## REVIEWED By NVelez at 2:49 pm, Feb 07, 2025



- 1. Continue monthly O&M schedule as stated in the recommendations section of report.
- 2. Submit next bi-annual report by July 15, 2025.

January 15, 2025

### **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 Half 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 *Second Half 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 July, August, September, October, November, and December 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). 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. However, in the first quarter of 2024, the number of wells operating on each of the two skids were balanced and wells SVE-5, SVE-

Hilcorp Energy Company Second Half 2024 – SVE System Update OH Randel #5

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7, SVE-8, SVE-9, SVE-10, and SVE-12 were taken offline. The SVE well locations are shown on Figure 2.

### **SECOND HALF 2024 ACTIVITIES**

During the second half 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.

Between June 26 and December 16, 2024, SVE Skid 1 operated for 3,588 hours with a runtime efficiency of 86.4 percent (%) and Skid 2 operated for 4,144 hours with a runtime efficiency of 99.8%. Skid 1 downtime was due to a bad relay preventing the motor contactor from engaging and starting the blower, which was discovered during a Site visit on November 4, 2024. The relay was replaced on November 6, 2024. Skid 1 immediately resumed operation following the relay replacement. Table 1 presents the SVE system operational hours and percentage runtime. Appendix B presents photographs of the runtime meter for calculating the second half of 2024 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 photoionization detector (PID) for organic vapor monitoring (OVM). The second half of 2024 vapor samples were collected from both SVE skids on September 16 and November 18, 2024. The vapor samples were collected directly into two 1-Liter Tedlar® bags and submitted to Eurofins Environment Testing 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 second half of 2024 sampling events and from historical sampling events, with the full laboratory analytical reports included as 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 767,785 pounds (383 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.

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.



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Sincerely, **Ensolum**, **LLC** 

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### **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

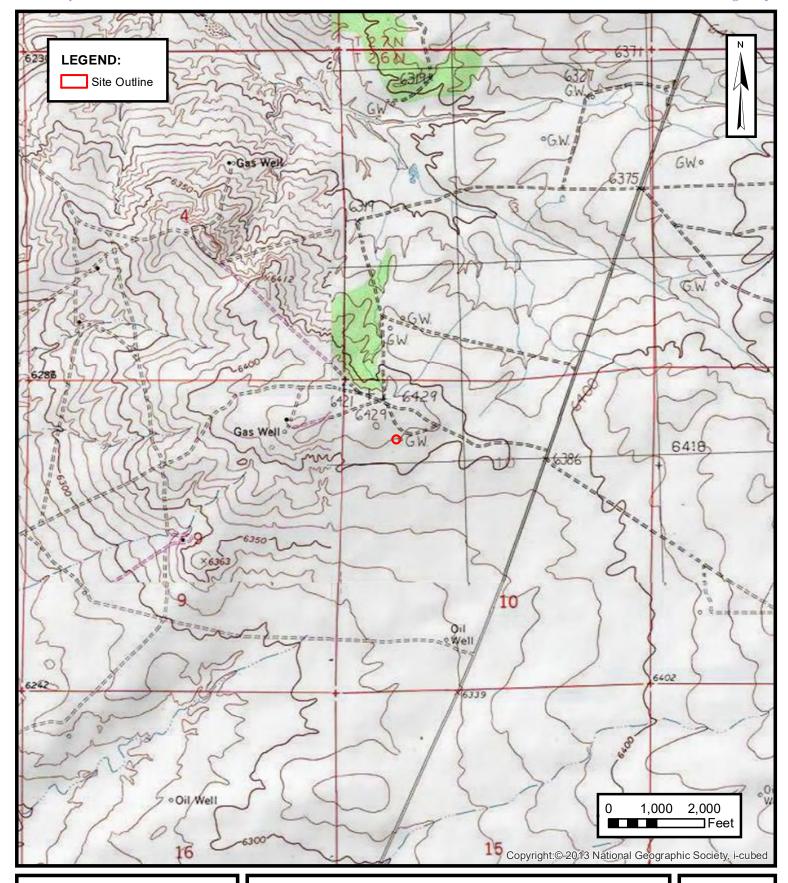
Appendix A Field Notes

Appendix B Project Photographs

Appendix C Laboratory Analytical Reports



**Figures** 





### **SITE LOCATION MAP**

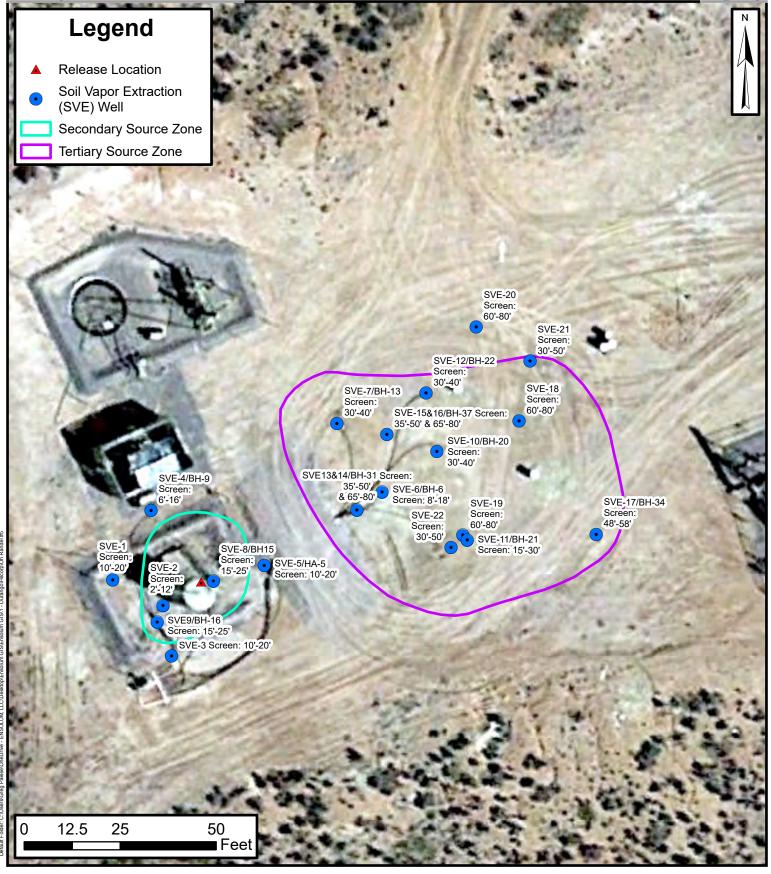
HILCORP ENERGY COMPANY OH RANDEL #5

NWNW SEC 10 T26N R11W, San Juan County, New Mexico 36.506504° N, 107.996993° W

PROJECT NUMBER: 07A1988025

**FIGURE** 

1





### **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

FIGURE 2



**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
6/26/2024	51,485.52		-	
12/16/2024 <sup>(1)</sup>	55,073.97	3,588	173	86.4%

### **SVE Skid 2 - New System Runtime Operation**

Date	Total Operational Hours	Delta Hours	Available Runtime Days	Percent Runtime	
6/26/2024	19,459.0	-			
12/16/2024	23,603.3	4,144	173	99.8%	

(1): Unit discovered to be down on 11/4/24. Downtime due to a bad relay preventing the motor contactor from engaging and starting the blower. The relay was replaced on 11/6/24.

Ensolum



### 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

	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 <sup>(1)</sup>	-										
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%			
6/11/2024	1,783	270	880 E	23	200	30,000	20.98%	0.70%			
9/16/2024	1,316	1,500	3,300	140	1,100	15,000	18.79%	0.63%			
11/18/2024	1,721	160	430	22	89	16,000	21.43%	0.46%			

SVE Skid 2 - New System Analytical Results

	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%			
6/11/2024	403	20	63	<5.0	14	2,000	21.27%	0.12%			
9/16/2024	354	390	820	44	400	3,900	19.51%	0.15%			
11/18/2024	841	48	140	<5.0	25	4,900	21.75%	0.15%			

### 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)

E: result exceeded calibration range

### **ENSOLUM**

TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS - SKID 1
OH Randel #5
Hiltory 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 <sup>(1)</sup>		•	Blower Not	Operational					
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			
6/11/2024 <sup>(2)</sup>	1,783	270	880	23	200	30,000			
9/16/2024	1,316	1,500	3,300	140	1,100	15,000			
11/18/2024	1,721	160	430	22	89	16,000			
Average	983	438	1,033	33	259	35,881			

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 <sup>(1)</sup>				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 (3)	24	246,402,333	3,554,626	0.0149	0.0274	0.00204	0.0159	1.9
6/11/2024 (3)	24	249,670,370	3,268,037	0.0269	0.0664	0.00305	0.0247	3.3
9/16/2024	31	253,412,113	3,741,743	0.1026	0.2423	0.00945	0.0754	2.6
11/18/2024	43	256,188,348	2,776,235	0.1335	0.2999	0.01303	0.0956	2.5
		•	Average	0.12	0.30	0.0087	0.070	11

Mass Recovery

				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	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
6/11/2024	51,344	2,269	61.1	151	6.93	56.0	7,436	3.72
9/16/2024	53,355	2,012	206.4	487	19.01	151.6	5,248	2.62
11/18/2024	54,432	1,076	143.6	323	14.02	102.9	2,682	1.34
	Total Mass	Recovery to Date	7.232	18.986	518	4.259	692,810	346

- Notes:

  (1): blower not operational for sampling in May and June 2020
  (2): toluene result exceeded calibration range
  (3): flow rate estimated based on previous data following reconfiguration cf. 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.



#### **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

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				
6/11/2024	403	20	63	5.0	14	2,000				
9/16/2024	354	390	820	44	400	3,900				
11/18/2024	841	48	140	5.0	25	4,900				
Average	1,072	196	424	13	172	16,008				

Vapor Extraction Summary

				or Extraoriori Garri				
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 <sup>(1)</sup>	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
6/11/2024 <sup>(2)</sup>	43	61,302,774	6,113,310	0.005	0.013	0.0008	0.003	0.4
9/16/2024	48	67,983,222	6,680,448	0.037	0.079	0.0044	0.037	0.5
11/18/2024	44	71,982,822	3,999,600	0.036	0.079	0.0040	0.035	0.7
			Average	0.043	0.09	0.0027	0.036	3.7

#### Mass Recovery

mass receiving									
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 <sup>(1)</sup>	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	
6/11/2024	19,100	2,370	11	31	1.9	6	1,029	0.5	
9/16/2024	21,420	2,320	85	184	10.2	86	1,228	0.6	
11/18/2024	22,935	1,515	55	120	6.1	53	1,097	0.5	
	Total Mass	Recovery to Date	908	1,956	58	818	74,975	37	

#### 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.



**APPENDIX A** 

Field Notes

		BIWEEKLY O&M FORM		
DATE:	7-8	O&M PERSONNEL TIME OFFSITE		
		SVE SYSTEM - MONTHLY O&M		
SVE ALARMS:		KO TANK HIGH LEVEL		
SVE SYSTEM				
	Skid 1	Skid 2		
Blower Hours (take photo) Inlet Vacuum (IWC)	5 730.41	19745.2		
miet vacuum (IWC)	72	58		
Inlet Flow from Rotameter (SCFM)	37	50		
Exhaust Vacuum (IWC)	-77	7734		
Inlet PID	11/2/1	41119		
Exhaust PID	1838	11830		
K/O Tank Liquid Level		43310		
K/O Liquid Drained (gallons)				
	SVE	SYSTEM - QUARTERLY SAMPLING		
SAMPLE ID:		SAMPLE TIME:		
Analytes: T	VPH (8015), VOCs (8260), F	ixed Gas (CO/CO2/O2)		
OPERATING WELLS				
ZONES				
ZONES				
Change in Well Operation:				
7				
Zone A - Secondary Impacts	VACIHIM (IWC)	DID HEADCDACE (DDM)	ADJUGTA (TAITO	
LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
SVE-5				
SVE-8				
la D. Tartiana Impacts				
Zone B - Tertiary Impacts	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
LOCATION	VACCOM (TWO)		THOUGHTINE	
SVE-6		AND STATE OF THE PARTY OF THE P		
SVE-7				
SVE-10				
SVE-11 SVE-12				
SVE-13	49.9	856		
SVE-13 SVE-14	65.4	1253		
SVE-14 SVE-15	49.8	959.4		
SVE-13 SVE-16	66.0	1702		
SVE-10 SVE-17	49.9	351.		
SVE-17 SVE-18	64.8	637.4		
SVE-18 SVE-19	65.8	2/57		
SVE-19 SVE-20	65.9	16.1	The second secon	
SVE-20 SVE-21	49.8	132.4		
SVE-21 SVE-22	46.9	443.	The second secon	
COMMENTS/OTHER MAINTENANG	CE:			
COMMENTS/OTHER WILL			The state of the s	

SVE SYSTEM  Blower Hours (take photo)  Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)  SVE SYSTEM - QUARTERLY SAMPLING  SAMPLE ID:  Analytes:  TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)  SVE SYSTEM - QUARTERLY SAMPLING  SAMPLE ID:  Analytes:  TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)  SVE SYSTEM - QUARTERLY SAMPLING  SAMPLE ID:  Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
Inlet PID Exhaust PID Exhaust PID K/O Tank Liquid Level K/O Liquid Drained (gallons)  SVE SYSTEM - QUARTERLY SAMPLING SAMPLE ID: Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)  SVE SYSTEM - QUARTERLY SAMPLING  SAMPLE ID:  Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
SVE SYSTEM - QUARTERLY SAMPLING  SAMPLE ID: SAMPLE TIME: Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
SAMPLE ID: SAMPLE TIME: Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
SAMPLE ID: SAMPLE TIME: Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
ZONES	
Change in Well Operation:	
ne A - Secondary Impacts	
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS  SVE-5	
-SVE-8	
ne B - Tertiary Impacts  VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS	
SVE-6	
SVE-7 SVE-10	
SVE-11 1 CC 0 2	
SVE-13 99-9	
SVE-14 SVE-15 19.8	
SVE-16 698.7	
SVE-17 69.9 781.4	
SVE-17 SVE-18 SVE-18 65. 781. 4 2168	
SVE-17  SVE-18  SVE-19  SVE-20  SVE-17  69. 9  781. 4  2168  1.5 9 4  288. 5	
SVE-17  SVE-18  SVE-19  SVE-19  781. 4  2168  1594	
Ne B - Tertiary Impacts	

Released to Imaging: 2/7/2025 2:53:50 PM

DATE:	8-7	O&M PERSONNEL: TIME OFFSITE:		
	S	VE SYSTEM - MONTHLY O&M		
SVE ALARMS:		KO TANK HIGH LEVEL		
SVE SYSTEM		THE THE THOU ELVED		
Blower Hours (take photo)	Skid 1	Skid 2		
Inlet Vacuum (IWC)	86	20965.3		
let Flow from Rotameter (SCFM)	28			
		50		
Exhaust Vacuum (IWC) Inlet PID	75	-72		
Exhaust PID	19/23	406.8		
K/O Tank Liquid Level	1000	488.1		
K/O Liquid Drained (gallons)				
	SVE	SYSTEM - QUARTERLY SAMPLING		
SAMPLE ID:	TVPH (8015), VOCs (8260), Fix	SAMPLE TIME:		
OPERATING WELLS	1 VPH (8013), VOCS (8260), FI	xed Gas (CO/CO2/O2)		
ZONES				
Change in Well Operation:				
one A - Secondary Impacts				
LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
SVE-5				
SVE-0				
one B - Tertiary Impacts		DED THE A DCD A CE (DDA O	ADJUSTMENTS	
	VACITIM (IWC)	PID HEADSPACE (PPM)		
LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	A STANDARD OF THE STANDARD OF	
	VACUUM (IWC)	PID HEADSPACE (PPM)		
SVE-6 -SVE-7 -SVE-10	VACUUM (IWC)	PID HEADSPACE (PPM)		
LOCATION  SVE-6  SVE-7  SVE-10  SVE-11	VACUUM (IWC)	PID HEADSPACE (PPM)		
LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12	48.2	PID HEADSPACE (PPM)		
LOCATION  SVE-6  SVE-7  SVE-10  SVE-11				
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15	48.7			
SVE-6 -SVE-7 -SVE-10 SVE-11 -SVE-12 SVE-13 SVE-14 SVE-15 SVE-16	48.7	1614		
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-17	48.7	711.4 1614 475.2 1544		
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-17 -SVE-18	48.7 64.0 49.4 49.4 49.4	711.4 1614 175:2 1544 315.0 358.3 2063		
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-17 -SVE-18 -SVE-19	48.7 64.0 99.4 99.4 99.4 99.4 99.5 99.5 63.6 63.2 64.4	711.4 1614 175.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 SVE-11 -SVE-12 SVE-13 SVE-14 SVE-15 SVE-16 SVE-17 SVE-18 SVE-19 SVE-20	48.7 64.0 99.4 99.4 94.7 94.7 63.0 63.2 64.4 44.5	711.4 1614 475.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-17 -SVE-18 -SVE-19	48.7 64.0 99.4 99.4 99.4 99.4 99.5 99.5 63.6 63.2 64.4	711.4 1614 175.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 SVE-11 -SVE-12 SVE-13 SVE-14 SVE-15 SVE-16 SVE-17 SVE-18 SVE-19 SVE-20 SVE-21 SVE-22	48.7 69.9 99.9 99.9 99.3 94.7 63.6 63.2 69.9 99.5 99.5	711.4 1614 475.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 SVE-11 -SVE-12 SVE-13 SVE-14 SVE-15 SVE-16 SVE-17 SVE-18 SVE-19 SVE-20 SVE-21 SVE-22	48.7 69.9 99.9 99.9 99.3 94.7 63.6 63.2 69.9 99.5 99.5	711.4 1614 475.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 SVE-11 -SVE-12 SVE-13 SVE-14 SVE-15 SVE-16 SVE-16 SVE-17 SVE-18 SVE-19 SVE-20 SVE-21	48.7 69.9 99.9 99.9 99.3 94.7 63.6 63.2 69.9 99.5 99.5	711.4 1614 475.2 1544 315.0 358.3 2063 1500		
SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-16 -SVE-17 -SVE-18 -SVE-19 -SVE-20 -SVE-21 -SVE-22	48.7 69.9 99.9 99.9 99.3 94.7 63.6 63.2 69.9 99.5 99.5	711.4 1614 475.2 1544 315.0 358.3 2063 1500		

		BIWEEKLY O&M FORM		
DATE:	8-20	— O&M PERSONNEL:	B Sindai	~
	E a VI S ME HE SHELL S	TIME OFFSITE:		
SVE ALADMO I		SVE SYSTEM - MONTHLY O&M		
SVE ALARMS:		KO TANK HIGH LEVEL		
SVE SYSTEM	Skid 1			
Blower Hours (take photo)	(27/1 60	Skid 2		
Inlet Vacuum (IWC)	86	20776.3		
Inlet Flow from Rotameter (SCFM)	30	49		
Exhaust Vacuum (IWC)	-711			
Inlet PID		-72		
Exhaust PID		357.5		
K/O Tank Liquid Level	1020	473.2		
K/O Liquid Drained (gallons)				
22 0 2.quid Diamed (ganons)				
	SV	E SYSTEM - QUARTERLY SAMPLING		
SAMPLE ID:		SAMPLE TIME:		
	TVPH (8015), VOCs (8260),	Fixed Gas (CO/CO2/O2)		
OPERATING WELLS				
ZONES				
CI XXV.II O	The second second			
Change in Well Operation:				
Communicates				
Zone A - Secondary Impacts	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
LOCATION	VACOUM (TITO)			
SVE 5				
SVE-8			and of the second	
Zone B - Tertiary Impacts		PID HEADSPACE (PPM)	ADJUSTMENTS	
LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
SVE-6				
SVE-7				
SVE-10				
SVE-11				
-SVE-12	1100	17.52		
SVE-13	99.8	1:535		
SVE-14	62.4	1140		
SVE-15	49,5	1446		
SVE-16	63.2	3.52.3		
SVE-17	37.3	601.2	WEST STOPPING TO A STOPPING	
SVE-18	66.1	2022		
SVE-19	6/2/2	1547		
SVE-20	60.7	738.7		PROPERTY OF THE STATE OF THE ST
SVE-20 SVE-21	37.6	433.8		
SVE-22	1616			
COMMENTS/OTHER MAINTENA	ANCE:			
COMMEN 15/011				

Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
Blower Hours (take photo)  Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
Blower Hours (take photo) Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID Exhaust PID Exhaust PID K/O Tank Liquid Level K/O Liquid Drained (gallons)
Inlet Vacuum (IWC)  Selet Flow from Rotameter (SCFM)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
Inlet PID Exhaust PID Exhaust PID K/O Tank Liquid Level K/O Liquid Drained (gallons)
Exhaust PID 1347 376.8  K/O Tank Liquid Level K/O Liquid Drained (gallons)
Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)
K/O Liquid Drained (gallons)
CVE CVCTEM OVI DESCRIPTION
CVE CVCTEM OVI DEPOSIT OF
CVE CVCTEM OT L DESERVAL
SAMPLE ID: SAMPLE TIME
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)  OPER A TRUCK YEAR AND A STATE OF THE SAMPLE TIME:
OPERATING WELLS
ZONES
nange in Well Operation:
A - Secondary Impacts
T O C I MY O Y
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADIIISTMENTS
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS SVE-5
SVE-5 SVE-8
SVE-5 SVE-8  3 - Tertiary Impacts
SVE-5 SVE-8  B - Tertiary Impacts LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS
SVE-5 SVE-8  3 - Tertiary Impacts LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS SVE-6
SVE-5   SVE-8   B - Tertiary Impacts   LOCATION   VACUUM (IWC)   PID HEADSPACE (PPM)   ADJUSTMENTS   SVE-6   SVE-7
SVE-5   SVE-8   B - Tertiary Impacts   LOCATION   VACUUM (IWC)   PID HEADSPACE (PPM)   ADJUSTMENTS   SVE-6   SVE-7   SVE-10   S
SVE-5   SVE-8   B - Tertiary Impacts   LOCATION   VACUUM (IWC)   PID HEADSPACE (PPM)   ADJUSTMENTS   SVE-6   SVE-7   SVE-10   SVE-11   SVE-11   SVE-11   SVE-11   SVE-11   SVE-12   SVE-13   SVE-14   SVE-15   SVE-16   SVE-16   SVE-17   SVE-17   SVE-18   SVE-19   S
SVE-5   SVE-8   B - Tertiary Impacts   LOCATION   VACUUM (IWC)   PID HEADSPACE (PPM)   ADJUSTMENTS   SVE-6   SVE-7   SVE-10   SVE-11   SVE-12   SVE-12
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-7   SVE-10   SVE-11   SVE-12   SVE-13   SVE-13   SVE-16   SVE-16   SVE-17   SVE-18   SVE-19   SVE
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-10   SVE-11   SVE-12   SVE-13   SVE-14   SVE-14   SVE-14   SVE-14   SVE-16   SVE-16   SVE-16   SVE-16   SVE-16   SVE-17   SVE-18   SVE-18   SVE-19   S
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-6   SVE-10   SVE-11   SVE-12   SVE-13   SVE-14   SVE-15   SVE-15   SVE-15   SVE-16   SVE-17   SVE-18   SVE-19   SVE
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-6   SVE-10   SVE-11   SVE-12   SVE-14   SVE-14   SVE-15   SVE-16   SVE-17   SVE-18   SVE-19   S
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-6   SVE-10   SVE-11   SVE-12   SVE-13   SVE-14   SVE-15   SVE-16   SVE-16   SVE-16   SVE-17   SVE-16   SVE-17   SVE-16   SVE-17   SVE-17   SVE-17   SVE-17   SVE-17   SVE-17   SVE-17   SVE-17   SVE-17   SVE-18   SVE-19   SV
Note
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-7   SVE-10   SVE-11   SVE-12   SVE-14   SVE-14   SVE-15   SVE-16   SVE-16   SVE-17   SVE-18   SVE-19   S
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-7   SVE-10   SVE-11   SVE-12   SVE-14   SVE-15   SVE-16   SVE-16   SVE-16   SVE-17   SVE-18   SVE-19   SVE-19   SVE-19   SVE-19   SVE-19   SVE-20
SVE-5   SVE-8   SVE-8   SVE-8   SVE-8   SVE-6   SVE-7   SVE-10   SVE-11   SVE-12   SVE-14   SVE-15   SVE-16   SVE-16   SVE-16   SVE-17   SVE-18   SVE-17   SVE-18   SVE-19

	S	VE SYSTEM - MONTHLY O&M	
SVE ALARMS:		KO TANK HIGH LEVEL	
SVE SYSTEM  Blower Hours (take photo)  Inlet Vacuum (IWC)	Skid 1 53355, 48	Skid 2 21419.6 57	
nlet Flow from Rotameter (SCFM)	31	48	
Exhaust Vacuum (IWC) Inlet PID	76	73	
K/O Tank Liquid Level K/O Liquid Drained (gallons)	1775	476.5	
	SVE S	SYSTEM - QUARTERLY SAMPLING	
OPERATING WELLS	Sk:dl, Sk:d Z TVPH (8015), VOCs (8260), Fi	xed Gas (CO/CO2/O2)	1300,1315
ZONES			
Change in Well Operation:			
Zone A - Secondary Impacts  LOCATION  SVE-5	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
LOCATION  SVE-5 SVE-8	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
LOCATION —SVE-5	VACUUM (IWC)	PID HEADSPACE (PPM)  PID HEADSPACE (PPM)	ADJUSTMENTS
LOCATION  SVE-5 SVE-8  Zone B - Tertiary Impacts LOCATION SVE-6 SVE-7 SVE-10			
LOCATION  - SVE-5 - SVE-8  Zone B - Tertiary Impacts LOCATION SVE-6 - SVE-7 - SVE-10 SVE-11 - SVE-12	VACUUM (IWC)	PID HEADSPACE (PPM)	
LOCATION  - SVE-5 - SVE-8  Zone B - Tertiary Impacts  LOCATION  SVE-6 - SVE-7 - SVE-10 - SVE-11 - SVE-12 - SVE-13 - SVE-14			
LOCATION  SVE-5 SVE-8  Zone B - Tertiary Impacts LOCATION SVE-6 SVE-7 SVE-10 SVE-11 SVE-12 SVE-13	VACUUM (IWC)  5 1. 4  5 1. 2  5 1. 3  5 1. 3	PID HEADSPACE (PPM)  1620 1512 1151 1663 312.5	
LOCATION  — SVE-5 — SVE-8  Zone B - Tertiary Impacts  LOCATION  SVE-6 — SVE-7 — SVE-10 — SVE-11 — SVE-12 — SVE-13 — SVE-14 — SVE-15 — SVE-16 — SVE-17 — SVE-18 — SVE-19	VACUUM (IWC)  5 1. 1  6 5. 4  5 1. 2  6 5. 8  5 1. 1  6 9. 3  6 3. 1	PID HEADSPACE (PPM)	
LOCATION  SVE-5 SVE-8  Zone B - Tertiary Impacts  LOCATION  SVE-6 SVE-7 SVE-10 SVE-11 SVE-12 SVE-13 SVE-14 SVE-15 SVE-16 SVE-17 SVE-18	VACUUM (IWC)  5 1. 4  5 1. 2  6 5. 8  5 1. 3	PID HEADSPACE (PPM)  1620 1512 1151 1663 312.5	

DATE: 10-22	O&M PERSONNEL:	3 Sinclair
TIME ONSITE:	TIME OFFSITE:	

	S	SVE SYSTEM - MONTHLY O&M	
SVE ALARMS:[		KO TANK HIGH LEVEL	
SVE SYSTEM	Skid 1	Skid 2	
Blower Hours (take photo)	54078.95	22285.0	
Inlet Vacuum (IWC)	86	60	JE SEY LINE AND A SERVICE
et Flow from Rotameter (SCFM)	46	46	
Exhaust Vacuum (IWC)	-73	- 72	
Inlet PID	414.5	555.00	
Exhaust PID	891.8	436.8	
K/O Tank Liquid Level			
K/O Liquid Drained (gallons)			

	SVE SYSTEM - QUARTERLY SAMPLING
SAMPLE ID:	SAMPLE TIME:
Analytes: TVP	H (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			

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7			
SVE-10			
SVE-11			
SVE 12			The state of the s
SVE-13	52.8	1521	
SVE-14	64.2	1432	
SVE-15	51.3	1075	MENT OF STREET
SVE-16	62.3	1695	
SVE-17	51,2	535.1	CONTRACTOR OF THE PARTY OF THE
SVE-18	60.0	154.9	CONTRACTOR OF THE PARTY OF THE
SVE-19	63.2	1276	
SVE-20	62.2	659.8	
SVE-21	51.7	284.6	
SVE-22	48.8	374.8	

COMMENTS/OTHER MAINTENANCE:

skid 1 off on arrival

DATE: 11-4

O&M PERSONNEL: B Sinclair

TIME ONSITE: TIME OFFSITE:

TIME ONSITE:		- TIME OFFSIT	(E:
		SVE SYSTEM - MONTHLY O&M	
SVE ALARMS:		KO TANK HIGH LEVEL	
SVE SYSTEM	Skid 1	Skid 2	
Blower Hours (take photo) Inlet Vacuum (IWC)	54118.13	22597.1	
Inlet Flow from Rotameter (SCFM)			
Exhaust Vacuum (IWC)	X	517.4	
Inlet PID Exhaust PID		988.2	
K/O Tank Liquid Level			
K/O Liquid Drained (gallons)			

	SVE SYSTEM - QUARTERLY SAMPLING	
SAMPLE ID:	SAMPLE TIME:	
Analytes: TVPH (8015), VOCs (82	260), 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	VACOUM (IWC)		
-SVE-8		是是一个是一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个	

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SSVE-0			
SVE-7			
SVE-10			
SVE-11			
SVE 12			
SVE-13	52.6	1637	
SVE-14			
SVE-15	50.9	1389	
-SVE-16			
SVE-17	50.2	671.3	
- SVE-18			
SVETT			
SVE 20			
SVE-21	51.8	454.5	
SVE-22	99.2	763.7	

COMMENTS/OTHER MAINTENANCE:

skid I down due to electrical issues, BOL 11-5

		SVE SYSTEM - MONTHLY O&M	
SVE ALARMS:		KO TANK HIGH LEVEL	
SVE SYSTEM	Skid 1	Skid 2	
Blower Hours (take photo)	54431 54	22934 6	
Inlet Vacuum (IWC)	85	58	
nlet Flow from Rotameter (SCFM)	43	44	
Exhaust Vacuum (IWC)	-24	-75	
Inlet PID	1721	841.0	
Exhaust PID	1958	907.4	
K/O Tank Liquid Level			
K/O Liquid Drained (gallons)	10	16	
SAMPLE ID:	Skid I chid a	SYSTEM - QUARTERLY SAMPLING SAMPLE TIME:	
Analytes:	5 k: d   Sk: d 2 TVPH (8015), VOCs (8260), Fi	ixed Gas (CO/CO2/O2)	1500,1515
OPERATING WELLS			
ZONES			
Change in Well Operation:			
Change in Well Operation:			
Change in Well Operation:	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
Change in Well Operation:	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
Change in Well Operation:  one A - Secondary Impacts  LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)  PID HEADSPACE (PPM)	ADJUSTMENTS
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-6  SVE-7			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10	VACUUM (IWC)		
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12			
Change in Well Operation:  one A - Secondary Impacts  LOCATION  SVE-5  SVE-8  one B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13	VACUUM (IWC)	PID HEADSPACE (PPM)	
Cone A - Secondary Impacts  LOCATION  SVE-5  SVE-8  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14	VACUUM (IWC)		
Change in Well Operation:  One A - Secondary Impacts  LOCATION  SVE-5  SVE-8  One B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  SVE-17	VACUUM (IWC)  50.6 61.3 61.2	PID HEADSPACE (PPM)  1537 1537 1814 1800 5 42.9	
Change in Well Operation:  One A - Secondary Impacts  LOCATION  SVE-5  SVE-8  One B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  SVE-17  SVE-18	VACUUM (IWC)	PID HEADSPACE (PPM)  1537 1819 1800 592.9 629.2	
Change in Well Operation:  One A - Secondary Impacts  LOCATION  SVE-5  SVE-8  One B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  SVE-17  SVE-18  SVE-19	VACUUM (IWC)  50.6 61.3 61.2	PID HEADSPACE (PPM)  1537 1537 1814 1800 5 42.9	
Change in Well Operation:  One A - Secondary Impacts  LOCATION  SVE-5  SVE-8  One B - Tertiary Impacts  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-15  SVE-16  SVE-17  SVE-18  SVE-19  SVE-20	VACUUM (IWC)  50.6 61.3 61.2	PID HEADSPACE (PPM)  1537 1537 1819 1800 5 42.9 624.2	
Change in Well Operation:  LOCATION  SVE-5  SVE-8  LOCATION  SVE-6  SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  SVE-17  SVE-18  SVE-19	VACUUM (IWC)  50.6 61.3 61.2	PID HEADSPACE (PPM)  1537 1819 1800 592.9 629.2	

DATE: 12-2-24
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

Page 23 of 90

SVE ALARMS:	K	O TANK HIGH LEVEL				
	Skid 1	5 kid 2	and the			
SVE SYSTEM	READING	TIME				
Blower Hours (take photo)	54739.70	23267.5				
Inlet Vacuum (IWC)	85	60				
t Thermal Anemometer Velocity			7			
(fpm)						
Exhaust Thermal Anemometer						
Velocity (fpm)						
Inlet PID	1588	477.4				
Exhaust PID	3409	417.1				
K/O Tank Liquid Level	3/4					
K/O Liquid Drained (gallons)	2.5	20	T			

				THE REAL PROPERTY.
	SVE SYSTEM - QUARTERLY SAMPLING			The state of the s
SAMPLE ID:	SAMPLE TIME:			
Analytes: TVPH (8015), VOCs	Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)			
OPERATING WELLS				NE CHEST AND A

## ZONES

Change in Well Operation:

Zone A - Secondary Impacts

one A - Secondary Impacts				
LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVF-5				
SVE-8				
one B - Tertiary Impacts	the state of the s			
LOCATION	VACUUM (IWC)	VELOCITY (fpm)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6				
SVE-7				
SVE-10				
SVE-11				
SVE-12				
SVE-13	52.3		1939	
SVE-14	60.0		1683	
SVE-15	50.8		1487	
SVE-16	60.8		2083	
SVE-17	49.9		7.63.2	
SVE-18	57.2		303->	
SVE-19	60.8		2534	Was a second and the second
SVE-20	60.6		1710	
SVE-21	52,1		837.3	
	UNI		10/2	

COMME	NTS/OTHER	MAINTEN	VANCE:

SVE-22

scfm

46

45

exh vac -40

77

Exhaust Vacuum (IWC) — 41 — 7 8  Inlet PID	VE SYSTEM  Ower Hours (take photo)  Inlet Vacuum (IWC)  Skid I  Skid I  Swer Hours (take photo)  Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level	Skid 2  23603.3		
SVE SYSTEM Skid 1 Skid 2 Blower Hours (take photo) Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust Vacuum (IWC)  Exhaust PID Exhaust PID Exhaust PID Exhaust Liquid Level K/O Liquid Drained (gallons)  Skid 2  Skid 2  4  7  7  6  6  7  7  8  8  8  8  8  8  8  8  8  8  8	VE SYSTEM  Ower Hours (take photo)  Inlet Vacuum (IWC)  Skid I  Skid I  Swer Hours (take photo)  Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level	Skid 2 2 3 6 0 3 - 3 6 1		
Blower Hours (take photo)  Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)	wer Hours (take photo) Inlet Vacuum (IWC)  from Rotameter (SCFM)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level	23603.3		
Blower Hours (take photo) Inlet Vacuum (IWC)  Exhaust Vacuum (IWC)  Inlet PID Exhaust PID	Inlet Vacuum (IWC)  From Rotameter (SCFM)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level	23603.3		
Inlet Vacuum (IWC)  Bet Flow from Rotameter (SCFM)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)	Inlet Vacuum (IWC)  From Rotameter (SCFM)  Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level	61		
Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  Exhaust PID  K/O Tank Liquid Level  K/O Liquid Drained (gallons)  Section 1859  678.7  341.3	Exhaust Vacuum (IWC)  Inlet PID  Exhaust PID  K/O Tank Liquid Level	42 -78 678.7 341.3		
Inlet PID 1859 678.7 Exhaust PID 2911 341.3  K/O Tank Liquid Level K/O Liquid Drained (gallons) 2	Inlet PID 1859 Exhaust PID 2911 K/O Tank Liquid Level	-78 678.7 341.3		
Exhaust PID 291 341.3  K/O Tank Liquid Level K/O Liquid Drained (gallons) 2	Exhaust PID 2911 K/O Tank Liquid Level	341.3		
K/O Tank Liquid Level K/O Liquid Drained (gallons)	K/O Tank Liquid Level	341.3		
K/O Liquid Drained (gallons)	1 115			
		3 1		
SVE SVSTEM - QUADTEDI V SAMDI INC				
SVE SVSTEM - OHADTEDI V SAMDI INC				
SAMPLE ID: SAMPLE TIME:	SAMPLE ID:	E SYSTEM - QUARTERLY SAMPLING		
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	Analytes: TVPH (8015), VOCs (8260),	Fixed Gas (CO/CO2/O2)		
OPERATING WELLS	OPERATING WELLS			
Change in Well Operation:  A - Secondary Impacts				
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS	LOCATION VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS	
SVE-5				
		PID HEADSPACE (PPM)	ADILICTATINE	
ne B - Tertiary Impacts  LOCATION VACIDIM (IWC) PID HEADSPACE (PPM) ADDITION ADDITION ADDITIONS		TID HEADSI ACE (TTM)	ADJUSTMENTS	
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS			Vicini State of the State of th	
	SVE-6			
LOCATION VACUUM (IWC) PID HEADSPACE (PPM) ADJUSTMENTS SVE-6	SVE-6 -SVE-7			
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-12         -SVE-12 <td>SVE-6 -SVE-7 -SVE-10 SVE-11</td> <td></td> <td></td> <td></td>	SVE-6 -SVE-7 -SVE-10 SVE-11			
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         - SVE-7         - SVE-10         - SVE-11         - SVE-12	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12			
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         SVE-10         SVE-11         SVE-11         SVE-12         SVE-13         2.003	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-13 -SVE-13	2003		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-11         -SVE-12         -SVE-12         -SVE-13         -SVE-13         -SVE-14         -SVE-14 <td>SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-14 -SVE-14 -SVE-14</td> <td>1785</td> <td></td> <td></td>	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-14 -SVE-14 -SVE-14	1785		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-11         -SVE-13         -SVE-13         -SVE-13         -SVE-14         -SVE-14         -SVE-14         -SVE-15         -SVE-15         -SVE-15         -SVE-16         -SVE-16 <td>SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-15 -SVE-15 -SVE-15 -SVE-16 -SVE-17 -SVE-17 -SVE-17 -SVE-18 -SVE-18</td> <td>1568</td> <td></td> <td></td>	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-15 -SVE-15 -SVE-15 -SVE-16 -SVE-17 -SVE-17 -SVE-17 -SVE-18	1568		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-11         -SVE-12         -SVE-12         -SVE-13         -SVE-13         -SVE-14         -SVE-14         -SVE-15         -SVE-15         -SVE-16         -SVE-16 <td>SVE-6  - SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  - SVE-6  - SVE-7  - SVE-10  - SVE-10</td> <td>1568</td> <td></td> <td></td>	SVE-6  - SVE-7  SVE-10  SVE-11  SVE-12  SVE-13  SVE-14  SVE-15  SVE-16  - SVE-6  - SVE-7  - SVE-10	1568		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-12         -SVE-12         -SVE-13         -SVE-13         -SVE-13         -SVE-14         -SVE-14         -SVE-15         -SVE-15         -SVE-15         -SVE-15         -SVE-15         -SVE-16         -SVE-16         -SVE-17         -SVE-17         -SVE-16         -SVE-16         -SVE-17         -SVE-16         -SVE-16         -SVE-16         -SVE-17         -SVE-16         -SVE-16         -SVE-16         -SVE-17         -SVE-17         -SVE-16         -SVE-17         -SVE-16         -SVE-17         -SVE-17 <td>SVE-6 - SVE-7 - SVE-10 - SVE-11 - SVE-12 - SVE-13 - SVE-14 - SVE-15 - SVE-16 - SVE-17 - SVE-17 - SVE-16 - SVE-17 - SVE-17</td> <td>1568</td> <td></td> <td></td>	SVE-6 - SVE-7 - SVE-10 - SVE-11 - SVE-12 - SVE-13 - SVE-14 - SVE-15 - SVE-16 - SVE-17 - SVE-17 - SVE-16 - SVE-17	1568		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         SVE-7         SVE-10         SVE-10         SVE-11         SVE-11         SVE-12         SVE-13         \$ 2 . 3         2 0 0 3         SVE-14         \$ 1 . 9         SVE-15         \$ 1 . 2         \$ 1 . 6         \$ 1 . 6         \$ 1 . 6         \$ 1 . 5 . 6         \$ 1 . 6	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-16 -SVE-17 -SVE-18	1568		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6	SVE-6         SVE-10         SVE-11         SVE-12         SVE-13       \$ 2 , 3         SVE-14       61, 14         SVE-15       \$ 1, 2         SVE-16       61, 6         SVE-17       99, 8         SVE-18       \$ 8, 2         SVE-19       60, 3	1785 1568 1759 846.3 389.9		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-11         -SVE-12         -SVE-13         -SVE-13         -SVE-13         -SVE-14         -SVE-14         -SVE-15         -SVE-15         -SVE-16         -SVE-16         -SVE-16         -SVE-17         -SVE-18         -SVE-18         -SVE-19         -SVE-19         -SVE-19         -SVE-19         -SVE-19         -SVE-10         -SVE-10 <td>SVE-6  - SVE-7  - SVE-10  SVE-11  - SVE-12  - SVE-13  - SVE-14  - SVE-14  - SVE-15  - SVE-16  - SVE-16  - SVE-17  - SVE-18  - SVE-18  - SVE-19  - SVE-20  - SVE-20  - SVE-20  - SVE-20  - SVE-17  - SVE-20  - SVE-19  - SVE-20  - SVE-19  - SVE-20  - SVE-19  - SVE-19  - SVE-20  -</td> <td>1785 1568 1759 846.3 389.9</td> <td></td> <td></td>	SVE-6  - SVE-7  - SVE-10  SVE-11  - SVE-12  - SVE-13  - SVE-14  - SVE-14  - SVE-15  - SVE-16  - SVE-16  - SVE-17  - SVE-18  - SVE-18  - SVE-19  - SVE-20  - SVE-20  - SVE-20  - SVE-20  - SVE-17  - SVE-20  - SVE-19  - SVE-20  - SVE-19  - SVE-20  - SVE-19  - SVE-19  - SVE-20  -	1785 1568 1759 846.3 389.9		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         SVE-7         SVE-10         SVE-10         SVE-11         SVE-11         SVE-12         SVE-13         \$ 2 , 3         2 0 0 3         SVE-14         \$ 1 , 2          SVE-15         \$ 1 , 2          \$ 1 , 2	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-16 -SVE-17 -SVE-18 -SVE-18 -SVE-19 -SVE-20 -SVE-21 -SVE-21 -SVE-21 -SVE-10 -SVE-21 -SVE-20 -SVE-20 -SVE-21	1785 1568 1759 1759 2013 1863 792.3		
LOCATION         VACUUM (IWC)         PID HEADSPACE (PPM)         ADJUSTMENTS           SVE-6         -SVE-7         -SVE-10         -SVE-10         -SVE-11         -SVE-11         -SVE-11         -SVE-12         -SVE-13         -SVE-13         -SVE-14         -SVE-14         -SVE-15         -SVE-15         -SVE-15         -SVE-15         -SVE-16         -SVE-16         -SVE-17         -SVE-17         -SVE-18         -SVE-18         -SVE-19         -SVE-19         -SVE-19         -SVE-19         -SVE-20         -SVE-20         -SVE-21         -SVE-21 <td>SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-16 -SVE-17 -SVE-18 -SVE-18 -SVE-19 -SVE-20 -SVE-21 -SVE-21 -SVE-21 -SVE-10 -SVE-21 -SVE-20 -SVE-20 -SVE-21</td> <td>1785 1568 1759 1759 2013 1863 792.3</td> <td></td> <td></td>	SVE-6 -SVE-7 -SVE-10 -SVE-11 -SVE-12 -SVE-13 -SVE-13 -SVE-14 -SVE-15 -SVE-16 -SVE-16 -SVE-17 -SVE-18 -SVE-18 -SVE-19 -SVE-20 -SVE-21 -SVE-21 -SVE-21 -SVE-10 -SVE-21 -SVE-20 -SVE-20 -SVE-21	1785 1568 1759 1759 2013 1863 792.3		



**APPENDIX B** 

**Project Photographs** 

### **PROJECT PHOTOGRAPHS**

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

### Photograph 1

Runtime meter taken on June 26, 2024 from SVE Skid 1 (original SVE system) at 3:33 PM Hours = 51,485.52



### Photograph 2

Runtime meter taken on June 26, 2024 from SVE Skid 2 (new SVE system) at 3:33 PM Hours = 19,459.0



### **PROJECT PHOTOGRAPHS**

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

### Photograph 3

Runtime meter taken on December 16, 2024 from SVE Skid 1 (original SVE system) at 1:16 PM Hours = 55,073.97



### Photograph 4

Runtime meter taken on December 16, 2024 from SVE Skid 2 (new SVE system) at 1:17 PM Hours = 23,603.3





## **APPENDIX C**

**Laboratory Analytical Reports** 

**Environment Testing** 

## **ANALYTICAL REPORT**

### PREPARED FOR

Attn: Samantha Grabert Hilcorp Energy PO BOX 4700 Farmington, New Mexico 87499

Generated 10/4/2024 12:14:38 PM

### **JOB DESCRIPTION**

O H Randel 5

### **JOB NUMBER**

885-11899-1

Eurofins Albuquerque 4901 Hawkins NE Albuquerque NM 87109

### **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 10/4/2024 12:14:38 PM

Authorized for release by Michelle Garcia, Project Manager michelle.garcia@et.eurofinsus.com (505)345-3975

3

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8

10

11

19

Client: Hilcorp Energy Laboratory Job ID: 885-11899-1 Project/Site: O H Randel 5

## **Table of Contents**

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QC Sample Results	10
QC Association Summary	16
Lab Chronicle	17
Certification Summary	18
Subcontract Data	21
Chain of Custody	28
Receint Checklists	29

### **Definitions/Glossary**

Job ID: 885-11899-1 Client: Hilcorp Energy Project/Site: O H Randel 5

**Qualifiers** 

**GC/MS VOA** 

Qualifier **Qualifier Description** Result exceeded calibration range.

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** 

Detection Limit (DoD/DOE) DL

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Decision Level Concentration (Radiochemistry) DLC

EDL Estimated Detection Limit (Dioxin) Limit of Detection (DoD/DOE) LOD LOQ Limit of Quantitation (DoD/DOE)

EPA recommended "Maximum Contaminant Level" MCI MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit Minimum Level (Dioxin) ML Most Probable Number MPN MQL Method Quantitation Limit

NC Not Calculated

Not Detected at the reporting limit (or MDL or EDL if shown) ND

NEG Negative / Absent POS Positive / Present

Practical Quantitation Limit PQL

**PRES** Presumptive QC **Quality Control** 

Relative Error Ratio (Radiochemistry) RER

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) Toxicity Equivalent Quotient (Dioxin) **TEQ** 

**TNTC** Too Numerous To Count

Eurofins Albuquerque

### **Case Narrative**

Client: Hilcorp Energy Job ID: 885-11899-1 Project: O H Randel 5

Job ID: 885-11899-1 **Eurofins Albuquerque** 

> Job Narrative 885-11899-1

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 9/17/2024 7:15 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 18.7°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.

Method 8260B: Surrogate recovery for the following samples is outside the upper control limit: Skid 1 (885-11899-1) and (885-11899-A-1 DU). Sample matrix interference is confirmed by control limits being met in subsequent analysis at higher dilution.

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

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

Client Sample ID: Skid 1 Lab Sample ID: 885-11899-1 Date Collected: 09/16/24 13:00

Matrix: Air

Job ID: 885-11899-1

Date Received: 09/17/24 07:15 Sample Container: Tedlar Bag 1L

Method: SW846 8015M/D - Nonhale	ogenated Organics using G	C/MS -Modified	(Gasoline Rang	e Orga	nics)
Analyte	Result Qualifier	RL	Unit	D	Prepa

Analyte		alifier RL	Unit	D	Prepared	Analyzed	DII Fac
Gasoline Range Organics [C6 -	15000	250	ug/L			09/25/24 15:38	50
0.407							

C10]

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		52 - 172		09/25/24 13:35	5
4-Bromofluorobenzene (Surr)	87		52 - 172		09/25/24 15:38	50

Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND -	5.0	ug/L		09/25/24 13:36	5
1,1,1-Trichloroethane	ND	5.0	ug/L		09/25/24 13:36	5
1,1,2,2-Tetrachloroethane	ND	10	ug/L		09/25/24 13:36	5
1,1,2-Trichloroethane	ND	5.0	ug/L		09/25/24 13:36	5
1,1-Dichloroethane	ND	5.0	ug/L		09/25/24 13:36	5
1,1-Dichloroethene	ND	5.0	ug/L		09/25/24 13:36	5
1,1-Dichloropropene	ND	5.0	ug/L		09/25/24 13:36	5
1,2,3-Trichlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
1,2,3-Trichloropropane	ND	10	ug/L		09/25/24 13:36	5
1,2,4-Trichlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
1,2,4-Trimethylbenzene	12	5.0	ug/L		09/25/24 13:36	5
1,2-Dibromo-3-Chloropropane	ND	10	ug/L		09/25/24 13:36	5
1,2-Dibromoethane (EDB)	ND	5.0	ug/L		09/25/24 13:36	5
1,2-Dichlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
1,2-Dichloroethane (EDC)	ND	5.0	ug/L		09/25/24 13:36	5
1,2-Dichloropropane	ND	5.0	ug/L		09/25/24 13:36	5
1,3,5-Trimethylbenzene	14	5.0	ug/L		09/25/24 13:36	5
1,3-Dichlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
1,3-Dichloropropane	ND	5.0	ug/L		09/25/24 13:36	5
1,4-Dichlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
1-Methylnaphthalene	ND	20	ug/L		09/25/24 13:36	5
2,2-Dichloropropane	ND	10	ug/L		09/25/24 13:36	5
2-Butanone	ND	50	ug/L		09/25/24 13:36	5
2-Chlorotoluene	ND	5.0	ug/L		09/25/24 13:36	5
2-Hexanone	ND	50	ug/L		09/25/24 13:36	5
2-Methylnaphthalene	ND	20	ug/L		09/25/24 13:36	5
4-Chlorotoluene	ND	5.0	ug/L		09/25/24 13:36	5
4-Isopropyltoluene	ND	5.0	ug/L		09/25/24 13:36	5
4-Methyl-2-pentanone	ND	50	ug/L		09/25/24 13:36	5
Acetone	ND	50	ug/L		09/25/24 13:36	5
Benzene	1500	50	ug/L		09/25/24 15:38	50
Bromobenzene	ND	5.0	ug/L		09/25/24 13:36	5
Bromodichloromethane	ND	5.0	ug/L		09/25/24 13:36	5
Dibromochloromethane	ND	5.0	ug/L		09/25/24 13:36	5
Bromoform	ND	5.0	ug/L		09/25/24 13:36	5
Bromomethane	ND	15	ug/L		09/25/24 13:36	5
Carbon disulfide	ND	50	ug/L		09/25/24 13:36	5
Carbon tetrachloride	ND	5.0	ug/L		09/25/24 13:36	5
Chlorobenzene	ND	5.0	ug/L		09/25/24 13:36	5
Chloroethane	ND	10	ug/L		09/25/24 13:36	5

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Released to Imaging: 2/7/2025 2:53:50 PM

Job ID: 885-11899-1

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

Client Sample ID: Skid 1

Lab Sample ID: 885-11899-1 Date Collected: 09/16/24 13:00

Matrix: Air

Date Received: 09/17/24 07:15 Sample Container: Tedlar Bag 1L

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroform	ND ND	5.0	ug/L		-	09/25/24 13:36	5
Chloromethane	ND	15	ug/L			09/25/24 13:36	5
cis-1,2-Dichloroethene	ND	5.0	ug/L			09/25/24 13:36	5
cis-1,3-Dichloropropene	ND	5.0	ug/L			09/25/24 13:36	5
Dibromomethane	ND	5.0	ug/L			09/25/24 13:36	5
Dichlorodifluoromethane	ND	5.0	ug/L			09/25/24 13:36	5
Ethylbenzene	140	5.0	ug/L			09/25/24 13:36	5
Hexachlorobutadiene	ND	5.0	ug/L			09/25/24 13:36	5
Isopropylbenzene	11	5.0	ug/L			09/25/24 13:36	5
Methyl-tert-butyl Ether (MTBE)	ND	5.0	ug/L			09/25/24 13:36	5
Methylene Chloride	ND	15	ug/L			09/25/24 13:36	5
n-Butylbenzene	ND	15	ug/L			09/25/24 13:36	5
N-Propylbenzene	8.0	5.0	ug/L			09/25/24 13:36	5
Naphthalene	ND	10	ug/L			09/25/24 13:36	5
sec-Butylbenzene	ND	5.0	ug/L			09/25/24 13:36	5
Styrene	ND	5.0	ug/L			09/25/24 13:36	5
tert-Butylbenzene	ND	5.0	ug/L			09/25/24 13:36	5
Tetrachloroethene (PCE)	ND	5.0	ug/L			09/25/24 13:36	5
Toluene	3300	50	ug/L			09/25/24 15:38	50
trans-1,2-Dichloroethene	ND	5.0	ug/L			09/25/24 13:36	5
trans-1,3-Dichloropropene	ND	5.0	ug/L			09/25/24 13:36	5
Trichloroethene (TCE)	ND	5.0	ug/L			09/25/24 13:36	5
Trichlorofluoromethane	ND	5.0	ug/L			09/25/24 13:36	5
Vinyl chloride	ND	5.0	ug/L			09/25/24 13:36	5
Xylenes, Total	1100	7.5	ug/L			09/25/24 13:36	5

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 130	-		09/25/24 13:36	5
Toluene-d8 (Surr)	238	S1+	70 - 130			09/25/24 13:36	5
4-Bromofluorobenzene (Surr)	113		70 - 130			09/25/24 13:36	5
Dibromofluoromethane (Surr)	111		70 - 130			09/25/24 13:36	5

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### **Client Sample Results**

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

Client Sample ID: Skid 2 Date Collected: 09/16/24 13:15

Lab Sample ID: 885-11899-2

Date Received: 09/17/24 07:15 Sample Container: Tedlar Bag 1L Matrix: Air

Method: SW846 8015M/D - Nonhalogenated Organics using GC/MS -Modified (Gasoline Range Organics) Dil Fac Analyte Result Qualifier RL Unit Prepared Analyzed 25 ug/L 09/25/24 14:24 Gasoline Range Organics [C6 -3900 C10]

Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		52 - 172				09/25/24 14:24	5
- Method: SW846 8260B - Vola	tile Organic Comp	ounds (GC	/MS)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0	ug/L			09/25/24 14:24	5
1,1,1-Trichloroethane	ND		5.0	ug/L			09/25/24 14:24	5
1,1,2,2-Tetrachloroethane	ND		10	ug/L			09/25/24 14:24	5
1,1,2-Trichloroethane	ND		5.0	ug/L			09/25/24 14:24	5
1,1-Dichloroethane	ND		5.0	ug/L			09/25/24 14:24	5
1,1-Dichloroethene	ND		5.0	ug/L			09/25/24 14:24	5
1,1-Dichloropropene	ND		5.0	ug/L			09/25/24 14:24	5
1,2,3-Trichlorobenzene	ND		5.0	ug/L			09/25/24 14:24	5
1,2,3-Trichloropropane	ND		10	ug/L			09/25/24 14:24	5
1,2,4-Trichlorobenzene	ND		5.0	ug/L			09/25/24 14:24	5
1,2,4-Trimethylbenzene	12		5.0	ug/L			09/25/24 14:24	5
1,2-Dibromo-3-Chloropropane	ND		10	ug/L			09/25/24 14:24	5
1,2-Dibromoethane (EDB)	ND		5.0	ug/L			09/25/24 14:24	5
1,2-Dichlorobenzene	ND		5.0	ug/L			09/25/24 14:24	5
1,2-Dichloroethane (EDC)	ND		5.0	ug/L			09/25/24 14:24	5
1,2-Dichloropropane	ND		5.0	ug/L			09/25/24 14:24	5
1,3,5-Trimethylbenzene	11		5.0	ug/L			09/25/24 14:24	5
1,3-Dichlorobenzene	ND		5.0	ug/L			09/25/24 14:24	5
1.2 Dieblerenrenene	ND		F 0	/			00/05/04 14:04	

1,2-Dichloroethane (EDC)	ND	5.0	ug/L	09/25/24 14:24	5
1,2-Dichloropropane	ND	5.0	ug/L	09/25/24 14:24	5
1,3,5-Trimethylbenzene	11	5.0	ug/L	09/25/24 14:24	5
1,3-Dichlorobenzene	ND	5.0	ug/L	09/25/24 14:24	5
1,3-Dichloropropane	ND	5.0	ug/L	09/25/24 14:24	5
1,4-Dichlorobenzene	ND	5.0	ug/L	09/25/24 14:24	5
1-Methylnaphthalene	ND	20	ug/L	09/25/24 14:24	5
2,2-Dichloropropane	ND	10	ug/L	09/25/24 14:24	5
2-Butanone	ND	50	ug/L	09/25/24 14:24	5
2-Chlorotoluene	ND	5.0	ug/L	09/25/24 14:24	5
2-Hexanone	ND	500	ug/L	09/25/24 16:02	50
2-Methylnaphthalene	ND	20	ug/L	09/25/24 14:24	5
4-Chlorotoluene	ND	5.0	ug/L	09/25/24 14:24	5
4-Isopropyltoluene	ND	5.0	ug/L	09/25/24 14:24	5
4-Methyl-2-pentanone	ND	50	ug/L	09/25/24 14:24	5
Acetone	ND	50	ug/L	09/25/24 14:24	5
Benzene	390	5.0	ug/L	09/25/24 14:24	5
Bromobenzene	ND	5.0	ug/L	09/25/24 14:24	5
Bromodichloromethane	ND	5.0	ug/L	09/25/24 14:24	5
Dibromochloromethane	ND	5.0	ug/L	09/25/24 14:24	5
Bromoform	ND	5.0	ug/L	09/25/24 14:24	5
Bromomethane	ND	15	ug/L	09/25/24 14:24	5
Carbon disulfide	ND	50	ug/L	09/25/24 14:24	5
Carbon tetrachloride	ND	5.0	ug/L	09/25/24 14:24	5

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09/25/24 14:24

09/25/24 14:24

09/25/24 14:24

5.0

10

5.0

ug/L

ug/L

ug/L

ND

ND

ND

5

5

5

Chlorobenzene

Chloroethane

Chloroform

Job ID: 885-11899-1

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

Client Sample ID: Skid 2

Date Collected: 09/16/24 13:15

Date Received: 09/17/24 07:15 Sample Container: Tedlar Bag 1L Lab Sample ID: 885-11899-2

. Matrix: Air

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Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane		15	ug/L			09/25/24 14:24	5
cis-1,2-Dichloroethene	ND	5.0	ug/L			09/25/24 14:24	5
cis-1,3-Dichloropropene	ND	5.0	ug/L			09/25/24 14:24	5
Dibromomethane	ND	5.0	ug/L			09/25/24 14:24	5
Dichlorodifluoromethane	ND	5.0	ug/L			09/25/24 14:24	5
Ethylbenzene	44	5.0	ug/L			09/25/24 14:24	5
Hexachlorobutadiene	ND	5.0	ug/L			09/25/24 14:24	5
Isopropylbenzene	ND	5.0	ug/L			09/25/24 14:24	5
Methyl-tert-butyl Ether (MTBE)	ND	5.0	ug/L			09/25/24 14:24	5
Methylene Chloride	ND	15	ug/L			09/25/24 14:24	5
n-Butylbenzene	ND	15	ug/L			09/25/24 14:24	5
N-Propylbenzene	ND	5.0	ug/L			09/25/24 14:24	5
Naphthalene	ND	10	ug/L			09/25/24 14:24	5
sec-Butylbenzene	ND	5.0	ug/L			09/25/24 14:24	5
Styrene	ND	5.0	ug/L			09/25/24 14:24	5
tert-Butylbenzene	ND	5.0	ug/L			09/25/24 14:24	5
Tetrachloroethene (PCE)	ND	5.0	ug/L			09/25/24 14:24	5
Toluene	820	50	ug/L			09/25/24 16:02	50
trans-1,2-Dichloroethene	ND	5.0	ug/L			09/25/24 14:24	5
trans-1,3-Dichloropropene	ND	5.0	ug/L			09/25/24 14:24	5
Trichloroethene (TCE)	ND	5.0	ug/L			09/25/24 14:24	5
Trichlorofluoromethane	ND	5.0	ug/L			09/25/24 14:24	5
Vinyl chloride	ND	5.0	ug/L			09/25/24 14:24	5
Xylenes, Total	400	7.5	ug/L			09/25/24 14:24	5

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89	70 - 130		09/25/24 14:24	5
Toluene-d8 (Surr)	126	70 - 130		09/25/24 14:24	5
4-Bromofluorobenzene (Surr)	102	70 - 130		09/25/24 14:24	5
Dibromofluoromethane (Surr)	94	70 - 130		09/25/24 14:24	5

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

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

Lab Sample ID: MB 885-13519/4 Client Sample ID: Method Blank Matrix: Air Prep Type: Total/NA

Analysis Batch: 13519

MB MB Analyte Result Qualifier RL Unit D Prepared Analyzed Dil Fac Gasoline Range Organics [C6 - C10] ND 5.0 ug/L 09/25/24 10:44

MB MB

Qualifier Surrogate %Recovery Limits Prepared Analyzed Dil Fac 52 - 172 4-Bromofluorobenzene (Surr) 82 09/25/24 10:44

Lab Sample ID: LCS 885-13519/3 Client Sample ID: Lab Control Sample Prep Type: Total/NA

Matrix: Air

Analysis Batch: 13519

Spike LCS LCS %Rec Analyte Added Result Qualifier Unit D %Rec Limits 4250 4280 ug/L 101 70 - 130 Gasoline Range Organics [C6 -

C10]

LCS LCS %Recovery Qualifier Limits Surrogate 4-Bromofluorobenzene (Surr) 52 - 172 89

Lab Sample ID: 885-11899-1 DU Client Sample ID: Skid 1 Matrix: Air Prep Type: Total/NA

**Analysis Batch: 13519** 

Sample Sample DU DU **RPD** Result Qualifier Result Qualifier RPD Limit Analyte Unit 18000 17800 Gasoline Range Organics [C6 ug/L 0.4 20

C10]

DU DU Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene (Surr) 98 52 - 172

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

Lab Sample ID: MB 885-12987/1005 Client Sample ID: Method Blank Prep Type: Total/NA

Matrix: Air

**Analysis Batch: 12987** 

/ indigoto Batom 12001								
	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1,1-Trichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1,2,2-Tetrachloroethane	ND		2.0	ug/L			09/25/24 12:46	1
1,1,2-Trichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloroethene	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloropropene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,3-Trichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,3-Trichloropropane	ND		2.0	ug/L			09/25/24 12:46	1
1,2,4-Trichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,4-Trimethylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dibromo-3-Chloropropane	ND		2.0	ug/L			09/25/24 12:46	1
1,2-Dibromoethane (EDB)	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

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

Lab Sample ID: MB 885-12987/1005

Client Sample ID: Method Blank

**Prep Type: Total/NA** 

wethod: 8260B -	voiatile Organic	c Compounds (	(GC/IVIS) (C	Jontinuea)

Matrix: Air	
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randiyolo Batolii 12001	Anaiy	/SIS	Batcn:	12987
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Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fa
1,2-Dichloroethane (EDC)	ND Result Qualifier	1.0	ug/L		09/25/24 12:46	
1,2-Dichloropropane	ND	1.0	ug/L		09/25/24 12:46	
1,3,5-Trimethylbenzene	ND	1.0	ug/L		09/25/24 12:46	
1,3-Dichlorobenzene	ND	1.0	ug/L		09/25/24 12:46	
1,3-Dichloropropane	ND	1.0	ug/L		09/25/24 12:46	
1,4-Dichlorobenzene	ND	1.0	ug/L		09/25/24 12:46	
	ND		_		09/25/24 12:46	
1-Methylnaphthalene	ND	4.0	ug/L		09/25/24 12:46	
2,2-Dichloropropane	ND ND	2.0	ug/L		09/25/24 12:46	
2-Butanone 2-Chlorotoluene		10	ug/L			
	ND ND	1.0	ug/L		09/25/24 12:46	
2-Hexanone	ND	10	ug/L		09/25/24 12:46	
2-Methylnaphthalene	ND	4.0	ug/L 		09/25/24 12:46	
4-Chlorotoluene	ND	1.0	ug/L		09/25/24 12:46	
4-Isopropyltoluene	ND	1.0	ug/L		09/25/24 12:46	
4-Methyl-2-pentanone	ND	10	ug/L		09/25/24 12:46	•
Acetone	ND	10	ug/L		09/25/24 12:46	
Benzene	ND	1.0	ug/L		09/25/24 12:46	
Bromobenzene	ND	1.0	ug/L		09/25/24 12:46	
Bromodichloromethane	ND	1.0	ug/L		09/25/24 12:46	
Dibromochloromethane	ND	1.0	ug/L		09/25/24 12:46	
Bromoform	ND	1.0	ug/L		09/25/24 12:46	
Bromomethane	ND	3.0	ug/L		09/25/24 12:46	
Carbon disulfide	ND	10	ug/L		09/25/24 12:46	
Carbon tetrachloride	ND	1.0	ug/L		09/25/24 12:46	
Chlorobenzene	ND	1.0	ug/L		09/25/24 12:46	
Chloroethane	ND	2.0	ug/L		09/25/24 12:46	
Chloroform	ND	1.0	ug/L		09/25/24 12:46	
Chloromethane	ND	3.0	ug/L		09/25/24 12:46	
cis-1,2-Dichloroethene	ND	1.0	ug/L		09/25/24 12:46	
cis-1,3-Dichloropropene	ND	1.0	ug/L		09/25/24 12:46	
Dibromomethane	ND	1.0	ug/L		09/25/24 12:46	
Dichlorodifluoromethane	ND	1.0	ug/L		09/25/24 12:46	
Ethylbenzene	ND	1.0	ug/L		09/25/24 12:46	
- Hexachlorobutadiene	ND	1.0	ug/L		09/25/24 12:46	
Isopropylbenzene	ND	1.0	ug/L		09/25/24 12:46	
Methyl-tert-butyl Ether (MTBE)	ND	1.0	ug/L		09/25/24 12:46	
Methylene Chloride	ND	3.0	ug/L		09/25/24 12:46	
n-Butylbenzene	ND	3.0	ug/L		09/25/24 12:46	
N-Propylbenzene	ND	1.0	ug/L		09/25/24 12:46	
Naphthalene	ND	2.0	ug/L		09/25/24 12:46	
sec-Butylbenzene	ND	1.0	ug/L		09/25/24 12:46	
Styrene	ND	1.0	ug/L		09/25/24 12:46	
ert-Butylbenzene	ND	1.0	ug/L		09/25/24 12:46	
Tetrachloroethene (PCE)	ND	1.0			09/25/24 12:46	
Toluene	ND	1.0	ug/L ug/L		09/25/24 12:46	
rans-1,2-Dichloroethene	ND	1.0			09/25/24 12:46	
			ug/L			
trans-1,3-Dichloropropene	ND ND	1.0	ug/L		09/25/24 12:46	
Trichloroethene (TCE) Trichlorofluoromethane	ND ND	1.0 1.0	ug/L ug/L		09/25/24 12:46 09/25/24 12:46	

Lab Sample ID: MB 885-12987/1005

#### **QC Sample Results**

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

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

MB MB

Matrix: Air

Analysis Batch: 12987

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

Analyte	Result Q	ualifier RL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	1.0	ug/L			09/25/24 12:46	1
Xylenes, Total	ND	1.5	ug/L			09/25/24 12:46	1

MB MB Qualifier Limits Prepared Dil Fac Surrogate %Recovery Analyzed 09/25/24 12:46 1,2-Dichloroethane-d4 (Surr) 100 70 - 130 Toluene-d8 (Surr) 101 70 - 130 09/25/24 12:46 4-Bromofluorobenzene (Surr) 70 - 130 09/25/24 12:46 94 Dibromofluoromethane (Surr) 103 70 - 130 09/25/24 12:46

Lab Sample ID: MB 885-12987/5

Matrix: Air

Analysis Batch: 12987

Client Sample ID: Method Blank

Prep Type: Total/NA

		МВ						
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1,1-Trichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1,2,2-Tetrachloroethane	ND		2.0	ug/L			09/25/24 12:46	1
1,1,2-Trichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloroethane	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloroethene	ND		1.0	ug/L			09/25/24 12:46	1
1,1-Dichloropropene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,3-Trichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,3-Trichloropropane	ND		2.0	ug/L			09/25/24 12:46	1
1,2,4-Trichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2,4-Trimethylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dibromo-3-Chloropropane	ND		2.0	ug/L			09/25/24 12:46	1
1,2-Dibromoethane (EDB)	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dichloroethane (EDC)	ND		1.0	ug/L			09/25/24 12:46	1
1,2-Dichloropropane	ND		1.0	ug/L			09/25/24 12:46	1
1,3,5-Trimethylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,3-Dichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1,3-Dichloropropane	ND		1.0	ug/L			09/25/24 12:46	1
1,4-Dichlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
1-Methylnaphthalene	ND		4.0	ug/L			09/25/24 12:46	1
2,2-Dichloropropane	ND		2.0	ug/L			09/25/24 12:46	1
2-Butanone	ND		10	ug/L			09/25/24 12:46	1
2-Chlorotoluene	ND		1.0	ug/L			09/25/24 12:46	1
2-Hexanone	ND		10	ug/L			09/25/24 12:46	1
2-Methylnaphthalene	ND		4.0	ug/L			09/25/24 12:46	1
4-Chlorotoluene	ND		1.0	ug/L			09/25/24 12:46	1
4-Isopropyltoluene	ND		1.0	ug/L			09/25/24 12:46	1
4-Methyl-2-pentanone	ND		10	ug/L			09/25/24 12:46	1
Acetone	ND		10	ug/L			09/25/24 12:46	1
Benzene	ND		1.0	ug/L			09/25/24 12:46	1
Bromobenzene	ND		1.0	ug/L			09/25/24 12:46	1
Bromodichloromethane	ND		1.0	ug/L			09/25/24 12:46	1
Dibromochloromethane	ND		1.0	ug/L			09/25/24 12:46	1

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1

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Lab Sample ID: MB 885-12987/5

#### QC Sample Results

Job ID: 885-11899-1 Client: Hilcorp Energy

Project/Site: O H Randel 5

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

Matrix: Air

Analysis Batch: 12987

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	ND		1.0	ug/L			09/25/24 12:46	1
Bromomethane	ND		3.0	ug/L			09/25/24 12:46	1
Carbon disulfide	ND		10	ug/L			09/25/24 12:46	1
Carbon tetrachloride	ND		1.0	ug/L			09/25/24 12:46	1
Chlorobenzene	ND		1.0	ug/L			09/25/24 12:46	1
Chloroethane	ND		2.0	ug/L			09/25/24 12:46	1
Chloroform	ND		1.0	ug/L			09/25/24 12:46	1
Chloromethane	ND		3.0	ug/L			09/25/24 12:46	1
cis-1,2-Dichloroethene	ND		1.0	ug/L			09/25/24 12:46	1
cis-1,3-Dichloropropene	ND		1.0	ug/L			09/25/24 12:46	1
Dibromomethane	ND		1.0	ug/L			09/25/24 12:46	1
Dichlorodifluoromethane	ND		1.0	ug/L			09/25/24 12:46	1
Ethylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
Hexachlorobutadiene	ND		1.0	ug/L			09/25/24 12:46	1
Isopropylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0	ug/L			09/25/24 12:46	1
Methylene Chloride	ND		3.0	ug/L			09/25/24 12:46	1
n-Butylbenzene	ND		3.0	ug/L			09/25/24 12:46	1
N-Propylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
Naphthalene	ND		2.0	ug/L			09/25/24 12:46	1
sec-Butylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
Styrene	ND		1.0	ug/L			09/25/24 12:46	1
tert-Butylbenzene	ND		1.0	ug/L			09/25/24 12:46	1
Tetrachloroethene (PCE)	ND		1.0	ug/L			09/25/24 12:46	1
Toluene	ND		1.0	ug/L			09/25/24 12:46	1
trans-1,2-Dichloroethene	ND		1.0	ug/L			09/25/24 12:46	1
trans-1,3-Dichloropropene	ND		1.0	ug/L			09/25/24 12:46	1
Trichloroethene (TCE)	ND		1.0	ug/L			09/25/24 12:46	1
Trichlorofluoromethane	ND		1.0	ug/L			09/25/24 12:46	1
Vinyl chloride	ND		1.0	ug/L			09/25/24 12:46	1
Xylenes, Total	ND		1.5	ug/L			09/25/24 12:46	1

MB MB Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1,2-Dichloroethane-d4 (Surr) 100 70 - 130 09/25/24 12:46 70 - 130 101 09/25/24 12:46 Toluene-d8 (Surr) 4-Bromofluorobenzene (Surr) 94 70 - 130 09/25/24 12:46

LCS LCS

21.0

22.2

20.2

20.5

21.2

Result Qualifier

ug/L

70 - 130

Spike

Added

20.1

20.1

20.1

20.2

20.2

103

Lab Sample ID: LCS 885-12987/4

Matrix: Air

1,1-Dichloroethene

Trichloroethene (TCE)

Chlorobenzene

Analyte

Benzene

Analysis Batch: 12987

Dibromofluoromethane (Surr)

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

09/25/24 12:46

%Rec Unit %Rec Limits 104 70 - 130 ug/L ug/L 110 70 - 130 ug/L 101 70 - 130 ug/L 102 70 - 130

70 - 130

105

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

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

LCS LCS

Lab Sample ID: LCS 885-12987/4

Matrix: Air

Analysis Batch: 12987

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Surrogate %Recovery Qualifier Limits 1,2-Dichloroethane-d4 (Surr) 95 70 - 130 70 - 130 Toluene-d8 (Surr) 99 70 - 130 4-Bromofluorobenzene (Surr) 94 Dibromofluoromethane (Surr) 98 70 - 130

Lab Sample ID: 885-11899-1 DU Client Sample ID: Skid 1 Matrix: Air

**Analysis Batch: 12987** 

Prep	Type:	Total/NA	

	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limi
1,1,1,2-Tetrachloroethane	ND		ND		ug/L		NC	20
1,1,1-Trichloroethane	ND		ND		ug/L		NC	20
1,1,2,2-Tetrachloroethane	ND		ND		ug/L		NC	20
1,1,2-Trichloroethane	ND		ND		ug/L		NC	20
1,1-Dichloroethane	ND		ND		ug/L		NC	20
1,1-Dichloroethene	ND		ND		ug/L		NC	20
1,1-Dichloropropene	ND		ND		ug/L		NC	20
1,2,3-Trichlorobenzene	ND		ND		ug/L		NC	20
1,2,3-Trichloropropane	ND		ND		ug/L		NC	20
1,2,4-Trichlorobenzene	ND		ND		ug/L		NC	20
1,2,4-Trimethylbenzene	12		11.2		ug/L		3	20
1,2-Dibromo-3-Chloropropane	ND		ND		ug/L		NC	20
1,2-Dibromoethane (EDB)	ND		ND		ug/L		NC	20
1,2-Dichlorobenzene	ND		ND		ug/L		NC	20
1,2-Dichloroethane (EDC)	ND		ND		ug/L		NC	20
1,2-Dichloropropane	ND		ND		ug/L		NC	20
1,3,5-Trimethylbenzene	14		13.6		ug/L		5	20
1,3-Dichlorobenzene	ND		ND		ug/L		NC	20
1,3-Dichloropropane	ND		ND		ug/L		NC	20
1,4-Dichlorobenzene	ND		ND		ug/L		NC	20
1-Methylnaphthalene	ND		ND		ug/L		NC	20
2,2-Dichloropropane	ND		ND		ug/L		NC	20
2-Butanone	ND		ND		ug/L		NC	20
2-Chlorotoluene	ND		ND		ug/L		NC	20
2-Hexanone	ND		ND		ug/L		NC	20
2-Methylnaphthalene	ND		ND		ug/L		NC	20
4-Chlorotoluene	ND		ND		ug/L		NC	20
4-Isopropyltoluene	ND		ND		ug/L		NC	20
4-Methyl-2-pentanone	ND		ND		ug/L		NC	20
Acetone	ND		ND		ug/L		NC	20
Benzene	2300	E	2220	E	ug/L		3	20
Bromobenzene	ND		ND		ug/L		NC	20
Bromodichloromethane	ND		ND		ug/L		NC	20
Dibromochloromethane	ND		ND		ug/L		NC	20
Bromoform	ND		ND		ug/L		NC	20
Bromomethane	ND		ND		ug/L		NC	20
Carbon disulfide	ND		ND		ug/L		NC	20
Carbon tetrachloride	ND		ND		ug/L		NC	20

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Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

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

Lab Sample ID: 885-11899-1 DU Matrix: Air

**Analysis Batch: 12987** 

Client Sample ID: Skid 1

**Prep Type: Total/NA** 

RPD	Limit	
 NC	20	
NC	20	
3	20	
NC	20	
3	20	
NC	20	

	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Chlorobenzene	ND		ND		ug/L		NC	20
Chloroethane	ND		ND		ug/L		NC	20
Chloroform	ND		ND		ug/L		NC	20
Chloromethane	ND		ND		ug/L		NC	20
cis-1,2-Dichloroethene	ND		ND		ug/L		NC	20
cis-1,3-Dichloropropene	ND		ND		ug/L		NC	20
Dibromomethane	ND		ND		ug/L		NC	20
Dichlorodifluoromethane	ND		ND		ug/L		NC	20
Ethylbenzene	140		136		ug/L		3	20
Hexachlorobutadiene	ND		ND		ug/L		NC	20
Isopropylbenzene	11		10.6		ug/L		3	20
Methyl-tert-butyl Ether (MTBE)	ND		ND		ug/L		NC	20
Methylene Chloride	ND		ND		ug/L		NC	20
n-Butylbenzene	ND		ND		ug/L		NC	20
N-Propylbenzene	8.0		7.84		ug/L		2	20
Naphthalene	ND		ND		ug/L		NC	20
sec-Butylbenzene	ND		ND		ug/L		NC	20
Styrene	ND		ND		ug/L		NC	20
tert-Butylbenzene	ND		ND		ug/L		NC	20
Tetrachloroethene (PCE)	ND		ND		ug/L		NC	20
Toluene	4300	E	4150	E	ug/L		4	20
trans-1,2-Dichloroethene	ND		ND		ug/L		NC	20
trans-1,3-Dichloropropene	ND		ND		ug/L		NC	20
Trichloroethene (TCE)	ND		ND		ug/L		NC	20
Trichlorofluoromethane	ND		ND		ug/L		NC	20
Vinyl chloride	ND		ND		ug/L		NC	20
Xylenes, Total	1100		1090		ug/L		4	20

DU	DU

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
Toluene-d8 (Surr)	231	S1+	70 - 130
4-Bromofluorobenzene (Surr)	112		70 - 130
Dibromofluoromethane (Surr)	109		70 - 130

# **QC Association Summary**

Client: Hilcorp Energy

Job ID: 885-11899-1

Project/Site: O H Randel 5

#### **GC/MS VOA**

#### Analysis Batch: 12987

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-11899-1	Skid 1	Total/NA	Air	8260B	
885-11899-1	Skid 1	Total/NA	Air	8260B	
885-11899-2	Skid 2	Total/NA	Air	8260B	
885-11899-2	Skid 2	Total/NA	Air	8260B	
MB 885-12987/1005	Method Blank	Total/NA	Air	8260B	
MB 885-12987/5	Method Blank	Total/NA	Air	8260B	
LCS 885-12987/4	Lab Control Sample	Total/NA	Air	8260B	
885-11899-1 DU	Skid 1	Total/NA	Air	8260B	

#### Analysis Batch: 13519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-11899-1	Skid 1	Total/NA	Air	8015M/D	<del></del>
885-11899-1	Skid 1	Total/NA	Air	8015M/D	
885-11899-2	Skid 2	Total/NA	Air	8015M/D	
MB 885-13519/4	Method Blank	Total/NA	Air	8015M/D	
LCS 885-13519/3	Lab Control Sample	Total/NA	Air	8015M/D	
885-11899-1 DU	Skid 1	Total/NA	Air	8015M/D	

3

4

6

8

9

10

11

#### **Lab Chronicle**

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

Client Sample ID: Skid 1 Lab Sample ID: 885-11899-1 Date Collected: 09/16/24 13:00

Matrix: Air

Date Received: 09/17/24 07:15

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Type	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8015M/D		5	13519	СМ	EET ALB	09/25/24 13:35
Total/NA	Analysis	8015M/D		50	13519	CM	EET ALB	09/25/24 15:38
Total/NA	Analysis	8260B		5	12987	CM	EET ALB	09/25/24 13:36
Total/NA	Analysis	8260B		50	12987	CM	EET ALB	09/25/24 15:38

Client Sample ID: Skid 2 Lab Sample ID: 885-11899-2

Date Collected: 09/16/24 13:15 Matrix: Air

Date Received: 09/17/24 07:15

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8015M/D		5	13519	СМ	EET ALB	09/25/24 14:24
Total/NA	Analysis	8260B		5	12987	CM	EET ALB	09/25/24 14:24
Total/NA	Analysis	8260B		50	12987	CM	EET ALB	09/25/24 16:02

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 Job ID: 885-11899-1

Project/Site: O H Randel 5

#### **Laboratory: Eurofins Albuquerque**

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

Authority	Progr	am	Identification Number	Expiration Date
New Mexico	State	<del></del>	NM9425, NM0901	02-26-25
			,	
- ·	·	ut the laboratory is not certif	fied by the governing authority. This lis	t may include analytes
	es not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte	roo 0.401
8015M/D		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-Chloroprop	ane
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	
l				

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# **Accreditation/Certification Summary**

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

Authority	Prog	ram	Identification Number	Expiration Date
,	are included in this report, boos not offer certification.	out the laboratory is not certif	fied by the governing authority. This li	st may include analytes
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 (M	TBE)
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-Dichloropropen-	е
8260B		Air	Trichloroethene (TCE)	
8260B		Air	Trichlorofluoromethane	
8260B		Air	Vinyl chloride	
8260B		Air	Xylenes, Total	
Oregon	NEL	AP	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
8015M/D		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

Eurofins Albuquerque

**Laboratory: Eurofins Albuquerque (Continued)** Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

# **Accreditation/Certification Summary**

Client: Hilcorp Energy Job ID: 885-11899-1

Project/Site: O H Randel 5

#### **Laboratory: Eurofins Albuquerque (Continued)**

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

ority	Progra	am	Identification Number Expiration	Date
	are included in this report, bu	ut the laboratory is not certif	ied by the governing authority. This list may include a	nalyte
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		
8260B		Air	Ethylbenzene Hexachlorobutadiene	
8260B		Air	Isopropylbenzene	
8260B 8260B		Air	Methyl tert butyl Ether (MTRE)	
		Air	Methyl-tert-butyl Ether (MTBE)	
8260B		Air	Naphthalene n-Butylbenzene	
8260B		Air	•	
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	

Eurofins Albuquerque

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Same As Above

September 26, 2024

B24091690-002

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

Quote ID: B15626 Work Order: B24091690

Skid 2 (885-11899-2)

Project Name: O H Randel 5, 88501698

Energy Laboratories Inc Billings MT received the following 2 samples for Hall Environmental on 9/18/2024 for analysis. Test Lab ID Client Sample ID Collect Date Receive Date Matri x B24091690-001 Skid 1 (885-11899-1) 09/16/24 13:00 09/18/24 Air Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

ANALYTICAL SUMMARY REPORT

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 So. 27th Street, 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.

09/18/24

Air

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.

09/16/24 13:15

Billings, MT 406.252.6325 . Casper, WY 307.235.0515 Gillette, WY 307.686.7175 . Helena, MT 406.442.0711

# LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental Project: O H Randel 5, 88501698 Lab ID: B24091690-001

Client Sample ID: Skid 1 (885-11899-1)

**Report Date: 09/26/24** Collection Date: 09/16/24 13:00 DateReceived: 09/18/24 Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS F	PEDODT						
Oxygen	_	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Nitrogen		Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Carbon Dioxide		Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Hydrogen Sulfide		Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Vethane		Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Ethane		Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
sobutane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
n-Butane	0.01	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
sopentane	0.03	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
-Pentane	0.03	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
lexanes plus	0.39	Mol %		0.01		GPA 2261-95	09/25/24 04:23 / jrj
ropane	< 0.001	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
sobutane	< 0.001			0.001		GPA 2261-95	09/25/24 04:23 / jrj
-Butane	0.003	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
sopentane	0.011	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
-Pentane	0.011	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
łexanes plus	0.164	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
SPM Total	0.189	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
GPM Pentanes plus	0.186	gpm		0.001		GPA 2261-95	09/25/24 04:23 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	21			1		GPA 2261-95	09/25/24 04:23 / jrj
let BTU per cu ft @ std cond. (LHV)	20			1		GPA 2261-95	09/25/24 04:23 / jrj
Pseudo-critical Pressure, psia	541			1		GPA 2261-95	09/25/24 04:23 / jrj
Pseudo-critical Temperature, deg R	242			1		GPA 2261-95	09/25/24 04:23 / jrj
Specific Gravity @ 60/60F	1.01			0.001		D3588-81	09/25/24 04:23 / jrj
Air, %	85.87			0.01		GPA 2261-95	09/25/24 04:23 / jrj
- The analysis was not corrected for air.							
COMMENTS							

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 RL - Analyte Reporting Limit MCL - Maximum Contaminant Level

**Definitions:** QCL - Quality Control Limit ND - Not detected at the Reporting Limit (RL)

09/25/24 04:23 / jrj

Billings, MT 406.252.6325 . Casper, WY 307.235.0515 Gillette, WY 307.686.7175 . Helena, MT 406.442.0711

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental Project: O H Randel 5, 88501698

Lab ID: B24091690-002 Client Sample ID: Skid 2 (885-11899-2)

**Report Date: 09/26/24** Collection Date: 09/16/24 13:15 DateReceived: 09/18/24 Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
, analyses	resur	Onno	Qualificis		401	ourou	, maryolo Dato , Dy
GAS CHROMATOGRAPHY ANALYSIS R	REPORT						
Oxygen	19.51	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Nitrogen	80.03	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Carbon Dioxide	0.15	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Methane	0.20	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Ethane	0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Propane	0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
sobutane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
sopentane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Hexanes plus	0.09	Mol %		0.01		GPA 2261-95	09/25/24 03:34 / jrj
Propane	0.003	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
sobutane	< 0.001	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
sopentane	< 0.001	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
lexanes plus	0.038	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
GPM Total	0.041	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
GPM Pentanes plus	0.038	gpm		0.001		GPA 2261-95	09/25/24 03:34 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	7			1		GPA 2261-95	09/25/24 03:34 / jrj
Net BTU per cu ft @ std cond. (LHV)	6			1		GPA 2261-95	09/25/24 03:34 / jrj
Pseudo-critical Pressure, psia	540			1		GPA 2261-95	09/25/24 03:34 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	09/25/24 03:34 / jrj
Specific Gravity @ 60/60F	0.996			0.001		D3588-81	09/25/24 03:34 / jrj
Air, %	89.15			0.01		GPA 2261-95	09/25/24 03:34 / jrj
- The analysis was not corrected for air.							
COMMENTS							

09/25/24 03:34 / 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 RL - Analyte Reporting Limit MCL - Maximum Contaminant Level

**Definitions:** QCL - Quality Control Limit ND - Not detected at the Reporting Limit (RL)

Released to Imaging: 2/7/2025 2:53:50 PM



# **QA/QC Summary Report**

Prepared by Billings, MT Branch

Client: Hall Environmental Work Order: B24091690 Report Date: 09/26/24

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	GPA 2261-95									Batch:	R429509
Lab ID:	B24092171-001ADUP	12 Sar	mple Duplic	ate			Run: GCNG	A-B_240925A		09/25/	/24 01:07
Oxygen			18.9	Mol %	0.01				0.5	20	
Nitrogen			78.5	Mol %	0.01				0.1	20	
Carbon D	ioxide		2.52	Mol %	0.01				1.2	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	
Isopentan	ie		<0.01	Mol %	0.01					20	
n-Pentane	e		<0.01	Mol %	0.01					20	
Hexanes	plus		0.11	Mol %	0.01				8.7	20	
Lab ID:	LCS092524	11 Lab	oratory Co	ntrol Sample	)		Run: GCNG	A-B_240925A		09/25/	/24 02:45
Oxygen			0.65	Mol %	0.01	130	70	130			
Nitrogen			6.12	Mol %	0.01	102	70	130			
Carbon D	ioxide		0.98	Mol %	0.01	99	70	130			
Methane			75.0	Mol %	0.01	100	70	130			
Ethane			5.99	Mol %	0.01	100	70	130			
Propane			5.02	Mol %	0.01	102	70	130			
Isobutane	•		1.40	Mol %	0.01	70	70	130			
n-Butane			1.99	Mol %	0.01	99	70	130			
Isopentan	e		1.01	Mol %	0.01	101	70	130			
n-Pentane	e		1.00	Mol %	0.01	100	70	130			
Hexanes	plus		0.79	Mol %	0.01	99	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Billings, MT 406.252.6325 • Casper, WY 307.235.0515 Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

# **Work Order Receipt Checklist**

### Hall Environmental

B24091690

_ogin completed by:	Lyndsi E. LeProwse	Date Received: 9/18/2024							
Reviewed by:	mstephens		Re	ceived by: CMJ					
Reviewed Date:	9/25/2024		Car	rier name: FedEx NDA					
Shipping container/cooler in	good condition?	Yes ✓	No 🗌	Not Present					
Custody seals intact on all sl	hipping container(s)/cooler(s)?	Yes ✓	No 🗌	Not Present					
Custody seals intact on all sa	ample bottles?	Yes	No 🗌	Not Present ✓					
Chain of custody present?		Yes 🗸	No 🗌						
Chain of custody signed whe	en relinquished and received?	Yes 🔽	No 🗌						
Chain of custody agrees with	n 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 h Exclude analyses that are c such as pH, DO, Res CI, Su	onsidered field parameters	Yes ✓	No 🗌						
Гетр Blank received in all s	hipping container(s)/cooler(s)?	Yes	No 🗹	Not Applicable					
Container/Temp Blank tempe	erature:	16.3°C No Ice							
Containers requiring zero he bubble that is <6mm (1/4").	adspace have no headspace or	Yes	No 🗌	No VOA vials submitted					
Vater - 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.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

#### **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**



		-	
S 80 M	AII	rofir	21
	Lu	UIII	13

**Environment Testing** 

Received by OCD: 1/15/2025 12:27:35 PM

				b PM: arcia, f	PM: Carroia, Michelle				Carrier Tracking No(s):				COC No: 885-2006.1					
Client Contact: Shipping/Receiving	Phone:				Mail:	garcia	@et	eurofin	sus co	om		State of O				Page: Page 1 of 1	Page: Page 1 of 1	
Company:	1			-				quired (S								Job#:		
Energy Laboratories, Inc.					NE	LAP -	Oreg	on; Sta	te - N	ew Me	xico					885-11899-1		
Address: 1120 South 27th Street,	Due Date Request 9/24/2024	ed:				Analysis Requested								Preservation C	odes:			
City:	TAT Requested (d	ays):																
Billings																		
State, Zip: MT, 59101										Ш								
Phone:	PO #:				-11			1 1										
406-252-6325(Tel)	7.20				6			1 1										
Email:	WO #:				or N	2 3		1 1							9			
Project Name:	Project #:				e (Yes	Gases		1 1							Je L			
O H Randel S	88501698				0	(Yes		1 1							ie ti			
Site:	SSOW#:				amb	SD (Y									of con			
		Sample	Sample Type (C=comp,	Matrix (w=water, S=solid, O=waste/oil,	old Filtered	Perform MS/MSD (Yes or No.									Total Number			
Sample Identification - Client ID (Lab ID)	Sample Date	Time		BT=Tissue, A=A		a. 7	5									Special	Instructions/Note:	
		$\sim$	Preserva	tion Code:	X	X									2			
Skid 1 (885-11899-1)	9/16/24	13:00 Mountain	G	Air		>	(								1	See Attached In		
Skid 2 (885-11899-2)	9/16/24	13:15 Mountain	G	Air		>	(								1	See Attached In	nstructions	
																B2409	1490	
										7								
Note: Since laboratory accreditations are subject to change, Eurofins Environm laboratory does not currently maintain accreditation in the State of Origin listed : accreditation status should be brought to Eurofins Environment Testing South (	bove for analysis/test	s/matrix being	analyzed, the	samples mus	st be shi	ipped b	ack to t	he Euro	ins En	vironme	nt Testin	g South (	central, I	LC labor	atory or o	ther instructions will	be provided. Any changes t	
Possible Hazard Identification										e may				ples ar	e retair	ned longer than	1 month)	
Unconfirmed							Retur	n To C	lient	1.34	LDI	sposal E	y Lab	1	Arci	hive For	Months	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliver	able Rank: 2	2			Specia	al Inst	ruction	s/QC	Requi	remen	s:						
Empty Kit Relinquished by:		Date:			Tin	ne:						Met	-227	hipment:				
Relinquished by Multiple Multiple	Date/Time 117/2	4 140	00	Company		Re	ceived	by:						Date/Time			Company	
Relinquished by.	Date/Time:			Сотрапу		Re	ceived	by:					Ī	Date/Time	i:		Company	
Relinquished by:	Date/Time:			Company		Re	celved	2	1	.1/	1		Ī	Date/Time	24 1	2.4	Company	
Custody Seals Intact: Custody Seal No.:						Co	pler Te	peratu	re(s)	and O	ther Re	narks:		7/18/	of I	0.0	Ebb	
Δ Yes Δ No							//										Ver: 05/06/2024	









Method Comments Fixed Gases

Method Description SUB (Fixed Gases)/ Fixed Gases

Subcontract Method Instructions
Sample IDs Method Method
1, 2 SUBCONTRACT SUB 0

Container Type Tedlar Bag 1L

Count 2

Containers

Preservative None 1

2

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Page 7 of 7 10/4/2024

ICOC No: 885-2006

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Chain-of-Custody Record  Client: Hilcorp  Mailing Address:  Phone #:	Turn-Around Time:  Standard Rush  Project Name:  O H Randel 5  Project #:	HALL ENVIRONMET ANALYSIS LABORA  www.hallenvironmental.com  4901 Hawkins NE - Albuquerque, NM 87109  Tel. 505-345-3975 Fax 505-345-4107  Analysis Request
email or Fax#: brehdeh. Sinclair@hilcorp.com  QA/QC Package:  Standard  Level 4 (Full Validation)  Accreditation:  NELAC  Other  EDD (Type)  Date Time Matrix Sample Name  9-16 13/5  Air Skid 2	Project Manager:  Samantha Grabert  Sampler: Brandon Sinclair  On Ice: Yes Ho  # of Coolers:   Cwcha  Cooler Temp(including CF): 18-9-6,2-18-7(°C)  Container Type and # Type  2 Tedlar  2 Tedlar  2	## 17 TMB's (8021)  RO / DRO / MRO)  ## 1988/8082 PCB's  ## 504.1)  ## 1988/8082 PCB's  ## 1988/8082 PCB's
Date: Time: Relinquished by:    July 1600 Main Date: Time: Relinquished by:   Main Main Main Main Main Main Main Main	Received by: Via: Date Time    July   1600   Received by: Via: Date Time   Ourse   Our	Remarks:









## **Login Sample Receipt Checklist**

Client: Hilcorp Energy Job Number: 885-11899-1

Login Number: 11899 List Source: Eurofins Albuquerque

List Number: 1

Creator: McQuiston, Steven

Creator: McQuiston, Steven		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Brandon Sinclair Hilcorp Energy PO BOX 4700 Farmington, New Mexico 87499

Generated 12/4/2024 4:19:29 PM Revision 1

# **JOB DESCRIPTION**

**OH Randal 5** 

# **JOB NUMBER**

885-15595-1

Eurofins Albuquerque 4901 Hawkins NE Albuquerque NM 87109

# **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

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Authorized for release by Michelle Garcia, Project Manager michelle.garcia@et.eurofinsus.com (505)345-3975

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Client: Hilcorp Energy
Laboratory Job ID: 885-15595-1
Project/Site: OH Randal 5

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# **Definitions/Glossary**

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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#### **Qualifiers**

**GC/MS VOA** 

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

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#### **Case Narrative**

Client: Hilcorp Energy Job ID: 885-15595-1 Project: OH Randal 5

Job ID: 885-15595-1 **Eurofins Albuquerque** 

> Job Narrative 885-15595-1

#### REVISION

The report being provided is a revision of the original report sent on 12/2/2024. The report (revision 1) is being revised due to The GRO Dilution factor has been updated in this report...

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 and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided 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 11/20/2024 6:35 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°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: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

Lab Sample ID: 885-15595-1 Client Sample ID: Skid 1

Date Collected: 11/18/24 15:00 Matrix: Air

Date Received: 11/20/24 06:35 Sample Container: Tedlar Bag 1L

	Method: SW846 8015M/D - Nonhald	ogenated (	Organics us	sing GC/MS	-Modified (G	3asoline F	Range Or	ganics)
1	Analyto	Posult Our	alifior	DI	Unit	n	Dronarod	Analyz

Analyte	Result Quai	litier RL	Unit	ט	Prepared	Anaiyzed	DII Fac
Gasoline Range Organics [C6 -	16000	250	ug/L			11/22/24 15:02	50

C10]

Surrogate	%Recovery Qualifier	Limits	Prepared A	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	84	52 - 172	11/2	22/24 15:02	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 ND	0.50	ug/L			11/20/24 15:06	- 5
1,1,1-Trichloroethane	ND	0.50	ug/L			11/20/24 15:06	5
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L			11/20/24 15:06	5
1,1,2-Trichloroethane	ND	0.50	ug/L			11/20/24 15:06	5
1,1-Dichloroethane	ND	0.50	ug/L			11/20/24 15:06	5
1,1-Dichloroethene	ND	0.50	ug/L			11/20/24 15:06	5
1,1-Dichloropropene	ND	0.50	ug/L			11/20/24 15:06	5
1,2,3-Trichlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
1,2,3-Trichloropropane	ND	1.0	ug/L			11/20/24 15:06	5
1,2,4-Trichlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
1,2,4-Trimethylbenzene	2.4	0.50	ug/L			11/20/24 15:06	5
1,2-Dibromo-3-Chloropropane	ND	1.0	ug/L			11/20/24 15:06	5
1,2-Dibromoethane (EDB)	ND	0.50	ug/L			11/20/24 15:06	5
1,2-Dichlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
1,2-Dichloroethane (EDC)	ND	0.50	ug/L			11/20/24 15:06	5
1,2-Dichloropropane	ND	0.50	ug/L			11/20/24 15:06	5
1,3,5-Trimethylbenzene	2.6	0.50	ug/L			11/20/24 15:06	5
1,3-Dichlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
1,3-Dichloropropane	ND	0.50	ug/L			11/20/24 15:06	5
1,4-Dichlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
1-Methylnaphthalene	ND	2.0	ug/L			11/20/24 15:06	5
2,2-Dichloropropane	ND	1.0	ug/L			11/20/24 15:06	5
2-Butanone	ND	5.0	ug/L			11/20/24 15:06	5
2-Chlorotoluene	ND	0.50	ug/L			11/20/24 15:06	5
2-Hexanone	ND	5.0	ug/L			11/20/24 15:06	5
2-Methylnaphthalene	ND	2.0	ug/L			11/20/24 15:06	5
4-Chlorotoluene	ND	0.50	ug/L			11/20/24 15:06	5
4-Isopropyltoluene	ND	0.50	ug/L			11/20/24 15:06	5
4-Methyl-2-pentanone	ND	5.0	ug/L			11/20/24 15:06	5
Acetone	ND	5.0	ug/L			11/20/24 15:06	5
Benzene	160	5.0	ug/L			11/22/24 15:02	50
Bromobenzene	ND	0.50	ug/L			11/20/24 15:06	5
Bromodichloromethane	8.2	0.50	ug/L			11/20/24 15:06	5
Dibromochloromethane	ND	0.50	ug/L			11/20/24 15:06	5
Bromoform	ND	0.50	ug/L			11/20/24 15:06	5
Bromomethane	ND	1.5	ug/L			11/20/24 15:06	5
Carbon disulfide	ND	5.0	ug/L			11/20/24 15:06	5
Carbon tetrachloride	ND	0.50	ug/L			11/20/24 15:06	5
Chlorobenzene	ND	0.50	ug/L			11/20/24 15:06	5
Chloroethane	ND	1.0	ug/L			11/20/24 15:06	5
Chloroform	ND	0.50	ug/L			11/20/24 15:06	5

Job ID: 885-15595-1

Client: Hilcorp Energy Project/Site: OH Randal 5

Client Sample ID: Skid 1

Lab Sample ID: 885-15595-1

Matrix: Air

Date Collected: 11/18/24 15:00 Date Received: 11/20/24 06:35 Sample Container: Tedlar Bag 1L

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND ND	1.5	ug/L		-	11/20/24 15:06	5
cis-1,2-Dichloroethene	ND	0.50	ug/L			11/20/24 15:06	5
cis-1,3-Dichloropropene	ND	0.50	ug/L			11/20/24 15:06	5
Dibromomethane	ND	0.50	ug/L			11/20/24 15:06	5
Dichlorodifluoromethane	ND	0.50	ug/L			11/20/24 15:06	5
Ethylbenzene	<b>22</b>	0.50	ug/L			11/20/24 15:06	5
Hexachlorobutadiene	ND	0.50	ug/L			11/20/24 15:06	5
Isopropylbenzene	1.7	0.50	ug/L			11/20/24 15:06	5
Methyl-tert-butyl Ether (MTBE)	ND	0.50	ug/L			11/20/24 15:06	5
Methylene Chloride	ND	1.5	ug/L			11/20/24 15:06	5
n-Butylbenzene	ND	1.5	ug/L			11/20/24 15:06	5
N-Propylbenzene	1.3	0.50	ug/L			11/20/24 15:06	5
Naphthalene	ND	1.0	ug/L			11/20/24 15:06	5
sec-Butylbenzene	ND	0.50	ug/L			11/20/24 15:06	5
Styrene	ND	0.50	ug/L			11/20/24 15:06	5
tert-Butylbenzene	ND	0.50	ug/L			11/20/24 15:06	5
Tetrachloroethene (PCE)	ND	0.50	ug/L			11/20/24 15:06	5
Toluene	430	5.0	ug/L			11/22/24 15:02	50
trans-1,2-Dichloroethene	ND	0.50	ug/L			11/20/24 15:06	5
trans-1,3-Dichloropropene	ND	0.50	ug/L			11/20/24 15:06	5
Trichloroethene (TCE)	ND	0.50	ug/L			11/20/24 15:06	5
Trichlorofluoromethane	ND	0.50	ug/L			11/20/24 15:06	5
Vinyl chloride	ND	0.50	ug/L			11/20/24 15:06	5
Xylenes, Total	89	7.5	ug/L			11/22/24 15:02	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 130		11/20/24 15:06	5
1,2-Dichloroethane-d4 (Surr)	91		70 - 130		11/22/24 15:02	50
Toluene-d8 (Surr)	218	S1+	70 - 130		11/20/24 15:06	5
Toluene-d8 (Surr)	110		70 - 130		11/22/24 15:02	50
4-Bromofluorobenzene (Surr)	114		70 - 130		11/20/24 15:06	5
4-Bromofluorobenzene (Surr)	96		70 - 130		11/22/24 15:02	50
Dibromofluoromethane (Surr)	98		70 - 130		11/20/24 15:06	5
Dibromofluoromethane (Surr)	95		70 - 130		11/22/24 15:02	50

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Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

Client Sample ID: Skid 2 Lab Sample ID: 885-15595-2

Date Collected: 11/18/24 15:15 Matrix: Air

Date Received: 11/20/24 06:35
Sample Container: Tedlar Bag 1L

ı	Method: SW846 8015M/D - Nonhal	ogenated Or	rganics using	g GC/MS -Mod	litied (Gaso	line R	lange Org	anics)
1	A 1.4							

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 -	4900	250	ug/L			11/20/24 15:30	50

C10]

Surrogate	%Recovery Qualifier	Limits	Prepared Analyze	d Dil Fac
4-Bromofluorobenzene (Surr)	84	52 - 172	11/20/24 13	5:30 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 ND	5.0	ug/L			11/20/24 15:30	50
1,1,1-Trichloroethane	ND	5.0	ug/L			11/20/24 15:30	50
1,1,2,2-Tetrachloroethane	ND	10	ug/L			11/20/24 15:30	50
1,1,2-Trichloroethane	ND	5.0	ug/L			11/20/24 15:30	50
1,1-Dichloroethane	ND	5.0	ug/L			11/20/24 15:30	50
1,1-Dichloroethene	ND	5.0	ug/L			11/20/24 15:30	50
1,1-Dichloropropene	ND	5.0	ug/L			11/20/24 15:30	50
1,2,3-Trichlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,2,3-Trichloropropane	ND	10	ug/L			11/20/24 15:30	50
1,2,4-Trichlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,2,4-Trimethylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,2-Dibromo-3-Chloropropane	ND	10	ug/L			11/20/24 15:30	50
1,2-Dibromoethane (EDB)	ND	5.0	ug/L			11/20/24 15:30	50
1,2-Dichlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,2-Dichloroethane (EDC)	ND	5.0	ug/L			11/20/24 15:30	50
1,2-Dichloropropane	6.8	5.0	ug/L			11/20/24 15:30	50
1,3,5-Trimethylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,3-Dichlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
1,3-Dichloropropane	ND	5.0	ug/L			11/20/24 15:30	50
1,4-Dichlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
1-Methylnaphthalene	ND	20	ug/L			11/20/24 15:30	50
2,2-Dichloropropane	ND	10	ug/L			11/20/24 15:30	50
2-Butanone	ND	50	ug/L			11/20/24 15:30	50
2-Chlorotoluene	ND	5.0	ug/L			11/20/24 15:30	50
2-Hexanone	ND	50	ug/L			11/20/24 15:30	50
2-Methylnaphthalene	ND	20	ug/L			11/20/24 15:30	50
4-Chlorotoluene	ND	5.0	ug/L			11/20/24 15:30	50
4-Isopropyltoluene	ND	5.0	ug/L			11/20/24 15:30	50
4-Methyl-2-pentanone	ND	50	ug/L			11/20/24 15:30	50
Acetone	ND	50	ug/L			11/20/24 15:30	50
Benzene	48	5.0	ug/L			11/20/24 15:30	50
Bromobenzene	ND	5.0	ug/L			11/20/24 15:30	50
Bromodichloromethane	ND	5.0	ug/L			11/20/24 15:30	50
Dibromochloromethane	ND	5.0	ug/L			11/20/24 15:30	50
Bromoform	ND	5.0	ug/L			11/20/24 15:30	50
Bromomethane	ND	15	ug/L			11/20/24 15:30	50
Carbon disulfide	ND	50	ug/L			11/20/24 15:30	50
Carbon tetrachloride	ND	5.0	ug/L			11/20/24 15:30	50
Chlorobenzene	ND	5.0	ug/L			11/20/24 15:30	50
Chloroethane	ND	10	ug/L			11/20/24 15:30	50
Chloroform	ND	5.0	ug/L			11/20/24 15:30	50

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Job ID: 885-15595-1

Client: Hilcorp Energy Project/Site: OH Randal 5

Client Sample ID: Skid 2

Lab Sample ID: 885-15595-2

Matrix: Air

Date Collected: 11/18/24 15:15 Date Received: 11/20/24 06:35 Sample Container: Tedlar Bag 1L

Method: SW846 8260B - Vola Analyte	Result Qualifier	` RL´ `	Uniť	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND —	15	ug/L			11/20/24 15:30	50
cis-1,2-Dichloroethene	ND	5.0	ug/L			11/20/24 15:30	50
cis-1,3-Dichloropropene	ND	5.0	ug/L			11/20/24 15:30	50
Dibromomethane	ND	5.0	ug/L			11/20/24 15:30	50
Dichlorodifluoromethane	ND	5.0	ug/L			11/20/24 15:30	50
Ethylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
Hexachlorobutadiene	ND	5.0	ug/L			11/20/24 15:30	50
Isopropylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
Methyl-tert-butyl Ether (MTBE)	ND	5.0	ug/L			11/20/24 15:30	50
Methylene Chloride	ND	15	ug/L			11/20/24 15:30	50
n-Butylbenzene	ND	15	ug/L			11/20/24 15:30	50
N-Propylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
Naphthalene	ND	10	ug/L			11/20/24 15:30	50
sec-Butylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
Styrene	ND	5.0	ug/L			11/20/24 15:30	50
tert-Butylbenzene	ND	5.0	ug/L			11/20/24 15:30	50
Tetrachloroethene (PCE)	ND	5.0	ug/L			11/20/24 15:30	50
Toluene	140	5.0	ug/L			11/20/24 15:30	50
trans-1,2-Dichloroethene	ND	5.0	ug/L			11/20/24 15:30	50
trans-1,3-Dichloropropene	ND	5.0	ug/L			11/20/24 15:30	50
Trichloroethene (TCE)	ND	5.0	ug/L			11/20/24 15:30	50
Trichlorofluoromethane	ND	5.0	ug/L			11/20/24 15:30	50
Vinyl chloride	ND	5.0	ug/L			11/20/24 15:30	50
Xylenes, Total	25	7.5	ug/L			11/20/24 15:30	50

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84	70 - 130		11/20/24 15:30	50
Toluene-d8 (Surr)	108	70 - 130		11/20/24 15:30	50
4-Bromofluorobenzene (Surr)	96	70 - 130		11/20/24 15:30	50
Dibromofluoromethane (Surr)	89	70 - 130		11/20/24 15:30	50

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

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

Lab Sample ID: MB 885-16400/4

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

**Matrix: Air** 

**Analysis Batch: 16400** 

	MB N	MB						
Analyte	Result C	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0	ug/L			11/20/24 13:28	1

	IVI D IVI	/ID				
Surrogate	%Recovery Q	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	83		52 - 172		11/20/24 13:28	1

Lab Sample ID: LCS 885-16400/3 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Matrix: Air** 

**Analysis Batch: 16400** 

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics [C6 -	4250	4710		ug/L		111	70 - 130	

C10]

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		52 - 172

Lab Sample ID: MB 885-16598/4 Client Sample ID: Method Blank **Prep Type: Total/NA** 

Matrix: Air

**Analysis Batch: 16598** 

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND	5.0	ug/L			11/22/24 14:38	1

MB MB

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		52 - 172		11/22/24 14:38	1

Lab Sample ID: LCS 885-16598/3 **Client Sample ID: Lab Control Sample** Matrix: Air Prep Type: Total/NA

**Analysis Batch: 16598** 

ı		эріке	LCS LCS				%Rec	
	Analyte	Added	Result Quali	fier Unit	D	%Rec	Limits	
	Gasoline Range Organics [C6 -	4250	4260	ug/L		100	70 - 130	

C10]

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	87	52 - 172

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

Lab Sample ID: MB 885-16277/1005 **Client Sample ID: Method Blank** Prep Type: Total/NA

**Matrix: Air** 

**Analysis Batch: 16277** 

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	MB MB						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND	0.10	ug/L			11/20/24 13:28	1
1,1,1-Trichloroethane	ND	0.10	ug/L			11/20/24 13:28	1
1,1,2,2-Tetrachloroethane	ND	0.20	ug/L			11/20/24 13:28	1
1,1,2-Trichloroethane	ND	0.10	ug/L			11/20/24 13:28	1

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

Lab Sample ID: MB 885-16277/1005

**Matrix: Air** 

**Analysis Batch: 16277** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

• • •	MB MB			_			-··-
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
1,1-Dichloroethane	ND	0.10	ug/L			11/20/24 13:28	•
1,1-Dichloroethene	ND	0.10	ug/L			11/20/24 13:28	
1,1-Dichloropropene	ND	0.10	ug/L			11/20/24 13:28	•
1,2,3-Trichlorobenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,2,3-Trichloropropane	ND	0.20	ug/L			11/20/24 13:28	
1,2,4-Trichlorobenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,2,4-Trimethylbenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,2-Dibromo-3-Chloropropane	ND	0.20	ug/L			11/20/24 13:28	
1,2-Dibromoethane (EDB)	ND	0.10	ug/L			11/20/24 13:28	•
1,2-Dichlorobenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,2-Dichloroethane (EDC)	ND	0.10	ug/L			11/20/24 13:28	
1,2-Dichloropropane	ND	0.10	ug/L			11/20/24 13:28	•
1,3,5-Trimethylbenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,3-Dichlorobenzene	ND	0.10	ug/L			11/20/24 13:28	•
1,3-Dichloropropane	ND	0.10	ug/L			11/20/24 13:28	
1,4-Dichlorobenzene	ND	0.10	ug/L			11/20/24 13:28	
1-Methylnaphthalene	ND	0.40	ug/L			11/20/24 13:28	
2,2-Dichloropropane	ND	0.20	ug/L			11/20/24 13:28	
2-Butanone	ND	1.0	ug/L			11/20/24 13:28	•
2-Chlorotoluene	ND	0.10	ug/L			11/20/24 13:28	
2-Hexanone	ND	1.0	ug/L			11/20/24 13:28	
2-Methylnaphthalene	ND	0.40	ug/L			11/20/24 13:28	
4-Chlorotoluene	ND	0.10	ug/L			11/20/24 13:28	
4-Isopropyltoluene	ND	0.10	ug/L			11/20/24 13:28	
4-Methyl-2-pentanone	ND	1.0	ug/L			11/20/24 13:28	
Acetone	ND	1.0	ug/L			11/20/24 13:28	
Benzene	ND	0.10	ug/L			11/20/24 13:28	
Bromobenzene	ND	0.10	ug/L			11/20/24 13:28	
Bromodichloromethane	ND	0.10	ug/L			11/20/24 13:28	
Dibromochloromethane	ND	0.10	ug/L			11/20/24 13:28	
Bromoform	ND	0.10	ug/L			11/20/24 13:28	
Bromomethane	ND	0.30	ug/L			11/20/24 13:28	
Carbon disulfide	ND	1.0	ug/L			11/20/24 13:28	
Carbon tetrachloride	ND	0.10	ug/L			11/20/24 13:28	
Chlorobenzene	ND	0.10	ug/L			11/20/24 13:28	
Chloroethane	ND	0.20	ug/L			11/20/24 13:28	
Chloroform	ND	0.10	ug/L			11/20/24 13:28	
Chloromethane	ND	0.30	ug/L			11/20/24 13:28	
cis-1,2-Dichloroethene	ND	0.10	ug/L			11/20/24 13:28	
cis-1,3-Dichloropropene	ND	0.10	ug/L			11/20/24 13:28	
Dibromomethane	ND	0.10	ug/L			11/20/24 13:28	
Dichlorodifluoromethane	ND	0.10	ug/L			11/20/24 13:28	
Ethylbenzene	ND	0.10				11/20/24 13:28	
Hexachlorobutadiene	ND ND	0.10	ug/L ug/L			11/20/24 13:28	
Isopropylbenzene	ND	0.10	ug/L ug/L			11/20/24 13:28	· · · · · · .
Methyl-tert-butyl Ether (MTBE)	ND ND	0.10				11/20/24 13:28	
• • • • •	ND		ug/L				
Methylene Chloride		0.30	ug/L			11/20/24 13:28	
n-Butylbenzene	ND	0.30	ug/L			11/20/24 13:28	•
N-Propylbenzene	ND	0.10	ug/L			11/20/24 13:28	•

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

Lab Sample ID: MB 885-16277/1005

Matrix: Air

**Analysis Batch: 16277** 

Client Sample ID: Method Blank

Prep Type: Total/NA

MB MB Analyte Result Qualifier RL Unit **Prepared** Analyzed Dil Fac Naphthalene ND 0.20 ug/L 11/20/24 13:28 sec-Butylbenzene ND 0.10 ug/L 11/20/24 13:28 ND 11/20/24 13:28 Styrene 0.10 ug/L tert-Butylbenzene ND 0.10 ug/L 11/20/24 13:28 Tetrachloroethene (PCE) ND 0.10 ug/L 11/20/24 13:28 Toluene ND 0.10 ug/L 11/20/24 13:28 trans-1,2-Dichloroethene ND 0.10 ug/L 11/20/24 13:28 ND 0.10 ug/L trans-1,3-Dichloropropene 11/20/24 13:28 Trichloroethene (TCE) ND 0.10 ug/L 11/20/24 13:28 Trichlorofluoromethane ND 0.10 ug/L 11/20/24 13:28 Vinyl chloride ND 0.10 ug/L 11/20/24 13:28 ND Xylenes, Total ug/L 11/20/24 13:28 0.15

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		70 - 130	<del></del>	11/20/24 13:28	1
Toluene-d8 (Surr)	115		70 - 130		11/20/24 13:28	1
4-Bromofluorobenzene (Surr)	94		70 - 130		11/20/24 13:28	1
Dibromofluoromethane (Surr)	101		70 - 130		11/20/24 13:28	1

Lab Sample ID: MB 885-16277/5

**Matrix: Air** 

**Analysis Batch: 16277** 

Client Sample ID: Method Blank

**Prep Type: Total/NA** 

rich Type. Te

Analysis Batch. 10277	MB MB					
Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane		1.0	ug/L		11/20/24 13:28	1
1,1,1-Trichloroethane	ND	1.0	ug/L		11/20/24 13:28	1
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L		11/20/24 13:28	1
1,1,2-Trichloroethane	ND	1.0	ug/L		11/20/24 13:28	1
1,1-Dichloroethane	ND	1.0	ug/L		11/20/24 13:28	1
1,1-Dichloroethene	ND	1.0	ug/L		11/20/24 13:28	1
1,1-Dichloropropene	ND	1.0	ug/L		11/20/24 13:28	1
1,2,3-Trichlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,2,3-Trichloropropane	ND	2.0	ug/L		11/20/24 13:28	1
1,2,4-Trichlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,2,4-Trimethylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,2-Dibromo-3-Chloropropane	ND	2.0	ug/L		11/20/24 13:28	1
1,2-Dibromoethane (EDB)	ND	1.0	ug/L		11/20/24 13:28	1
1,2-Dichlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,2-Dichloroethane (EDC)	ND	1.0	ug/L		11/20/24 13:28	1
1,2-Dichloropropane	ND	1.0	ug/L		11/20/24 13:28	1
1,3,5-Trimethylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,3-Dichlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
1,3-Dichloropropane	ND	1.0	ug/L		11/20/24 13:28	1
1,4-Dichlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
1-Methylnaphthalene	ND	4.0	ug/L		11/20/24 13:28	1
2,2-Dichloropropane	ND	2.0	ug/L		11/20/24 13:28	1
2-Butanone	ND	10	ug/L		11/20/24 13:28	1
2-Chlorotoluene	ND	1.0	ug/L		11/20/24 13:28	1

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Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

MB MB

Lab Sample ID: MB 885-16277/5

**Matrix: Air** 

**Analysis Batch: 16277** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fac
2-Hexanone	ND -	10	ug/L	<u> </u>	11/20/24 13:28	1
2-Methylnaphthalene	ND	4.0	ug/L		11/20/24 13:28	1
4-Chlorotoluene	ND	1.0	ug/L		11/20/24 13:28	1
4-Isopropyltoluene	ND	1.0	ug/L		11/20/24 13:28	1
4-Methyl-2-pentanone	ND	10	ug/L		11/20/24 13:28	1
Acetone	ND	10	ug/L		11/20/24 13:28	1
Benzene	ND	1.0	ug/L		11/20/24 13:28	1
Bromobenzene	ND	1.0	ug/L		11/20/24 13:28	1
Bromodichloromethane	ND	1.0	ug/L		11/20/24 13:28	1
Dibromochloromethane	ND	1.0	ug/L		11/20/24 13:28	1
Bromoform	ND	1.0	ug/L		11/20/24 13:28	1
Bromomethane	ND	3.0	ug/L		11/20/24 13:28	1
Carbon disulfide	ND	10	ug/L		11/20/24 13:28	1
Carbon tetrachloride	ND	1.0	ug/L		11/20/24 13:28	1
Chlorobenzene	ND	1.0	ug/L		11/20/24 13:28	1
Chloroethane	ND	2.0	ug/L		11/20/24 13:28	1
Chloroform	ND	1.0	ug/L		11/20/24 13:28	1
Chloromethane	ND	3.0	ug/L		11/20/24 13:28	1
cis-1,2-Dichloroethene	ND	1.0	ug/L		11/20/24 13:28	1
cis-1,3-Dichloropropene	ND	1.0	ug/L		11/20/24 13:28	1
Dibromomethane	ND	1.0	ug/L		11/20/24 13:28	1
Dichlorodifluoromethane	ND	1.0	ug/L		11/20/24 13:28	1
Ethylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
Hexachlorobutadiene	ND	1.0	ug/L		11/20/24 13:28	1
Isopropylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
Methyl-tert-butyl Ether (MTBE)	ND	1.0	ug/L		11/20/24 13:28	1
Methylene Chloride	ND	3.0	ug/L		11/20/24 13:28	1
n-Butylbenzene	ND	3.0	ug/L		11/20/24 13:28	1
N-Propylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
Naphthalene	ND	2.0	ug/L		11/20/24 13:28	1
sec-Butylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
Styrene	ND	1.0	ug/L		11/20/24 13:28	1
tert-Butylbenzene	ND	1.0	ug/L		11/20/24 13:28	1
Tetrachloroethene (PCE)	ND	1.0	ug/L		11/20/24 13:28	1
Toluene	ND	1.0	ug/L		11/20/24 13:28	1
trans-1,2-Dichloroethene	ND	1.0	ug/L		11/20/24 13:28	1
trans-1,3-Dichloropropene	ND	1.0	ug/L		11/20/24 13:28	1
Trichloroethene (TCE)	ND	1.0	ug/L		11/20/24 13:28	1
Trichlorofluoromethane	ND	1.0	ug/L		11/20/24 13:28	1
Vinyl chloride	ND	1.0	ug/L		11/20/24 13:28	1
Xylenes, Total	ND	1.5	ug/L		11/20/24 13:28	1

MB MB

١,	Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
-	1,2-Dichloroethane-d4 (Surr)	99		70 - 130	_		11/20/24 13:28	1
	Toluene-d8 (Surr)	115		70 - 130			11/20/24 13:28	1
١.	4-Bromofluorobenzene (Surr)	94		70 - 130			11/20/24 13:28	1
1	Dibromofluoromethane (Surr)	101		70 - 130			11/20/24 13:28	1

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Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

Lab Sample ID: LCS 885-16277/4

**Matrix: Air** 

**Analysis Batch: 16277** 

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** %Rec

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.1	18.7		ug/L		93	70 - 130	
Benzene	20.1	19.7		ug/L		98	70 - 130	
Chlorobenzene	20.1	20.0		ug/L		100	70 - 130	
Toluene	20.2	19.6		ug/L		97	70 - 130	
Trichloroethene (TCE)	20.2	18.3		ug/L		91	70 - 130	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		70 - 130
Toluene-d8 (Surr)	97		70 - 130
4-Bromofluorobenzene (Surr)	82		70 - 130
Dibromofluoromethane (Surr)	98		70 - 130

Client Sample ID: Method Blank

**Prep Type: Total/NA** 

Lab Sample ID: MB 885-16467/1006 **Matrix: Air** 

**Analysis Batch: 16467** 

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.10	ug/L			11/22/24 14:38	1
1,1,1-Trichloroethane	ND		0.10	ug/L			11/22/24 14:38	1
1,1,2,2-Tetrachloroethane	ND		0.20	ug/L			11/22/24 14:38	1
1,1,2-Trichloroethane	ND		0.10	ug/L			11/22/24 14:38	1
1,1-Dichloroethane	ND		0.10	ug/L			11/22/24 14:38	1
1,1-Dichloroethene	ND		0.10	ug/L			11/22/24 14:38	1
1,1-Dichloropropene	ND		0.10	ug/L			11/22/24 14:38	1
1,2,3-Trichlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,2,3-Trichloropropane	ND		0.20	ug/L			11/22/24 14:38	1
1,2,4-Trichlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,2,4-Trimethylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,2-Dibromo-3-Chloropropane	ND		0.20	ug/L			11/22/24 14:38	1
1,2-Dibromoethane (EDB)	ND		0.10	ug/L			11/22/24 14:38	1
1,2-Dichlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,2-Dichloroethane (EDC)	ND		0.10	ug/L			11/22/24 14:38	1
1,2-Dichloropropane	ND		0.10	ug/L			11/22/24 14:38	1
1,3,5-Trimethylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,3-Dichlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
1,3-Dichloropropane	ND		0.10	ug/L			11/22/24 14:38	1
1,4-Dichlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
1-Methylnaphthalene	ND		0.40	ug/L			11/22/24 14:38	1
2,2-Dichloropropane	ND		0.20	ug/L			11/22/24 14:38	1
2-Butanone	ND		1.0	ug/L			11/22/24 14:38	1
2-Chlorotoluene	ND		0.10	ug/L			11/22/24 14:38	1
2-Hexanone	ND		1.0	ug/L			11/22/24 14:38	1
2-Methylnaphthalene	ND		0.40	ug/L			11/22/24 14:38	1
4-Chlorotoluene	ND		0.10	ug/L			11/22/24 14:38	1
4-Isopropyltoluene	ND		0.10	ug/L			11/22/24 14:38	1
4-Methyl-2-pentanone	ND		1.0	ug/L			11/22/24 14:38	1
Acetone	ND		1.0	ug/L			11/22/24 14:38	1
Benzene	ND		0.10	ug/L			11/22/24 14:38	1

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

MB MB

Lab Sample ID: MB 885-16467/1006 **Matrix: Air** 

**Analysis Batch: 16467** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	Result C	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromobenzene	ND -	<u> </u>	0.10	ug/L		•	11/22/24 14:38	1
Bromodichloromethane	ND		0.10	ug/L			11/22/24 14:38	1
Dibromochloromethane	ND		0.10	ug/L			11/22/24 14:38	1
Bromoform	ND		0.10	ug/L			11/22/24 14:38	1
Bromomethane	ND		0.30	ug/L			11/22/24 14:38	1
Carbon disulfide	ND		1.0	ug/L			11/22/24 14:38	1
Carbon tetrachloride	ND		0.10	ug/L			11/22/24 14:38	1
Chlorobenzene	ND		0.10	ug/L			11/22/24 14:38	1
Chloroethane	ND		0.20	ug/L			11/22/24 14:38	1
Chloroform	ND		0.10	ug/L			11/22/24 14:38	1
Chloromethane	ND		0.30	ug/L			11/22/24 14:38	1
cis-1,2-Dichloroethene	ND		0.10	ug/L			11/22/24 14:38	1
cis-1,3-Dichloropropene	ND		0.10	ug/L			11/22/24 14:38	1
Dibromomethane	ND		0.10	ug/L			11/22/24 14:38	1
Dichlorodifluoromethane	ND		0.10	ug/L			11/22/24 14:38	1
Ethylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
Hexachlorobutadiene	ND		0.10	ug/L			11/22/24 14:38	1
Isopropylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
Methyl-tert-butyl Ether (MTBE)	ND		0.10	ug/L			11/22/24 14:38	1
Methylene Chloride	ND		0.30	ug/L			11/22/24 14:38	1
n-Butylbenzene	ND		0.30	ug/L			11/22/24 14:38	1
N-Propylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
Naphthalene	ND		0.20	ug/L			11/22/24 14:38	1
sec-Butylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
Styrene	ND		0.10	ug/L			11/22/24 14:38	1
tert-Butylbenzene	ND		0.10	ug/L			11/22/24 14:38	1
Tetrachloroethene (PCE)	ND		0.10	ug/L			11/22/24 14:38	1
Toluene	ND		0.10	ug/L			11/22/24 14:38	1
trans-1,2-Dichloroethene	ND		0.10	ug/L			11/22/24 14:38	1
trans-1,3-Dichloropropene	ND		0.10	ug/L			11/22/24 14:38	1
Trichloroethene (TCE)	ND		0.10	ug/L			11/22/24 14:38	1
Trichlorofluoromethane	ND		0.10	ug/L			11/22/24 14:38	1
Vinyl chloride	ND		0.10	ug/L			11/22/24 14:38	1
Xylenes, Total	ND		0.15	ug/L			11/22/24 14:38	1

1D	MD
IID	IVID

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		70 - 130		1/22/24 14:38	1
Toluene-d8 (Surr)	93		70 - 130	1	1/22/24 14:38	1
4-Bromofluorobenzene (Surr)	91		70 - 130	1	1/22/24 14:38	1
Dibromofluoromethane (Surr)	108		70 - 130	1	1/22/24 14:38	1

Lab Sample ID: MB 885-16467/6

**Matrix: Air** 

**Analysis Batch: 16467** 

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

	MR	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0	ug/L			11/22/24 14:38	1
1,1,1-Trichloroethane	ND		1.0	ug/L			11/22/24 14:38	1

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# **QC Sample Results**

Client: Hilcorp Energy Job ID: 885-15595-1 Project/Site: OH Randal 5

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

MB MB

Lab Sample ID: MB 885-16467/6

**Matrix: Air** 

**Analysis Batch: 16467** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

_		44/00/04 44 00		
ט	riepaieu	Allalyzeu	DII Fac	
D	Prepared	Analyzed	Dil Fac	

Analyte	Result Qualifier	RL	Unit	D Prepared	Analyzed	Dil Fa
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L	<del>_</del> - <del>_</del>	11/22/24 14:38	
1,1,2-Trichloroethane	ND	1.0	ug/L		11/22/24 14:38	
1,1-Dichloroethane	ND	1.0	ug/L		11/22/24 14:38	
1,1-Dichloroethene	ND	1.0	ug/L		11/22/24 14:38	
1,1-Dichloropropene	ND	1.0	ug/L		11/22/24 14:38	
1,2,3-Trichlorobenzene	ND	1.0	ug/L		11/22/24 14:38	
1,2,3-Trichloropropane	ND	2.0	ug/L		11/22/24 14:38	
1,2,4-Trichlorobenzene	ND	1.0	ug/L		11/22/24 14:38	
1,2,4-Trimethylbenzene	ND	1.0	ug/L		11/22/24 14:38	
1,2-Dibromo-3-Chloropropane	ND	2.0	ug/L		11/22/24 14:38	
1,2-Dibromoethane (EDB)	ND	1.0	ug/L		11/22/24 14:38	
1,2-Dichlorobenzene	ND	1.0	ug/L		11/22/24 14:38	
1,2-Dichloroethane (EDC)	ND	1.0	ug/L		11/22/24 14:38	
1,2-Dichloropropane	ND	1.0	ug/L		11/22/24 14:38	

1, 1,2,2- Tetracriloroetriane	IND	2.0	ug/L	11/22/24 14.30
1,1,2-Trichloroethane	ND	1.0	ug/L	11/22/24 14:38 1
1,1-Dichloroethane	ND	1.0	ug/L	11/22/24 14:38 1
1,1-Dichloroethene	ND	1.0	ug/L	11/22/24 14:38 1
1,1-Dichloropropene	ND	1.0	ug/L	11/22/24 14:38 1
1,2,3-Trichlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,2,3-Trichloropropane	ND	2.0	ug/L	11/22/24 14:38 1
1,2,4-Trichlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,2,4-Trimethylbenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,2-Dibromo-3-Chloropropane	ND	2.0	ug/L	11/22/24 14:38 1
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	11/22/24 14:38 1
1,2-Dichlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,2-Dichloroethane (EDC)	ND	1.0	ug/L	11/22/24 14:38 1
1,2-Dichloropropane	ND	1.0	ug/L	11/22/24 14:38 1
1,3,5-Trimethylbenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,3-Dichlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
1,3-Dichloropropane	ND	1.0	ug/L	11/22/24 14:38 1
1,4-Dichlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
1-Methylnaphthalene	ND	4.0	ug/L	11/22/24 14:38 1
2,2-Dichloropropane	ND	2.0	ug/L	11/22/24 14:38 1
2-Butanone	ND	10	ug/L	11/22/24 14:38 1
2-Chlorotoluene	ND	1.0	ug/L	11/22/24 14:38 1
2-Hexanone	ND	10	ug/L	11/22/24 14:38 1
2-Methylnaphthalene	ND	4.0	ug/L	11/22/24 14:38 1
4-Chlorotoluene	ND	1.0	ug/L	11/22/24 14:38 1
4-Isopropyltoluene	ND	1.0	ug/L	11/22/24 14:38 1
4-Methyl-2-pentanone	ND	10	ug/L	11/22/24 14:38 1
Acetone	ND	10	ug/L	11/22/24 14:38 1
Benzene	ND	1.0	ug/L	11/22/24 14:38 1
Bromobenzene	ND	1.0	ug/L	11/22/24 14:38 1
Bromodichloromethane	ND	1.0	ug/L	11/22/24 14:38 1
Dibromochloromethane	ND	1.0	ug/L	11/22/24 14:38 1
Bromoform	ND	1.0	ug/L	11/22/24 14:38 1
Bromomethane	ND	3.0	ug/L	11/22/24 14:38 1
Carbon disulfide	ND	10	ug/L	11/22/24 14:38 1
Carbon tetrachloride	ND	1.0	ug/L	11/22/24 14:38 1
Chlorobenzene	ND	1.0	ug/L	11/22/24 14:38 1
Chloroethane	ND	2.0	ug/L	11/22/24 14:38 1
Chloroform	ND	1.0	ug/L	11/22/24 14:38 1
Chloromethane	ND	3.0	ug/L	11/22/24 14:38 1
cis-1,2-Dichloroethene	ND	1.0	ug/L	11/22/24 14:38 1
cis-1,3-Dichloropropene	ND	1.0	ug/L	11/22/24 14:38 1
Dibromomethane	ND	1.0	ug/L	11/22/24 14:38 1
Dichlorodifluoromethane	ND			
Ethylbenzene	ND ND	1.0 1.0	ug/L	11/22/24 14:38 1 11/22/24 14:38 1
Hexachlorobutadiene	ND ND	1.0	ug/L	11/22/24 14:38 1
			ug/L	
Isopropylbenzene Methyl tort butyl Ether (MTRE)	ND ND	1.0	ug/L	11/22/24 14:38 1
Methyl-tert-butyl Ether (MTBE)	ND	1.0	ug/L	11/22/24 14:38 1

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

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

Lab Sample ID: MB 885-16467/6

**Matrix: Air** 

**Analysis Batch: 16467** 

Client Sample ID: Method Blank

Prep Type: Total/NA

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
n-Butylbenzene	ND		3.0	ug/L			11/22/24 14:38	1
N-Propylbenzene	ND		1.0	ug/L			11/22/24 14:38	1
Naphthalene	ND		2.0	ug/L			11/22/24 14:38	1
sec-Butylbenzene	ND		1.0	ug/L			11/22/24 14:38	1
Styrene	ND		1.0	ug/L			11/22/24 14:38	1
tert-Butylbenzene	ND		1.0	ug/L			11/22/24 14:38	1
Tetrachloroethene (PCE)	ND		1.0	ug/L			11/22/24 14:38	1
Toluene	ND		1.0	ug/L			11/22/24 14:38	1
trans-1,2-Dichloroethene	ND		1.0	ug/L			11/22/24 14:38	1
trans-1,3-Dichloropropene	ND		1.0	ug/L			11/22/24 14:38	1
Trichloroethene (TCE)	ND		1.0	ug/L			11/22/24 14:38	1
Trichlorofluoromethane	ND		1.0	ug/L			11/22/24 14:38	1
Vinyl chloride	ND		1.0	ug/L			11/22/24 14:38	1
Xylenes, Total	ND		1.5	ug/L			11/22/24 14:38	1

MB MB

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac	
1,2-Dichloroethane-d4 (Surr)	109	70 - 130		11/22/24 14:38	1	
Toluene-d8 (Surr)	93	70 - 130		11/22/24 14:38	1	
4-Bromofluorobenzene (Surr)	91	70 - 130		11/22/24 14:38	1	
Dibromofluoromethane (Surr)	108	70 - 130		11/22/24 14:38	1	

Lab Sample ID: LCS 885-16467/4

Released to Imaging: 2/7/2025 2:53:50 PM

**Matrix: Air** 

**Analysis Batch: 16467** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
1,1-Dichloroethene	20.1	20.0		ug/L		99	70 - 130	
Benzene	20.1	22.3		ug/L		111	70 - 130	
Chlorobenzene	20.1	19.6		ug/L		98	70 - 130	
Toluene	20.2	19.6		ug/L		97	70 - 130	
Trichloroethene (TCE)	20.2	20.1		ug/L		100	70 - 130	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		70 - 130
Toluene-d8 (Surr)	94		70 - 130
4-Bromofluorobenzene (Surr)	94		70 - 130
Dibromofluoromethane (Surr)	107		70 - 130

# **QC Association Summary**

Client: Hilcorp Energy

Job ID: 885-15595-1

Project/Site: OH Randal 5

# **GC/MS VOA**

#### **Analysis Batch: 16277**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15595-1	Skid 1	Total/NA	Air	8260B	
885-15595-2	Skid 2	Total/NA	Air	8260B	
MB 885-16277/1005	Method Blank	Total/NA	Air	8260B	
MB 885-16277/5	Method Blank	Total/NA	Air	8260B	
LCS 885-16277/4	Lab Control Sample	Total/NA	Air	8260B	

#### **Analysis Batch: 16400**

Lab Sample ID 885-15595-2	Client Sample ID Skid 2	Prep Type Total/NA	Matrix Air	Method 8015M/D	Prep Batch
MB 885-16400/4	Method Blank	Total/NA	Air	8015M/D	
LCS 885-16400/3	Lab Control Sample	Total/NA	Air	8015M/D	

#### **Analysis Batch: 16467**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15595-1	Skid 1	Total/NA	Air	8260B	
MB 885-16467/1006	Method Blank	Total/NA	Air	8260B	
MB 885-16467/6	Method Blank	Total/NA	Air	8260B	
LCS 885-16467/4	Lab Control Sample	Total/NA	Air	8260B	

#### **Analysis Batch: 16598**

<b>Lab Sample ID</b> 885-15595-1	Client Sample ID Skid 1	Prep Type Total/NA	Air	Method 8015M/D	Prep Batch
MB 885-16598/4	Method Blank	Total/NA	Air	8015M/D	
LCS 885-16598/3	Lab Control Sample	Total/NA	Air	8015M/D	

#### **Lab Chronicle**

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

Lab Sample ID: 885-15595-1 Client Sample ID: Skid 1 Date Collected: 11/18/24 15:00

Matrix: Air

Date Received: 11/20/24 06:35

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8015M/D		50	16598	CM	EET ALB	11/22/24 15:02
Total/NA	Analysis	8260B		5	16277	CM	EET ALB	11/20/24 15:06
Total/NA	Analysis	8260B		50	16467	CM	EET ALB	11/22/24 15:02

Client Sample ID: Skid 2 Lab Sample ID: 885-15595-2

Date Collected: 11/18/24 15:15 Matrix: Air

Date Received: 11/20/24 06:35

	Batch	Batch		Dilution	Batch			Prepared
Prep Type	Туре	Method	Run	Factor	Number	Analyst	Lab	or Analyzed
Total/NA	Analysis	8015M/D		50	16400	СМ	EET ALB	11/20/24 15:30
Total/NA	Analysis	8260B		50	16277	CM	EET ALB	11/20/24 15:30

**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 Job ID: 885-15595-1

Project/Site: OH Randal 5

#### **Laboratory: Eurofins Albuquerque**

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

Authority	Progr	am	Identification Number	Expiration Date	
New Mexico	State		NM9425, NM0901	02-26-25	
The following analyte	s are included in this repo	rt, but the laboratory is	not certified by the governing author	ity. This list may include analytes	
for which the agency	does not offer certification				
Analysis Method	Prep Method	Matrix	Analyte		
004EM/D		Air.	Casalina Danga Organia	- ICC C101	

Analysis Method	Prep Method	Matrix	Analyte
8015M/D		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 Job ID: 885-15595-1

Project/Site: OH Randal 5

### **Laboratory: Eurofins Albuquerque (Continued)**

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

for which the agency de	are included in this repo oes not offer certification	•	not certified by the governing authority. This list may include analy
• ,	oes not offer certification		st. st governing additionty. This het may include driving
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
egon	NELAI	Þ	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
8015M/D		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

Eurofins Albuquerque

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# **Accreditation/Certification Summary**

Client: Hilcorp Energy Job ID: 885-15595-1

Project/Site: OH Randal 5

#### **Laboratory: Eurofins Albuquerque (Continued)**

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

ority	Progra	am	Identification Number Expiration Date
The following analyte:	s are included in this repo	rt. but the laboratory is i	not certified by the governing authority. This list may include anal
	does not offer certification	•	, 3 3 , , ,
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

Eurofins Albuquerque

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#### ANALYTICAL SUMMARY REPORT

December 02, 2024

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

Work Order: B24111574 Quote ID: B15626

Project Name: OH Randal 5, 88501698

Energy Laboratories Inc Billings MT received the following 2 samples for Hall Environmental on 11/21/2024 for analysis.

Lab ID	Client Sample ID	Collect Date R	eceive Date	Matri x	Test
B24111574-001	Skid 1 (885-15595-1)	11/18/24 15:00	11/21/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist Free Natural Gas Analysis Specific Gravity @ 60/60
B24111574-002	Skid 2 (885-15595-2)	11/18/24 15:15	11/21/24	Air	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 So. 27th Street, 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.

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.

Billings, MT 406.252.6325 • Casper, WY 307.235.0515

Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

#### LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental Project: OH Randal 5, 88501698 Lab ID: B24111574-001

**Report Date:** 12/02/24 Collection Date: 11/18/24 15:00 DateReceived: 11/21/24 Client Sample ID: Skid 1 (885-15595-1) Matrix: Air

					MCL/		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS R	EPORT						
Oxygen	21.43	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Nitrogen	77.80	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Carbon Dioxide	0.46	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
n-Butane	0.01	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Isopentane	0.02	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
n-Pentane	0.02	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Hexanes plus	0.26	Mol %		0.01		GPA 2261-13	11/22/24 10:59 / jrj
Propane	< 0.001	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
Isobutane	< 0.001	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
n-Butane	0.003	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
Isopentane	0.007	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
n-Pentane	0.007	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
Hexanes plus	0.110	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
GPM Total	0.127	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
GPM Pentanes plus	0.124	gpm	(	0.001		GPA 2261-13	11/22/24 10:59 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	14			1		GPA 2261-13	11/22/24 10:59 / jrj
Net BTU per cu ft @ std cond. (LHV)	13			1		GPA 2261-13	11/22/24 10:59 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-13	11/22/24 10:59 / jrj
Pseudo-critical Temperature, deg R	242			1		GPA 2261-13	11/22/24 10:59 / jrj
Specific Gravity @ 60/60F	1.01		(	0.001		D3588-81	11/22/24 10:59 / jrj
Air, % - The analysis was not corrected for air.	97.89			0.01		GPA 2261-13	11/22/24 10:59 / jrj

**COMMENTS** 

- 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

RL - Analyte Reporting Limit Report **Definitions:** QCL - Quality Control Limit

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)

11/22/24 10:59 / jrj

#### LABORATORY ANALYTICAL REPORT Prepared by Billings, MT Branch

Client: Hall Environmental

Project: OH Randal 5, 88501698 Lab ID: B24111574-002 Client Sample ID: Skid 2 (885-15595-2)

**Report Date:** 12/02/24 Collection Date: 11/18/24 15:15 DateReceived: 11/21/24 Matrix: Air

					MCL/		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS	REPORT						
Oxygen	21.75	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Nitrogen	78.03	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Carbon Dioxide	0.15	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Hydrogen Sulfide	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Methane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Ethane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Propane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Isobutane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
n-Butane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Isopentane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
n-Pentane	< 0.01	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Hexanes plus	0.07	Mol %		0.01		GPA 2261-13	11/22/24 11:48 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
Hexanes plus	0.029	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
GPM Total	0.029	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
GPM Pentanes plus	0.029	gpm		0.001		GPA 2261-13	11/22/24 11:48 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	3			1		GPA 2261-13	11/22/24 11:48 / jrj
Net BTU per cu ft @ std cond. (LHV)	3			1		GPA 2261-13	11/22/24 11:48 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-13	11/22/24 11:48 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-13	11/22/24 11:48 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	11/22/24 11:48 / jrj
Air, % - The analysis was not corrected for air.	99.36			0.01		GPA 2261-13	11/22/24 11:48 / jrj
0014151170							

**COMMENTS** 

- 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

RL - Analyte Reporting Limit Report **Definitions:** 

QCL - Quality Control Limit

MCL - Maximum Contaminant Level

ND - Not detected at the Reporting Limit (RL)

Page 3 of 8 12/4/2024 (Rev. 1)

11/22/24 11:48 / jrj

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# **QA/QC Summary Report**

Prepared by Billings, MT Branch

Work Order: B24111574 Report Date: 12/02/24

Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	GPA 2261-13									Batch:	R432950
Lab ID:	B24111574-002ADUP	12 Sar	nple Duplic	ate			Run: GCNG	GA-B_241122A		11/22/	24 12:36
Oxygen			21.8	Mol %	0.01				0.1	20	
Nitrogen			78.0	Mol %	0.01				0	20	
Carbon D	ioxide		0.15	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	
Isopentan	е		<0.01	Mol %	0.01					20	
n-Pentane	e		<0.01	Mol %	0.01					20	
Hexanes <sub>l</sub>	plus		0.07	Mol %	0.01				0.0	20	
Lab ID:	LCS112224	11 Lab	oratory Co	ntrol Sample			Run: GCNG	SA-B_241122A		11/22	24 14:14
Oxygen			0.63	Mol %	0.01	126	70	130			
Nitrogen			5.95	Mol %	0.01	99	70	130			
Carbon D	ioxide		0.99	Mol %	0.01	100	70	130			
Methane			74.7	Mol %	0.01	100	70	130			
Ethane			6.02	Mol %	0.01	100	70	130			
Propane			5.03	Mol %	0.01	102	70	130			
Isobutane			1.79	Mol %	0.01	89	70	130			
n-Butane			2.00	Mol %	0.01	100	70	130			
Isopentan	е		1.04	Mol %	0.01	104	70	130			
n-Pentane	e		1.01	Mol %	0.01	101	70	130			
Hexanes <sub>I</sub>	plus		0.80	Mol %	0.01	100	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



# **Work Order Receipt Checklist**

# Hall Environmental B24111574

_ogin completed by:	Lyndsi E. LeProwse		Date	Received: 11/21/2024
Reviewed by:	dharris		Re	eceived by: CMJ
Reviewed Date:	11/25/2024		Ca	rrier name: FedEx NDA
Shipping container/cooler in	good condition?	Yes 🗸	No 🗌	Not Present
Custody seals intact on all s	hipping container(s)/cooler(s)?	Yes ✓	No 🗌	Not Present
Custody seals intact on all s	ample bottles?	Yes	No 🗌	Not Present ✓
Chain of custody present?		Yes √	No 🗌	
Chain of custody signed who	en relinquished and received?	Yes √	No 🗌	
Chain of custody agrees with	h sample labels?	Yes √	No 🗌	
Samples in proper container	/bottle?	Yes √	No 🗌	
Sample containers intact?		Yes 🗸	No 🗌	
Sufficient sample volume for	r indicated test?	Yes 🗸	No 🗌	
All samples received within I Exclude analyses that are c such as pH, DO, Res CI, Su	onsidered field parameters	Yes √	No 🗌	
Гетр Blank received in all s	hipping container(s)/cooler(s)?	Yes	No 🗸	Not Applicable
Container/Temp Blank temp	erature:	16.1°C No Ice		
Containers requiring zero he bubble that is <6mm (1/4").	adspace have no headspace or	Yes	No 🗌	No VOA vials submitted
Vater - 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.

Trip Blanks and/or Blind Duplicate samples are assigned the earliest collection time for the associated requested analysis in order to evaluate the holding time unless specifically indicated.

#### **Contact and Corrective Action Comments:**

None

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# Laboratory Certifications and Accreditations

Current certificates are available at <a href="https://www.energylab.com">www.energylab.com</a> website:

	Agency	Number		
	Alaska	17-023		
	California	3087		
	Colorado	MT00005		
	Department of Defense (DoD)/ISO17025	ADE-2588		
Billings, MT	Florida (Primary NELAP)	E87668		
	Idaho	MT00005		
a d	Louisiana	05079		
ANAB	Montana	CERT0044		
ARSI hamonsi Accinentation thore	Nebraska	NE-OS-13-04		
TESTING LARGRATORY	Nevada	NV-C24-00250		
ACCOR.	North Dakota	R-007		
	National Radon Proficiency	109383-RMP		
700	Oregon	4184		
PROMATOR	South Dakota	ARSD 74:04:07		
	Texas	TX-C24-00302		
	US EPA Region VIII	Reciprocal		
	USDA Soil Permit	P330-20-00170		
	Washington	C1039		
	Alaska	20-006		
	California	3021		
	Colorado	WY00002		
	Florida (Primary NELAP)	E87641		
	Idaho	WY00002		
	Louisiana	05083		
Casper, WY	Montana	CERT0002		
acceson.	Nebraska	NE-OS-08-04		
	Nevada	NV-C24-00245		
Magaros	North Dakota	R-125		
	Oregon	WY200001		
	South Dakota	WY00002		
	Texas	T104704181-23-21		
	US EPA Region VIII	WY00002		
	USNRC License	49-26846-01		
	Washington	C1012		
Gillette, WY	US EPA Region VIII	WY00006		
	Colorado	MT00945		
Helena, MT	Montana	CERT0079		
	Nevada	NV-C24-00119		
	US EPA Region VIII	Reciprocal		
	USDA Soil Permit	P330-20-00090		

**Eurofins Albuquerque** 

4901 Hawkins NE

Albuquerque, NM 87109 Phone: 505-345-3975 Fax: 505-345-4107

# **Chain of Custody Record**

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**Environment Testing** 

Client Information (Sub Contract Lab)	Sampler: N/A	N/A Gar				P PM: Carrier Traci arcia, Michelle N/A						Tracking N	lo(s):		COC No: 885-2889.1	
Client Contact: Shipping/Receiving	Phone: N/A						ail: State of Orig chelle.garcia@et.eurofinsus.com New Mexic								Page: Page 1 of 1	
Company: Energy Laboratories, Inc.									see note):	v Mexico		20.00			Job #:	
Address: 1120 South 27th Street,	Due Date Reques	ted:			1,12	-7 11	Oreg	On, Ota							885-15595-1 Preservation 0	odes:
City:	11/27/2024 TAT Requested (d	days):					1		Anal	sis R	equeste	d			*	
Billings State, Zip:		N/A	A										1 1			
MT, 59101	A STATE OF THE STA															
Phone: 406-252-6325(Tel)	PO #: N/A															
Email:	WO #:				Or No											
N/A Project Name:	N/A Project #:				S	ON JO	200							2		
OH Randal 5	88501698					88	Da l							taine		
Site: N/A	SSOW#: N/A				Sample	SID FINE MANAGED (Yes of No	1 N							5	Other:	
				Matrix	S pa		200							er of	N/A	
			Sample Type	(W=water,	- Ilter	Orm m	nax				11			Numb		
Sample Identification - Client ID (Lab ID)	Sample Date	Sample	(C=comp,	S=solid, O=waste/oil,		0 0	9							Total N		
Cliente (Cabio)	Sample Date	Time		BT=Tissue, A=AI ation Code:	·) i i	Z O	5							L <sub>c</sub>	Special	Instructions/Note
Skid 1 (885-15595-1)	11/18/24	15:00	G	Air	T	1,	(								See Attached In	structions
Skid 2 (885-15595-2)	11/18/24	Mountain 15:15	G	Air	+	-								1	See Attached In	
594420 1949 000 000 001	11/10/24	Mountain	G	All	+	)	(							1	See Attached III	structions
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lote: Since laboratory accreditations are subject to change, Eurofins Envi aboratory does not currently maintain accreditation in the State of Origin I	ironment Testing South Cent	ral, LLC place	s the ownersh	ip of method, a	nalyte &	accr	editatio	n complia	ance upor	our subc	ontract labo	ratories. T	his sample	shipmer	nt is forwarded und	er chain-of-custody If
sboratory does not currently maintain accreditation in the State of Origin I ccreditation status should be brought to Eurofins Environment Testing So	outh Central, LLC attention in	nmediately. If	analyzed, the all requested	samples must accreditations	be shipp are curre	ent to	ack to the date, n	e Eurofine Sturn the	ns Enviror signed C	nment Tes	ting South of stody attest	Central, LL ing to said	C laboratory compliance	or othe	er instructions will b	e provided. Any change
Possible Hazard Identification															d longer than 1	
Inconfirmed							Retur	To Cli	ent		Disposal E	By Lab		Archiv		Months
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Delivera	ble Rank: 2	2		Sp					quireme	nts:				0.101	Working
Empty Kit Relinquished by:		Date:			Time	:					Met	nod of Ship	oment:			
elinquished by:	Date/Time:	SH	1410	Company		Red	ceived I	by:				Dat	te/Time:			Company
elinquished by.	Date/Time:	101	110	Company		Red	ceived I	ov:				Det	to/Tim=:			
elinquished by:	D.L. W.												te/Time:			Company
omiquities by.	Date/Time:			Company		Red	ceived	y: //		A. L	il Done	Dat	1/21/2	W	2000	Company
Custody Seals Intact: Custody Seal No.:			7-2-3			966	oler Ten	perature	(s) °C an	d Other R	emarks:	) ]]	1/61/2	7	0920	FLA
Δ Yes Δ No						1	1									





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Method Comments Fixed Gases

Method Description SUB (Fixed Gases)/ Fixed Gases

Subcontract Method Instructions
Sample IDs Method Metho
1, 2 SUBCONTRACT SUB (

Method SUBCONTRACT

Container Type Tedlar Bag 1L

Count 2

Containers

Preservative None

ICOC No: 885-2889

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Client: Hilcorp			Turn-Around Time:  ☑ Standard □ Rush  Project Name:			HALL ENVIRONM ANALYSIS LABO www.hallenvironmental.com													
Mailing	Address	): 		O H Project #:	Randel S	5				awkins	NE	- Alt	ouqu	erqu	e, Ni	M 871	885-15	595 CC	C
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□ EDD	(Type)	<b>T</b>		# of Coolers:		9-0.1=1.8 (°C)	TBE	9	cide	bod (	etal	ဗြိ	7	)-i	티		م		
		}		Cooler Temp	O(Including CF):	9-0.1=1.8° (°C)	Σ .	015[	Pesti	Meth	8	ä,	0/	Serr	ij	2	ixed		
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE /	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	RCRA 8 Metals	CI, F, Br, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> ,	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	801	$\int \int dx$		
11-18	1500	air	skid 1	2 Tellar												$\sqrt{\ }$	7]		
: 11-18	1515	air	skid 2	2 Tedlar												$\sqrt{\ }$	7		
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1/9/24	1303	The	Sint	Must	Walle	11/19/24 1303													
patet St/	Time	Relinquis	hed by.  A A I Dill	Received by	Pria:	Date Time 1/20/29 613:													

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# **Login Sample Receipt Checklist**

Job Number: 885-15595-1 Client: Hilcorp Energy

List Source: Eurofins Albuquerque Login Number: 15595

List Number: 1

Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Sante Fe Main Office Phone: (505) 476-3441

General Information Phone: (505) 629-6116

Online Phone Directory https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Action 421053

#### **CONDITIONS**

Operator:	OGRID:
HILCORP ENERGY COMPANY	372171
1111 Travis Street	Action Number:
Houston, TX 77002	421053
	Action Type:
	[REPORT] Alternative Remediation Report (C-141AR)

#### CONDITIONS

Cı	eated	Condition	Condition
By	/		Date
r	velez	SVE reviewed. 1. Continue monthly O&M schedule as stated in the recommendations section of report. 2. Submit next bi-annual report by July 15, 2025.	2/7/2025