloropropane	ND		1.0		ug/L			03/12/24 16:30	1
1,4-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
1-Methylnaphthalene	ND		4.0		ug/L			03/12/24 16:30	1
2,2-Dichloropropane	ND		2.0		ug/L			03/12/24 16:30	1
2-Butanone	ND		10		ug/L			03/12/24 16:30	1
2-Chlorotoluene	ND		1.0		ug/L			03/12/24 16:30	1
2-Hexanone	ND		10		ug/L			03/12/24 16:30	1
2-Methylnaphthalene	ND		4.0		ug/L			03/12/24 16:30	1
4-Chlorotoluene	ND		1.0		ug/L			03/12/24 16:30	1
4-Isopropyltoluene	ND		1.0		ug/L			03/12/24 16:30	1
4-Methyl-2-pentanone	ND		10		ug/L			03/12/24 16:30	1
Acetone	ND		10		ug/L			03/12/24 16:30	1
Benzene	ND		1.0		ug/L			03/12/24 16:30	1
Bromobenzene	ND		1.0		ug/L			03/12/24 16:30	1
Bromodichloromethane	ND		1.0		ug/L			03/12/24 16:30	1
Dibromochloromethane	ND		1.0		ug/L			03/12/24 16:30	1
Bromoform	ND		1.0		ug/L			03/12/24 16:30	1
Bromomethane	ND		3.0		ug/L			03/12/24 16:30	1
Carbon disulfide	ND		10		ug/L			03/12/24 16:30	1
Carbon tetrachloride	ND		1.0		ug/L			03/12/24 16:30	1
Chlorobenzene	ND		1.0		ug/L			03/12/24 16:30	1
Chloroethane	ND		2.0		ug/L			03/12/24 16:30	1
Chloroform	ND		1.0		ug/L			03/12/24 16:30	1
Chloromethane	ND		3.0		ug/L			03/12/24 16:30	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/12/24 16:30	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/12/24 16:30	1
Dibromomethane	ND		1.0		ug/L			03/12/24 16:30	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/12/24 16:30	1
Ethylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
Hexachlorobutadiene	ND		1.0		ug/L			03/12/24 16:30	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: STOBLK 885-1628/11
Matrix: Air
Analysis Batch: 1628

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

Analyte	STOBLK Result	STOBLK Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			03/12/24 16:30	1
Methylene Chloride	ND		3.0		ug/L			03/12/24 16:30	1
n-Butylbenzene	ND		3.0		ug/L			03/12/24 16:30	1
N-Propylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
Naphthalene	ND		2.0		ug/L			03/12/24 16:30	1
sec-Butylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
Styrene	ND		1.0		ug/L			03/12/24 16:30	1
tert-Butylbenzene	ND		1.0		ug/L			03/12/24 16:30	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			03/12/24 16:30	1
Toluene	ND		1.0		ug/L			03/12/24 16:30	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			03/12/24 16:30	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/12/24 16:30	1
Trichloroethene (TCE)	ND		1.0		ug/L			03/12/24 16:30	1
Trichlorofluoromethane	ND		1.0		ug/L			03/12/24 16:30	1
Vinyl chloride	ND		1.0		ug/L			03/12/24 16:30	1
Xylenes, Total	ND		1.5		ug/L			03/12/24 16:30	1

Surrogate	*STOBLK %Recovery*	*STOBLK Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*03/12/24 16:30*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*03/12/24 16:30*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*03/12/24 16:30*	*1*
Dibromofluoromethane (Surr)	*105*		*70 - 130*		*03/12/24 16:30*	*1*

Lab Sample ID: STOBLK 885-1628/12
Matrix: Air
Analysis Batch: 1628

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

Analyte	STOBLK Result	STOBLK Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			03/12/24 16:54	1
1,1,1-Trichloroethane	ND		1.0		ug/L			03/12/24 16:54	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			03/12/24 16:54	1
1,1,2-Trichloroethane	ND		1.0		ug/L			03/12/24 16:54	1
1,1-Dichloroethane	ND		1.0		ug/L			03/12/24 16:54	1
1,1-Dichloroethene	ND		1.0		ug/L			03/12/24 16:54	1
1,1-Dichloropropene	ND		1.0		ug/L			03/12/24 16:54	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,2,3-Trichloropropane	ND		2.0		ug/L			03/12/24 16:54	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			03/12/24 16:54	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			03/12/24 16:54	1
1,2-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,2-Dichloroethane (EDC)	ND		1.0		ug/L			03/12/24 16:54	1
1,2-Dichloropropane	ND		1.0		ug/L			03/12/24 16:54	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,3-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
1,3-Dichloropropane	ND		1.0		ug/L			03/12/24 16:54	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: STOBLK 885-1628/12
Matrix: Air
Analysis Batch: 1628

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

Analyte	STOBLK Result	STOBLK Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
1-Methylnaphthalene	ND		4.0		ug/L			03/12/24 16:54	1
2,2-Dichloropropane	ND		2.0		ug/L			03/12/24 16:54	1
2-Butanone	ND		10		ug/L			03/12/24 16:54	1
2-Chlorotoluene	ND		1.0		ug/L			03/12/24 16:54	1
2-Hexanone	ND		10		ug/L			03/12/24 16:54	1
2-Methylnaphthalene	ND		4.0		ug/L			03/12/24 16:54	1
4-Chlorotoluene	ND		1.0		ug/L			03/12/24 16:54	1
4-Isopropyltoluene	ND		1.0		ug/L			03/12/24 16:54	1
4-Methyl-2-pentanone	ND		10		ug/L			03/12/24 16:54	1
Acetone	ND		10		ug/L			03/12/24 16:54	1
Benzene	ND		1.0		ug/L			03/12/24 16:54	1
Bromobenzene	ND		1.0		ug/L			03/12/24 16:54	1
Bromodichloromethane	ND		1.0		ug/L			03/12/24 16:54	1
Dibromochloromethane	ND		1.0		ug/L			03/12/24 16:54	1
Bromoform	ND		1.0		ug/L			03/12/24 16:54	1
Bromomethane	ND		3.0		ug/L			03/12/24 16:54	1
Carbon disulfide	ND		10		ug/L			03/12/24 16:54	1
Carbon tetrachloride	ND		1.0		ug/L			03/12/24 16:54	1
Chlorobenzene	ND		1.0		ug/L			03/12/24 16:54	1
Chloroethane	ND		2.0		ug/L			03/12/24 16:54	1
Chloroform	ND		1.0		ug/L			03/12/24 16:54	1
Chloromethane	ND		3.0		ug/L			03/12/24 16:54	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			03/12/24 16:54	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			03/12/24 16:54	1
Dibromomethane	ND		1.0		ug/L			03/12/24 16:54	1
Dichlorodifluoromethane	ND		1.0		ug/L			03/12/24 16:54	1
Ethylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
Hexachlorobutadiene	ND		1.0		ug/L			03/12/24 16:54	1
Isopropylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			03/12/24 16:54	1
Methylene Chloride	ND		3.0		ug/L			03/12/24 16:54	1
n-Butylbenzene	ND		3.0		ug/L			03/12/24 16:54	1
N-Propylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
Naphthalene	ND		2.0		ug/L			03/12/24 16:54	1
sec-Butylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
Styrene	ND		1.0		ug/L			03/12/24 16:54	1
tert-Butylbenzene	ND		1.0		ug/L			03/12/24 16:54	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			03/12/24 16:54	1
Toluene	ND		1.0		ug/L			03/12/24 16:54	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			03/12/24 16:54	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			03/12/24 16:54	1
Trichloroethene (TCE)	ND		1.0		ug/L			03/12/24 16:54	1
Trichlorofluoromethane	ND		1.0		ug/L			03/12/24 16:54	1
Vinyl chloride	ND		1.0		ug/L			03/12/24 16:54	1
Xylenes, Total	ND		1.5		ug/L			03/12/24 16:54	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: STOBLK 885-1628/12
Matrix: Air
Analysis Batch: 1628

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

Surrogate	STOBLK %Recovery	STOBLK Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 130		03/12/24 16:54	1
Toluene-d8 (Surr)	95		70 - 130		03/12/24 16:54	1
4-Bromofluorobenzene (Surr)	101		70 - 130		03/12/24 16:54	1
Dibromofluoromethane (Surr)	103		70 - 130		03/12/24 16:54	1

Lab Sample ID: LCS 885-1628/2
Matrix: Air
Analysis Batch: 1628

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	18.4		ug/L		91	
Benzene	20.1	19.4		ug/L		97	
Chlorobenzene	20.1	19.5		ug/L		97	
Toluene	20.2	19.0		ug/L		94	
Trichloroethene (TCE)	20.2	18.8		ug/L		93	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
Toluene-d8 (Surr)	98		70 - 130
4-Bromofluorobenzene (Surr)	103		70 - 130
Dibromofluoromethane (Surr)	104		70 - 130

Lab Sample ID: MB 885-2140/3
Matrix: Air
Analysis Batch: 2140

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			03/18/24 12:54	1
1,1,1-Trichloroethane	ND		0.10	ug/L			03/18/24 12:54	1
1,1,2,2-Tetrachloroethane	ND		0.20	ug/L			03/18/24 12:54	1
1,1,2-Trichloroethane	ND		0.10	ug/L			03/18/24 12:54	1
1,1-Dichloroethane	ND		0.10	ug/L			03/18/24 12:54	1
1,1-Dichloroethene	ND		0.10	ug/L			03/18/24 12:54	1
1,1-Dichloropropene	ND		0.10	ug/L			03/18/24 12:54	1
1,2,3-Trichlorobenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,2,3-Trichloropropane	ND		0.20	ug/L			03/18/24 12:54	1
1,2,4-Trichlorobenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,2,4-Trimethylbenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,2-Dibromo-3-Chloropropane	ND		0.20	ug/L			03/18/24 12:54	1
1,2-Dibromoethane (EDB)	ND		0.10	ug/L			03/18/24 12:54	1
1,2-Dichlorobenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,2-Dichloroethane (EDC)	ND		0.10	ug/L			03/18/24 12:54	1
1,2-Dichloropropane	ND		0.10	ug/L			03/18/24 12:54	1
1,3,5-Trimethylbenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,3-Dichlorobenzene	ND		0.10	ug/L			03/18/24 12:54	1
1,3-Dichloropropane	ND		0.10	ug/L			03/18/24 12:54	1
1,4-Dichlorobenzene	ND		0.10	ug/L			03/18/24 12:54	1
1-Methylnaphthalene	ND		0.40	ug/L			03/18/24 12:54	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: MB 885-2140/3
Matrix: Air
Analysis Batch: 2140

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,2-Dichloropropane	ND		0.20		ug/L			03/18/24 12:54	1
2-Butanone	ND		1.0		ug/L			03/18/24 12:54	1
2-Chlorotoluene	ND		0.10		ug/L			03/18/24 12:54	1
2-Hexanone	ND		1.0		ug/L			03/18/24 12:54	1
2-Methylnaphthalene	ND		0.40		ug/L			03/18/24 12:54	1
4-Chlorotoluene	ND		0.10		ug/L			03/18/24 12:54	1
4-Isopropyltoluene	ND		0.10		ug/L			03/18/24 12:54	1
4-Methyl-2-pentanone	ND		1.0		ug/L			03/18/24 12:54	1
Acetone	ND		1.0		ug/L			03/18/24 12:54	1
Benzene	ND		0.10		ug/L			03/18/24 12:54	1
Bromobenzene	ND		0.10		ug/L			03/18/24 12:54	1
Bromodichloromethane	ND		0.10		ug/L			03/18/24 12:54	1
Dibromochloromethane	ND		0.10		ug/L			03/18/24 12:54	1
Bromoform	ND		0.10		ug/L			03/18/24 12:54	1
Bromomethane	ND		0.30		ug/L			03/18/24 12:54	1
Carbon disulfide	ND		1.0		ug/L			03/18/24 12:54	1
Carbon tetrachloride	ND		0.10		ug/L			03/18/24 12:54	1
Chlorobenzene	ND		0.10		ug/L			03/18/24 12:54	1
Chloroethane	ND		0.20		ug/L			03/18/24 12:54	1
Chloroform	ND		0.10		ug/L			03/18/24 12:54	1
Chloromethane	ND		0.30		ug/L			03/18/24 12:54	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			03/18/24 12:54	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			03/18/24 12:54	1
Dibromomethane	ND		0.10		ug/L			03/18/24 12:54	1
Dichlorodifluoromethane	ND		0.10		ug/L			03/18/24 12:54	1
Ethylbenzene	ND		0.10		ug/L			03/18/24 12:54	1
Hexachlorobutadiene	ND		0.10		ug/L			03/18/24 12:54	1
Isopropylbenzene	ND		0.10		ug/L			03/18/24 12:54	1
Methyl-tert-butyl Ether (MTBE)	ND		0.10		ug/L			03/18/24 12:54	1
Methylene Chloride	ND		0.30		ug/L			03/18/24 12:54	1
n-Butylbenzene	ND		0.30		ug/L			03/18/24 12:54	1
N-Propylbenzene	ND		0.10		ug/L			03/18/24 12:54	1
Naphthalene	ND		0.20		ug/L			03/18/24 12:54	1
sec-Butylbenzene	ND		0.10		ug/L			03/18/24 12:54	1
Styrene	ND		0.10		ug/L			03/18/24 12:54	1
tert-Butylbenzene	ND		0.10		ug/L			03/18/24 12:54	1
Tetrachloroethene (PCE)	ND		0.10		ug/L			03/18/24 12:54	1
Toluene	ND		0.10		ug/L			03/18/24 12:54	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			03/18/24 12:54	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			03/18/24 12:54	1
Trichloroethene (TCE)	ND		0.10		ug/L			03/18/24 12:54	1
Trichlorofluoromethane	ND		0.10		ug/L			03/18/24 12:54	1
Vinyl chloride	ND		0.10		ug/L			03/18/24 12:54	1
Xylenes, Total	ND		0.15		ug/L			03/18/24 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 130*		*03/18/24 12:54*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*03/18/24 12:54*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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

Lab Sample ID: MB 885-2140/3
Matrix: Air
Analysis Batch: 2140

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*03/18/24 12:54*	*1*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*03/18/24 12:54*	*1*

Lab Sample ID: LCS 885-2140/2
Matrix: Air
Analysis Batch: 2140

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	17.0		ug/L		85	
Benzene	20.1	18.7		ug/L		93	
Chlorobenzene	20.1	19.7		ug/L		98	
Toluene	20.2	19.2		ug/L		95	
Trichloroethene (TCE)	20.2	18.1		ug/L		90	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*

QC Association Summary

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

GC/MS VOA

Analysis Batch: 1628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-715-1	Skid 1	Total/NA	Air	8260B	
885-715-2	Skid 2	Total/NA	Air	8260B	
MB 885-1628/3	Method Blank	Total/NA	Air	8260B	
STOBLK 885-1628/11	Method Blank	Total/NA	Air	8260B	
STOBLK 885-1628/12	Method Blank	Total/NA	Air	8260B	
LCS 885-1628/2	Lab Control Sample	Total/NA	Air	8260B	

Analysis Batch: 1848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-715-1	Skid 1	Total/NA	Air	8015D	
885-715-2	Skid 2	Total/NA	Air	8015D	
MB 885-1848/3	Method Blank	Total/NA	Air	8015D	
LCS 885-1848/2	Lab Control Sample	Total/NA	Air	8015D	

Analysis Batch: 2140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-715-1	Skid 1	Total/NA	Air	8260B	
MB 885-2140/3	Method Blank	Total/NA	Air	8260B	
LCS 885-2140/2	Lab Control Sample	Total/NA	Air	8260B	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

Client Sample ID: Skid 1
Date Collected: 03/04/24 12:00
Date Received: 03/07/24 07:15

Lab Sample ID: 885-715-1
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015D		5	1848	CM	EET ALB	03/12/24 14:28
Total/NA	Analysis	8260B		5	1628	CM	EET ALB	03/12/24 14:28
Total/NA	Analysis	8260B		100	2140	RA	EET ALB	03/18/24 13:42

Client Sample ID: Skid 2
Date Collected: 03/04/24 12:15
Date Received: 03/07/24 07:15

Lab Sample ID: 885-715-2
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015D		50	1848	CM	EET ALB	03/12/24 14:52
Total/NA	Analysis	8260B		50	1628	CM	EET ALB	03/12/24 14:52

Laboratory References:

= , 1120 South 27th Street, Billings, MT 59107

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

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: O H Randel 5

Job ID: 885-715-1

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: O H Randel 5

Job ID: 885-715-1

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: O H Randel 5

Job ID: 885-715-1

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

March 22, 2024

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

Work Order: B24030515 Quote ID: B15626
Project Name: D H Randel 5

Energy Laboratories Inc Billings MT received the following 2 samples for Hall Environmental on 3/8/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24030515-001	Skid 1 (885-715-1)	03/04/24 12:00	03/08/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60
B24030515-002	Skid 2 (885-715-2)	03/04/24 12:15	03/08/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, 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.

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: D H Randel 5
Lab ID: B24030515-001
Client Sample ID: Skid 1 (885-715-1)

Report Date: 03/22/24
Collection Date: 03/04/24 12:00
DateReceived: 03/08/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	20.65	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Nitrogen	77.68	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Carbon Dioxide	0.73	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Methane	0.01	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
n-Butane	0.02	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Isopentane	0.05	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
n-Pentane	0.06	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Hexanes plus	0.80	Mol %		0.01		GPA 2261-95	03/14/24 09:53 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
n-Butane	0.006	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
Isopentane	0.018	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
n-Pentane	0.022	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
Hexanes plus	0.337	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
GPM Total	0.383	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
GPM Pentanes plus	0.377	gpm		0.001		GPA 2261-95	03/14/24 09:53 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	43			1		GPA 2261-95	03/14/24 09:53 / jrj
Net BTU per cu ft @ std cond. (LHV)	40			1		GPA 2261-95	03/14/24 09:53 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	03/14/24 09:53 / jrj
Pseudo-critical Temperature, deg R	247			1		GPA 2261-95	03/14/24 09:53 / jrj
Specific Gravity @ 60/60F	1.02			0.001		D3588-81	03/14/24 09:53 / jrj
Air, %	94.34			0.01		GPA 2261-95	03/14/24 09:53 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	03/14/24 09:53 / 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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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: D H Randel 5
Lab ID: B24030515-002
Client Sample ID: Skid 2 (885-715-2)

Report Date: 03/22/24
Collection Date: 03/04/24 12:15
DateReceived: 03/08/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.82	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Nitrogen	77.98	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Carbon Dioxide	0.11	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Hexanes plus	0.09	Mol %		0.01		GPA 2261-95	03/14/24 10:43 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
Hexanes plus	0.038	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
GPM Total	0.038	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
GPM Pentanes plus	0.038	gpm		0.001		GPA 2261-95	03/14/24 10:43 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	4			1		GPA 2261-95	03/14/24 10:43 / jrj
Net BTU per cu ft @ std cond. (LHV)	4			1		GPA 2261-95	03/14/24 10:43 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	03/14/24 10:43 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	03/14/24 10:43 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	03/14/24 10:43 / jrj
Air, %	99.67			0.01		GPA 2261-95	03/14/24 10:43 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	03/14/24 10:43 / 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
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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B24030515 **Report Date:** 03/22/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R418117
Lab ID: **B24030515-002ADUP**	12	Sample Duplicate				Run: GCNGA-B_240314A				03/14/24 11:36
Oxygen		21.7	Mol %	0.01				0.5	20	
Nitrogen		78.1	Mol %	0.01				0.1	20	
Carbon Dioxide		0.12	Mol %	0.01				8.7	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		0.08	Mol %	0.01				12	20	
Lab ID: **LCS031424**	11	Laboratory Control Sample				Run: GCNGA-B_240314A				03/14/24 02:59
Oxygen		0.64	Mol %	0.01	128	70	130			
Nitrogen		6.13	Mol %	0.01	102	70	130			
Carbon Dioxide		0.94	Mol %	0.01	95	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.09	Mol %	0.01	101	70	130			
Propane		5.00	Mol %	0.01	101	70	130			
Isobutane		1.69	Mol %	0.01	84	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		0.99	Mol %	0.01	99	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

B24030515

Login completed by: Crystal M. Jones
Date Received: 3/8/2024
Reviewed by: gmccartney
Received by: CMJ
Reviewed Date: 3/13/2024
Carrier name: FedEx

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:	9.8°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

Released to Imaging: 5/2/2024 7:12:13 AM
Received by OCD: 4/15/2024 3:00:59 PM

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: 885-91.1
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 #: 885-715-1
Address: 1120 South 27th Street, ,	Due Date Requested: 3/14/2024			
City: Billings	TAT Requested (days):			
State, Zip: MT, 59107	PO #:			
Phone:	WO #:			
Email:	Project #: 88500415			
Project Name: D H Randel 5	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
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:						
Skid 1 (885-715-1)	3/4/24	12:00 Mountain		Air			X	1	B240305I5
Skid 2 (885-715-2)	3/4/24	12:15 Mountain		Air			X	1	

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
	3/7/24 14:30				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Crystal Jaramillo	Date/Time: 3/8/24 0930	Company ELI

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

Ver: 06/08/2021

ICOC No:
885-91

Containers

Count	Container Type	Preservative
2	Tedlar Bag 1L	None

Released to Imaging: 5/2/2024 7:12:13 AM
Received by OCD: 4/15/2024 3:00:59 PM

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: O H Randel 5

Project #:

Project Manager: Samantha Grabert

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(including CF): NA (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
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				
3-4	1200	air	skid 1	2 Tedlar		885-715 COC								✓			✓	✓				
3-4	1215	air	skid 2	2 Tedlar																		

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
3/6/24	1232				3/6/24	1232
3/6/24	1730			car	3/7/24	0715

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: 885-715-1

Login Number: 715 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Lowman, Nick

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.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
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.	True	
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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 333502

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 333502
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Continue monthly O & M within recommendation section of report 2. Submit next bi-annual report by October 15, 2024.	5/2/2024