ENSOLUM

1. Continue O&M & sampling as stated in report. 2. Submit next quarterly report by January 15, 2025.

October 14, 2024

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

Re: Third Quarter 2024 – SVE System Update
San Juan 28-6 #31
Rio Arriba County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NVF1816655680

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Third Quarter 2024 – SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the San Juan 28-6 #31 natural gas production well (Site) located in Unit M, Section 28, Township 28 North, Range 6 West in Rio Arriba County, New Mexico (Figure 1). Specifically, this report summarizes Site activities performed in July, August, and September of 2024 to the New Mexico Oil Conservation Division (NMOCD).

SVE SYSTEM SPECIFICATIONS

The current SVE system consists of a three-phase, 3 horsepower (HP) Ametek Rotron Model EN656 regenerative blower capable of producing 100 standard cubic feet per minute (scfm) of flow and 50 inches of water column (IWC). In total, 19 SVE wells (SVE-1, SVE-2RS, SVE-2RD, SVE-3, SVE-4, SVE-5, SVE-6, SVE-7S, SVE-7D, SVE-8, SVE-9, SVE-10, SVE-11S, SVE-11D, SVE-12S, SVE-13S, SVE-13D, SVE-14S, and SVE-15) are installed at the Site at varying depth intervals in order to induce air flow through the impacted zones in the subsurface. Two additional deep zone SVE wells (SVE-12D and SVE-14D) were previously installed but are not currently connected to the SVE system. SVE well locations are presented on Figure 2. Additionally, the power for the SVE system was converted from generator to a permanent power drop on April 20, 2022. Specifically, the voltage capacity of the power drop at the Site was increased in order to run the SVE system and negate the need for a generator to power the system. This was determined to be necessary based on reliability issues with the generators used at the Site.

THIRD QUARTER 2024 ACTIVITIES

During the third quarter of 2024, Ensolum and Hilcorp personnel performed bi-weekly operation and maintenance (O&M) visits to ensure 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 25 and September 26, 2024, the SVE system operated for an estimated 1,862 hours; however, during a routine Site visit on August 28, 2024, it was determined that the hour meter was no longer functioning correctly and was in need of replacement. The meter was replaced on August 29, 2024, and a runtime efficiency of 99.5 percent (%) was noted between meter replacement and the September 26, 2024 visit. Table 1 presents the SVE system operational hours and percent runtime. Appendix B presents photographs of the runtime meter for calculating the third quarter runtime efficiency. During the third quarter of 2024, zones Leg A Deep, Leg A Shallow, and Leg B-1 were operating with 13 of the 19 wells operational.

A vapor sample for the third quarter 2024 was collected on September 10, 2024. The third quarter 2024 vapor sample was collected from the sample port located between the SVE piping manifold (collected from the total combined air flow from all active wells) and the SVE blower using a high vacuum air sampler. Prior to collection, the vapor sample was field screened with a photoionization detector (PID) for organic vapor monitoring (OVM). The vapor sample was collected directly into two 1-Liter Tedlar® bags and submitted to Eurofins Environment Testing (Formerly Hall Environmental Analysis Laboratory), located in Albuquerque, New Mexico, for analysis of total volatile petroleum hydrocarbons (TVPH, also referred to 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 Processor Association (GPA) Method 2261. Table 2 presents a summary of analytical data collected during this and previous sampling events, with the full laboratory analytical report included as Appendix C.

Vapor sample data and measured stack flow rates are used to estimate total mass recovered and total emissions generated by the SVE system (Table 3). Based on these estimates, a total of 24,888 pounds (12 tons) of TVPH have been removed by the system to date.

RECOMMENDATIONS

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

Sincerely,
Ensolum, LLC

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Attachments:

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

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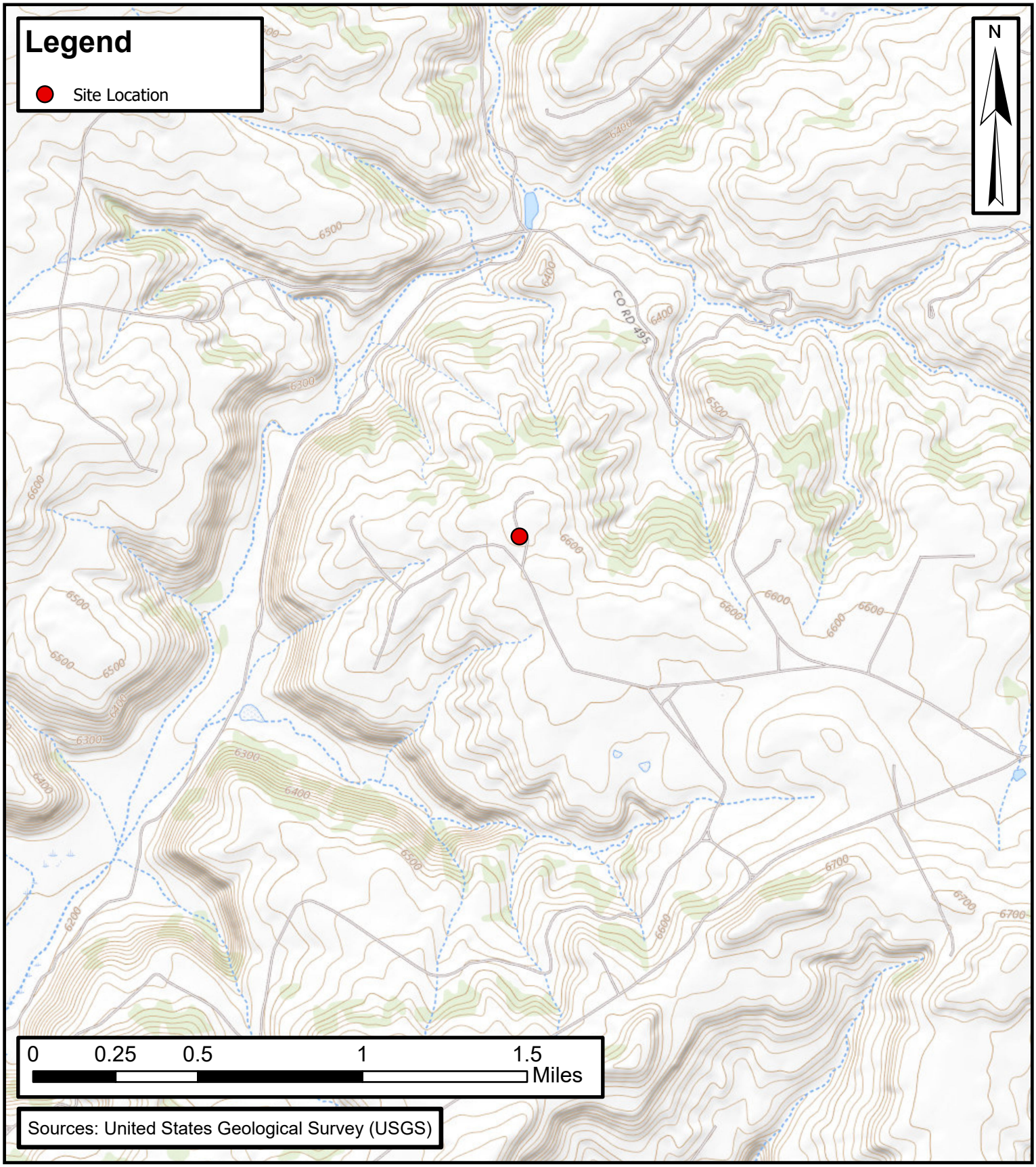
Figures



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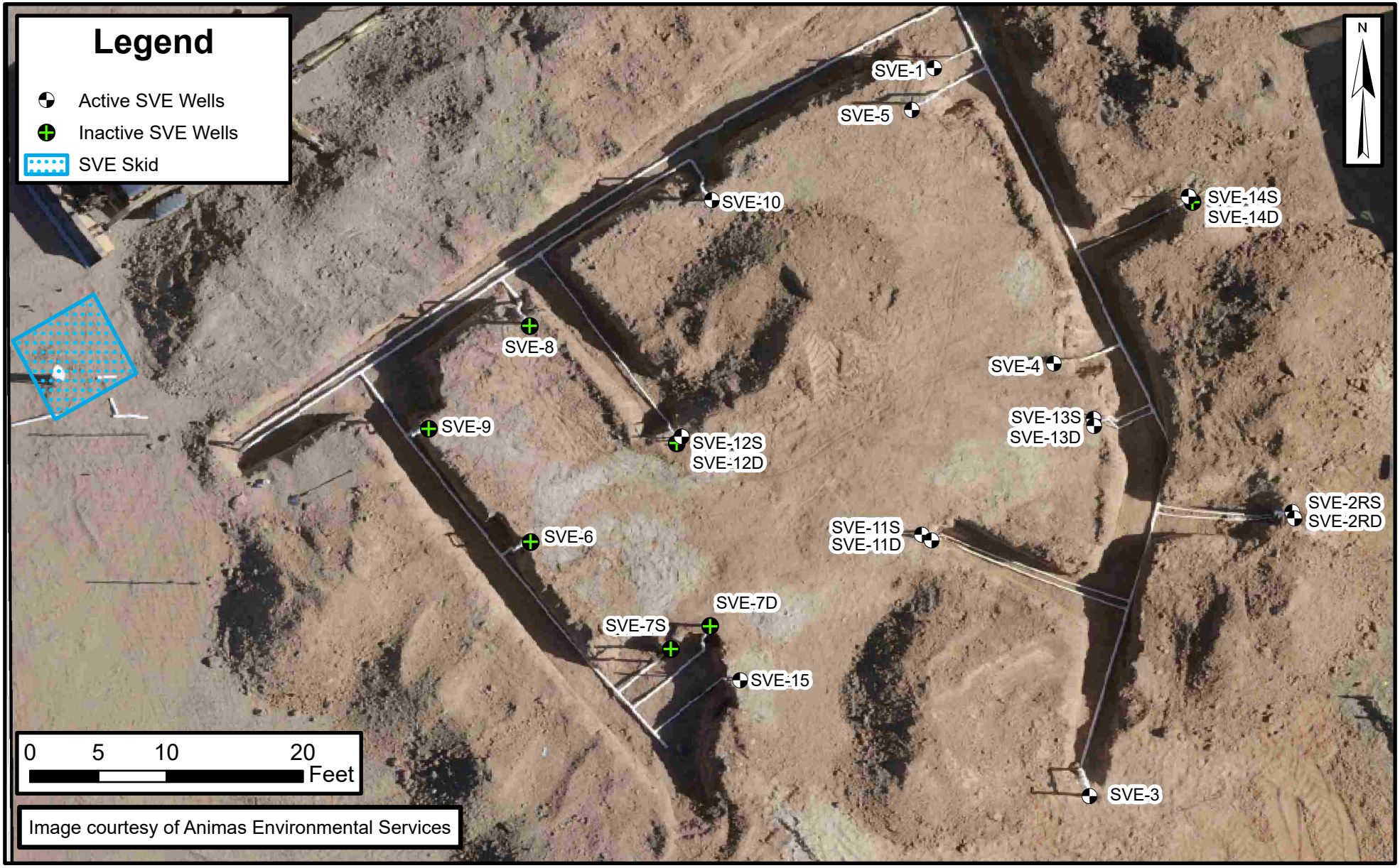
Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

San Juan 28-6 #31
Hilcorp Energy Company
36.6277°N, -107.4781°W
Rio Arriba County, NM

FIGURE
1



ENSOLUM
Environmental, Engineering and Hydrogeologic Consultants

SVE System Configuration

San Juan 28-6 #31
Hilcorp Energy Company
36.6277° N, -107.4781° W
Rio Arriba County, New Mexico

FIGURE
2

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Tables

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TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
San Juan 28-6 #31
Hilcorp Energy Company
Rio Arriba County, New Mexico

Date	SVE Runtime Hours	Delta Hours	Days	% Runtime
6/25/2024	20,822	--	--	--
8/28/2024	22,015	1,193	64	77.7%
8/29/2024(1)	0	--	--	--
9/26/2024	669	669	28	99.5%

(1) The hour meter was determined to be broken on 8/28/2024. A replacement was installed on 8/29/2024.

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM AIR ANALYTICAL RESULTS
San Juan 28-6 #31
Hilcorp Energy Company
Rio Arriba County, New Mexico

Date	Sample Identification	Operating SVE Zones	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
9/20/2021	Pilot Test	All Zones	1,287	720	1,600	15	320	250,000	17.87%	2.05%
9/28/2021	Influent A+B	All Zones	736	240	720	27	350	53,000	---	---
10/21/2021	Influent A+B	All Zones	615	60	170	6.7	74	13,000	---	---
11/5/2021	Leg A Deep	Leg A Deep	1,177	620	1,700	29	390	72,000	---	---
12/16/2021	Leg A Deep	Leg A Deep	1,398	470	950	11	190	96,000	21.00%	0.83%
12/16/2021	Leg A Shallow	Leg A Shallow	298	10	32	1.1	19	2,300	22.00%	0.12%
1/6/2022	Leg A Shallow	Leg A Shallow	283	12	34	1.2	15	2,500	22.13%	0.13%
1/6/2022	Leg B-1	Leg B-1	158	2.3	10	<0.50	6.7	1,100	21.97%	0.10%
3/24/2022	Influent All Wells	All Zones	604	48	92	1.2	19	6,300	22.10%	0.18%
6/13/2022	Influent All Wells	All Zones	414	30	89	<2.0	29	4,600	21.57%	0.25%
9/30/2022	Influent 9-30	All Zones	410	19	65	2.1	26	3,700	21.57%	0.28%
12/6/2022	SVE-1	All Zones	284	85	220	<5.0	58	22,000	21.69%	0.23%
3/8/2023	SVE-1	All Zones	381	13	54	<5.0	16	52	21.66%	0.19%
6/22/2023	SVE-1	All Zones	356	8.4	39	1.2	17	3,000	21.66%	0.20%
8/22/2023	SVE-1	All Zones	386	14	49	<5.0	17	2,800	21.68%	0.20%
11/22/2023	SVE-1	All Zones	396	14	56	<5.0	20	2,800	21.45%	0.19%
3/7/2024	SVE-1	All Zones	265	6.3	24	<5.0	8.6	1,300	21.93%	0.02%
6/15/2024	SVE-1	Leg A Shallow Leg A Deep Leg B-1	143	7.2	28	0.92	16	1,400	21.98%	0.20%
9/10/2024	SVE-1	Leg A Shallow Leg A Deep Leg B-1	263	57	220	5.2	97	1,200	21.69%	0.23%

Notes:

GRO: gasoline range hydrocarbons

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

--: not sampled/analyzed

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

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TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
San Juan 28-6 #31
Hilcorp Energy Company
Rio Arriba County, New Mexico

Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
9/28/2021	736	240	720	27	350	53,000
10/21/2021	615	60	170	6.7	74	13,000
11/5/2021	1,177	620	1,700	29	390	72,000
12/16/2021	298	10	32	1.1	19	2,300
1/6/2022	158	2.3	10	*0.50*	6.7	1,100
3/24/2022	604	48	92	1.2	19	6,300
6/13/2022	414	30	89	*2.0*	29	4,600
9/30/2022 (1)	410	19	65	2.1	26	3,700
12/6/2022	284	85	220	*5.0*	58	22,000
3/8/2023	381	13	54	*5.0*	16	52
6/22/2023	356	8.4	39	1.2	17	3,000
8/22/2023	386	14	49	*5.0*	17	2,800
11/22/2023	396	14	56	*5.0*	20	2,800
3/7/2024	265	6.3	24	*5.0*	8.6	1,300
6/15/2024	143	7.2	28	0.92	16	1,400
9/10/2024	263	57	220	5.2	97	1,200
Average	430	77	223	6.4	73	11,910

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)
9/28/2021	60	17,280	17,280	0.054	0.16	0.0061	0.079	12
10/21/2021	50	1,648,680	1,631,400	0.028	0.083	0.0032	0.040	6.2
11/5/2021	8	1,864,392	215,712	0.010	0.028	0.00053	0.0069	1.3
12/16/2021	12	2,496,696	632,304	0.014	0.039	0.00068	0.0092	1.7
1/6/2022	32	3,352,056	855,360	0.00072	0.0025	0.000096	0.0015	0.20
3/24/2022	12	4,610,688	1,258,632	0.0011	0.0023	0.000038	0.00058	0.17
6/13/2022	61	11,659,482	7,048,794	0.0089	0.021	0.00037	0.0055	1.2
9/19/2022 (1)	52	18,819,882	7,160,400	0.0048	0.015	0.00040	0.0053	0.81
12/6/2022	55	24,971,082	6,151,200	0.011	0.029	0.00073	0.0086	2.6
3/8/2023	50	31,583,082	6,612,000	0.0092	0.026	0.00094	0.0069	2.1
6/22/2023	55	39,941,982	8,358,900	0.0022	0.0096	0.00064	0.0034	0.31
8/22/2023	60	45,183,582	5,241,600	0.0025	0.0099	0.00070	0.0038	0.65
11/22/2023	60	53,117,982	7,934,400	0.0031	0.012	0.0011	0.0042	0.63
3/7/2024	55	61,486,782	8,368,800	0.0021	0.008	0.0010	0.0029	0.42
6/15/2024	55	68,403,582	6,916,800	0.0014	0.005	0.0006	0.0025	0.28
9/10/2024	55	75,323,682	6,920,100	0.0066	0.026	0.0006	0.0116	0.27
			Average	0.010	0.030	0.001	0.012	1.9

Mass Recovery

Date	Total Operational Hours (2)	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
9/28/2021	5	5	0.26	0.78	0.029	0.4	57	0.029
10/21/2021	549	544	15	45	1.7	21.6	3,356	1.7
11/9/2021 (3)	998	449	4.6	13	0.24	3.1	571	0.29
12/16/2021	1,876	878	12	34	0.59	8.1	1,464	0.73
1/6/2022	2,322	446	0.32	1.1	0.043	0.7	91	0.045
3/24/2022	4,070	1,748	2.0	4.0	0.067	1.0	290	0.15
6/13/2022	5,996	1,926	17	40	0.70	11	2,395	1.2
9/19/2022 (1)	8,291	2,295	11	34	0.9	12	1,852	0.93
12/6/2022	10,155	1,864	20	55	1.4	16	4,927	2.5
3/8/2023	12,359	2,204	20	56	2	15	4,544	2.3
6/22/2023	14,892	2,533	5.6	24	1.6	8.6	795	0.40
8/22/2023	16,348	1,456	3.7	14	1.0	5.6	948	0.47
11/22/2023	18,552	2,204	6.9	26	2.5	9.1	1,385	0.69
3/7/2024	21,088	2,536	5.3	21	2.6	7.5	1,069	0.53
6/15/2024	23,184	2,096	2.9	11	1.3	5.3	582	0.29
9/10/2024 (4)	25,046	2,097	13.8	53	1.3	24.4	561	0.28
		Total Mass Recovery to Date	141	433	18.0	149	24,888	12

Notes:

(1): an emissions air sample was recollected on 9/30/2022 due to air-collection errors during the 9/19/2022 site visit. Flow rates collected during the 9/19/2022 visit are used for emissions calculations

(2): total operational hours are a summation of runtime hours collected from several generators and blower runtime meters used since system startup

(3): runtime hours collected during a site visit on 11/9/2021

(4): runtime hours estimated based on hour meter readings between 6/25/2024 and 8/28/2024 when the meter was noted to be broken plus readings between when the new meter was installed on 8/29/2024 and 9/10/2024

cfm: cubic feet per minute

cf: cubic feet

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); as such, RL used for calculating emissions.

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APPENDIX A

Field Notes

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 7-18
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**	
Hertz	
Voltage	
Battery Voltage	
Oil Pressure	
Oil Temp	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	21368	1255
Pre K/O Vacuum (IWC)	-32	
Post K/O Vacuum (IWC)	-25	
Pitot Tube 3" Flow (cfm)	60	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	23	
Inlet PID	246.9	
Exhaust Post GAC PID	409.8	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM - QUARTERLY SAMPLING

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

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	18.17	1194	
SVE-3	18.22	618.4	
SVE-5	18.27	567.6	
SVE-11D	18.25	1140	
SVE-13D	18.22	1051	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	15.72	243.3	
SVE-2RS	18.2	982.9	
SVE-4	18.21	657.2	
SVE-11S	18.24	106.7	
SVE-13S	18.21	1356	
SVE-14S	18.21	593.5	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	18.69	809.6	
SVE-12S	18.89	927.4	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

COMMENTS/OTHER MAINTENANCE:

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 7-26
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**	
Hertz	
Voltage	
Battery Voltage	
Oil Pressure	
Oil Temp	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	21563	1544
Pre K/O Vacuum (IWC)	-32	
Post K/O Vacuum (IWC)	-26	
Pitot Tube 3" Flow (cfm)	60	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	23	
Inlet PID	241.1	
Exhaust Post GAC PID	587.3	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM - QUARTERLY SAMPLING

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

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	18.73	969.5	
SVE-3	18.75	731.6	
SVE-5	18.87	155.5	
SVE-11D	18.72	1150	
SVE-13D	18.73	1423	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	16.24	86.3	
SVE-2RS	18.26	1062	
SVE-4	18.7	313.0	
SVE-11S	18.78	967.6	
SVE-13S	18.66	1176	
SVE-14S	18.75	509.1	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	19.0	158.3	
SVE-12S	19.43	928.1	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

COMMENTS/OTHER MAINTENANCE:

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 8-14
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**
Hertz
Voltage
Battery Voltage
Oil Pressure
Oil Temp

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	22003	1343
Pre K/O Vacuum (IWC)	-34	
Post K/O Vacuum (IWC)	-28	
Pitot Tube 3" Flow (cfm)	55	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	7	
Inlet PID	1497.3	
Exhaust Post GAC PID	402.9	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM - QUARTERLY SAMPLING

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

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	21.4	780.4	
SVE-3	21.5	619.0	
SVE-5	21.3	1338	
SVE-11D	21.4	892.3	
SVE-13D	21.4	1163	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	19.11	733.2	
SVE-2RS	21.4	1247	
SVE-4	21.3	746.5	
SVE-11S	21.3	737.6	
SVE-13S	21.4	1526	
SVE-14S	21.3	1026	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	21.7	118.5	
SVE-12S	21.4	1394	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

COMMENTS/OTHER MAINTENANCE:

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 8-28
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**	
Hertz	
Voltage	
Battery Voltage	
Oil Pressure	
Oil Temp	

SVE SYSTEM

	READING	TIME
Blower Hours **(take photo)**	22015 *	1251
Pre K/O Vacuum (IWC)	-33	
Post K/O Vacuum (IWC)	-27	
Pitot Tube 3" Flow (cfm)	60	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	22	
Inlet PID	197.6	
Exhaust Post GAC PID	532.6	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM - QUARTERLY SAMPLING

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

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	20.4	913.7	
SVE-3	20.3	323.8	
SVE-5	20.3	1101	
SVE-11D	20.4	1218	
SVE-13D	20.3	1386	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	17.75	457.6	
SVE-2RS	20.4	1013	
SVE-4	20.3	760.0	
SVE-11S	20.3	394.2	
SVE-13S	20.4	1410	
SVE-14S	20.3	987.1	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	20.5	145.1	
SVE-12S	21.1	1122	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

COMMENTS/OTHER MAINTENANCE:

* Hour meter off on arrival! I spoke with Bryan Hall who will be in contact with an I&E tech that will assess the meter.

• Hour meter replaced 8/29 @ 1230

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 9-10
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**	
Hertz	
Voltage	
Battery Voltage	
Oil Pressure	
Oil Temp	

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	287.9*	1222
Pre K/O Vacuum (IWC)	-32	
Post K/O Vacuum (IWC)	-26	
Pitot Tube 3" Flow (cfm)	55	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	23	
Inlet PID	262.5	
Exhaust Post GAC PID	569.4	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: SVE-1 **SAMPLE TIME:** 1230
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	19.09	1000	
SVE-3	19.04	602.1	
SVE-5	19.11	872.9	
SVE-11D	19.12	1086	
SVE-13D	19.09	1673	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	16.52	142.2	
SVE-2RS	19.14	881.3	
SVE-4	19.08	654.6	
SVE-11S	19.08	439.8	
SVE-13S	19.18	1618	
SVE-14S	19.14	897.6	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	19.91	176.6	
SVE-12S	19.88	1256	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

COMMENTS/OTHER MAINTENANCE:

* new meter

28-6 #31 SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 9-26
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

GENERATOR

Hours **(take photo)**
Hertz
Voltage
Battery Voltage
Oil Pressure
Oil Temp

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	668.6	1051
Pre K/O Vacuum (IWC)	-32	
Post K/O Vacuum (IWC)	-27	
Pitot Tube 3" Flow (cfm)	55	
Leg A Rotameter (scfm)	24	
Leg B Rotameter (scfm)	23	
Inlet PID	185.8	
Exhaust Post GAC PID	394.6	
Liquid in K/O Sight Tube (Y/N)		
K/O Liquird Drained (gallons)		

HOUSEKEEPING Check

Generator Lubrication	
Inline Filter Clean	
Clean Wye Strainer	

SVE SYSTEM - QUARTERLY SAMPLING

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

ZONES

Change in Well Operation:

LEG A DEEP

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-2RD	19.50	1323	
SVE-3	19.46	743.2	
SVE-5	19.61	233.0	
SVE-11D	19.46	1345	
SVE-13D	19.64	1667	

LEG A SHALLOW

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-1	17.03	56.0	
SVE-2RS	19.52	1032	
SVE-4	19.56	825.9	
SVE-11S	19.45	731.7	
SVE-13S	19.57	1495	
SVE-14S	19.61	1176	

LEG B-1

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-7D			
SVE-10	19.99	129.3	
SVE-12S	20.2	1382	
SVE-15			

LEG B-2

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
SVE-6			
SVE-7S			
SVE-8			
SVE-9			

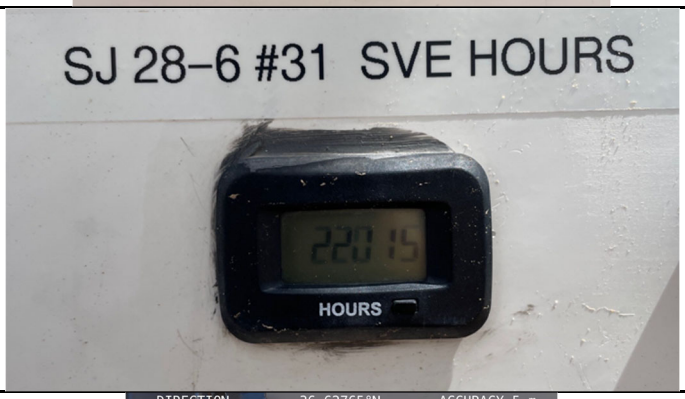
COMMENTS/OTHER MAINTENANCE:

ENSOLUM

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
San Juan 28-6 #31
Rio Arriba County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on June 25, 2024 at 11:45 AM Hours = 20,822	
Photograph 2 Runtime meter taken on August 28, 2024 at 12:51 PM Hours = 22,015	
Photograph 3 Runtime meter taken on September 26, 2024 at 10:51 AM Hours = 668.6	

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

ENSOLUM

APPENDIX C

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/4/2024 12:34:32 PM

JOB DESCRIPTION

SJ 28-6 #31

JOB NUMBER

885-11590-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

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

Authorization

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10/4/2024 12:34:32 PM

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

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Laboratory Job ID: 885-11590-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Glossary

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

Case Narrative

Client: Hilcorp Energy
Project: SJ 28-6 #31

Job ID: 885-11590-1

Job ID: 885-11590-1 Eurofins Albuquerque

Job Narrative
885-11590-1

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 sample was received on 9/11/2024 7:30 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.1°C.

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

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

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

Client Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Client Sample ID: SVE-1

Lab Sample ID: 885-11590-1
Matrix: Air
Date Collected: 09/10/24 12:30
Date Received: 09/11/24 07:30
Sample Container: Tedlar Bag 1L

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	1200		250		ug/L			09/23/24 18:43	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*52 - 172*		*09/23/24 18:43*	*50*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/24/24 13:58	5
1,1,1-Trichloroethane	ND		5.0		ug/L			09/24/24 13:58	5
1,1,2,2-Tetrachloroethane	ND		10		ug/L			09/24/24 13:58	5
1,1,2-Trichloroethane	ND		5.0		ug/L			09/24/24 13:58	5
1,1-Dichloroethane	ND		5.0		ug/L			09/24/24 13:58	5
1,1-Dichloroethene	ND		5.0		ug/L			09/24/24 13:58	5
1,1-Dichloropropene	ND		5.0		ug/L			09/24/24 13:58	5
1,2,3-Trichlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
1,2,3-Trichloropropane	ND		10		ug/L			09/24/24 13:58	5
1,2,4-Trichlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
1,2,4-Trimethylbenzene	ND		5.0		ug/L			09/24/24 13:58	5
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/24/24 13:58	5
1,2-Dibromoethane (EDB)	ND		5.0		ug/L			09/24/24 13:58	5
1,2-Dichlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
1,2-Dichloroethane (EDC)	ND		5.0		ug/L			09/24/24 13:58	5
1,2-Dichloropropane	ND		5.0		ug/L			09/24/24 13:58	5
1,3,5-Trimethylbenzene	6.2		5.0		ug/L			09/24/24 13:58	5
1,3-Dichlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
1,3-Dichloropropane	ND		5.0		ug/L			09/24/24 13:58	5
1,4-Dichlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
1-Methylnaphthalene	ND		20		ug/L			09/24/24 13:58	5
2,2-Dichloropropane	ND		10		ug/L			09/24/24 13:58	5
2-Butanone	ND		50		ug/L			09/24/24 13:58	5
2-Chlorotoluene	ND		5.0		ug/L			09/24/24 13:58	5
2-Hexanone	ND		50		ug/L			09/24/24 13:58	5
2-Methylnaphthalene	ND		20		ug/L			09/24/24 13:58	5
4-Chlorotoluene	ND		5.0		ug/L			09/24/24 13:58	5
4-Isopropyltoluene	ND		5.0		ug/L			09/24/24 13:58	5
4-Methyl-2-pentanone	ND		50		ug/L			09/24/24 13:58	5
Acetone	ND		50		ug/L			09/24/24 13:58	5
Benzene	57		5.0		ug/L			09/24/24 13:58	5
Bromobenzene	ND		5.0		ug/L			09/24/24 13:58	5
Bromodichloromethane	ND		5.0		ug/L			09/24/24 13:58	5
Dibromochloromethane	ND		5.0		ug/L			09/24/24 13:58	5
Bromoform	ND		5.0		ug/L			09/24/24 13:58	5
Bromomethane	ND		15		ug/L			09/24/24 13:58	5
Carbon disulfide	ND		50		ug/L			09/24/24 13:58	5
Carbon tetrachloride	ND		5.0		ug/L			09/24/24 13:58	5
Chlorobenzene	ND		5.0		ug/L			09/24/24 13:58	5
Chloroethane	ND		10		ug/L			09/24/24 13:58	5
Chloroform	ND		5.0		ug/L			09/24/24 13:58	5

Client Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Client Sample ID: SVE-1
Date Collected: 09/10/24 12:30
Date Received: 09/11/24 07:30
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-11590-1
Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		15		ug/L			09/24/24 13:58	5
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/24/24 13:58	5
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/24/24 13:58	5
Dibromomethane	ND		5.0		ug/L			09/24/24 13:58	5
Dichlorodifluoromethane	ND		5.0		ug/L			09/24/24 13:58	5
Ethylbenzene	**5.2**		5.0		ug/L			09/24/24 13:58	5
Hexachlorobutadiene	ND		5.0		ug/L			09/24/24 13:58	5
Isopropylbenzene	ND		5.0		ug/L			09/24/24 13:58	5
Methyl-tert-butyl Ether (MTBE)	ND		5.0		ug/L			09/24/24 13:58	5
Methylene Chloride	ND		15		ug/L			09/24/24 13:58	5
n-Butylbenzene	ND		15		ug/L			09/24/24 13:58	5
N-Propylbenzene	ND		5.0		ug/L			09/24/24 13:58	5
Naphthalene	ND		10		ug/L			09/24/24 13:58	5
sec-Butylbenzene	ND		5.0		ug/L			09/24/24 13:58	5
Styrene	ND		5.0		ug/L			09/24/24 13:58	5
tert-Butylbenzene	ND		5.0		ug/L			09/24/24 13:58	5
Tetrachloroethene (PCE)	ND		5.0		ug/L			09/24/24 13:58	5
Toluene	**220**		5.0		ug/L			09/24/24 13:58	5
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/24/24 13:58	5
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/24/24 13:58	5
Trichloroethene (TCE)	ND		5.0		ug/L			09/24/24 13:58	5
Trichlorofluoromethane	ND		5.0		ug/L			09/24/24 13:58	5
Vinyl chloride	ND		5.0		ug/L			09/24/24 13:58	5
Xylenes, Total	**97**		7.5		ug/L			09/24/24 13:58	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 130*		*09/24/24 13:58*	*5*
Toluene-d8 (Surr)	*120*		*70 - 130*		*09/24/24 13:58*	*5*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*09/24/24 13:58*	*5*
Dibromofluoromethane (Surr)	*93*		*70 - 130*		*09/24/24 13:58*	*5*

QC Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

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

Lab Sample ID: MB 885-12872/4
Matrix: Air
Analysis Batch: 12872

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		ug/L			09/23/24 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*52 - 172*		*09/23/24 14:03*	*1*

Lab Sample ID: LCS 885-12872/3
Matrix: Air
Analysis Batch: 12872

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			4250	4340		ug/L		102	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*52 - 172*

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

Lab Sample ID: MB 885-12855/1005
Matrix: Air
Analysis Batch: 12855

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1,1-Trichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			09/24/24 11:55	1
1,1,2-Trichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,3-Trichloropropane	ND		2.0		ug/L			09/24/24 11:55	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			09/24/24 11:55	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichloroethane (EDC)	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichloropropane	ND		1.0		ug/L			09/24/24 11:55	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,3-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,3-Dichloropropane	ND		1.0		ug/L			09/24/24 11:55	1
1,4-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1-Methylnaphthalene	ND		4.0		ug/L			09/24/24 11:55	1
2,2-Dichloropropane	ND		2.0		ug/L			09/24/24 11:55	1
2-Butanone	ND		10		ug/L			09/24/24 11:55	1
2-Chlorotoluene	ND		1.0		ug/L			09/24/24 11:55	1
2-Hexanone	ND		10		ug/L			09/24/24 11:55	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

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

Lab Sample ID: MB 885-12855/1005
Matrix: Air
Analysis Batch: 12855

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		4.0		ug/L			09/24/24 11:55	1
4-Chlorotoluene	ND		1.0		ug/L			09/24/24 11:55	1
4-Isopropyltoluene	ND		1.0		ug/L			09/24/24 11:55	1
4-Methyl-2-pentanone	ND		10		ug/L			09/24/24 11:55	1
Acetone	ND		10		ug/L			09/24/24 11:55	1
Benzene	ND		1.0		ug/L			09/24/24 11:55	1
Bromobenzene	ND		1.0		ug/L			09/24/24 11:55	1
Bromodichloromethane	ND		1.0		ug/L			09/24/24 11:55	1
Dibromochloromethane	ND		1.0		ug/L			09/24/24 11:55	1
Bromoform	ND		1.0		ug/L			09/24/24 11:55	1
Bromomethane	ND		3.0		ug/L			09/24/24 11:55	1
Carbon disulfide	ND		10		ug/L			09/24/24 11:55	1
Carbon tetrachloride	ND		1.0		ug/L			09/24/24 11:55	1
Chlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
Chloroethane	ND		2.0		ug/L			09/24/24 11:55	1
Chloroform	ND		1.0		ug/L			09/24/24 11:55	1
Chloromethane	ND		3.0		ug/L			09/24/24 11:55	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
Dibromomethane	ND		1.0		ug/L			09/24/24 11:55	1
Dichlorodifluoromethane	ND		1.0		ug/L			09/24/24 11:55	1
Ethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Hexachlorobutadiene	ND		1.0		ug/L			09/24/24 11:55	1
Isopropylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			09/24/24 11:55	1
Methylene Chloride	ND		3.0		ug/L			09/24/24 11:55	1
n-Butylbenzene	ND		3.0		ug/L			09/24/24 11:55	1
N-Propylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Naphthalene	ND		2.0		ug/L			09/24/24 11:55	1
sec-Butylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Styrene	ND		1.0		ug/L			09/24/24 11:55	1
tert-Butylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			09/24/24 11:55	1
Toluene	ND		1.0		ug/L			09/24/24 11:55	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
Trichloroethene (TCE)	ND		1.0		ug/L			09/24/24 11:55	1
Trichlorofluoromethane	ND		1.0		ug/L			09/24/24 11:55	1
Vinyl chloride	ND		1.0		ug/L			09/24/24 11:55	1
Xylenes, Total	ND		1.5		ug/L			09/24/24 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*09/24/24 11:55*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*09/24/24 11:55*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*09/24/24 11:55*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*09/24/24 11:55*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

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

Lab Sample ID: MB 885-12855/5
Matrix: Air
Analysis Batch: 12855

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1,1-Trichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			09/24/24 11:55	1
1,1,2-Trichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloroethane	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
1,1-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,3-Trichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,3-Trichloropropane	ND		2.0		ug/L			09/24/24 11:55	1
1,2,4-Trichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dibromo-3-Chloropropane	ND		2.0		ug/L			09/24/24 11:55	1
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichloroethane (EDC)	ND		1.0		ug/L			09/24/24 11:55	1
1,2-Dichloropropane	ND		1.0		ug/L			09/24/24 11:55	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,3-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1,3-Dichloropropane	ND		1.0		ug/L			09/24/24 11:55	1
1,4-Dichlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
1-Methylnaphthalene	ND		4.0		ug/L			09/24/24 11:55	1
2,2-Dichloropropane	ND		2.0		ug/L			09/24/24 11:55	1
2-Butanone	ND		10		ug/L			09/24/24 11:55	1
2-Chlorotoluene	ND		1.0		ug/L			09/24/24 11:55	1
2-Hexanone	ND		10		ug/L			09/24/24 11:55	1
2-Methylnaphthalene	ND		4.0		ug/L			09/24/24 11:55	1
4-Chlorotoluene	ND		1.0		ug/L			09/24/24 11:55	1
4-Isopropyltoluene	ND		1.0		ug/L			09/24/24 11:55	1
4-Methyl-2-pentanone	ND		10		ug/L			09/24/24 11:55	1
Acetone	ND		10		ug/L			09/24/24 11:55	1
Benzene	ND		1.0		ug/L			09/24/24 11:55	1
Bromobenzene	ND		1.0		ug/L			09/24/24 11:55	1
Bromodichloromethane	ND		1.0		ug/L			09/24/24 11:55	1
Dibromochloromethane	ND		1.0		ug/L			09/24/24 11:55	1
Bromoform	ND		1.0		ug/L			09/24/24 11:55	1
Bromomethane	ND		3.0		ug/L			09/24/24 11:55	1
Carbon disulfide	ND		10		ug/L			09/24/24 11:55	1
Carbon tetrachloride	ND		1.0		ug/L			09/24/24 11:55	1
Chlorobenzene	ND		1.0		ug/L			09/24/24 11:55	1
Chloroethane	ND		2.0		ug/L			09/24/24 11:55	1
Chloroform	ND		1.0		ug/L			09/24/24 11:55	1
Chloromethane	ND		3.0		ug/L			09/24/24 11:55	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
Dibromomethane	ND		1.0		ug/L			09/24/24 11:55	1
Dichlorodifluoromethane	ND		1.0		ug/L			09/24/24 11:55	1
Ethylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Hexachlorobutadiene	ND		1.0		ug/L			09/24/24 11:55	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

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

Lab Sample ID: MB 885-12855/5
Matrix: Air
Analysis Batch: 12855

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Methyl-tert-butyl Ether (MTBE)	ND		1.0		ug/L			09/24/24 11:55	1
Methylene Chloride	ND		3.0		ug/L			09/24/24 11:55	1
n-Butylbenzene	ND		3.0		ug/L			09/24/24 11:55	1
N-Propylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Naphthalene	ND		2.0		ug/L			09/24/24 11:55	1
sec-Butylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Styrene	ND		1.0		ug/L			09/24/24 11:55	1
tert-Butylbenzene	ND		1.0		ug/L			09/24/24 11:55	1
Tetrachloroethene (PCE)	ND		1.0		ug/L			09/24/24 11:55	1
Toluene	ND		1.0		ug/L			09/24/24 11:55	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			09/24/24 11:55	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			09/24/24 11:55	1
Trichloroethene (TCE)	ND		1.0		ug/L			09/24/24 11:55	1
Trichlorofluoromethane	ND		1.0		ug/L			09/24/24 11:55	1
Vinyl chloride	ND		1.0		ug/L			09/24/24 11:55	1
Xylenes, Total	ND		1.5		ug/L			09/24/24 11:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*09/24/24 11:55*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*09/24/24 11:55*	*1*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*09/24/24 11:55*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*09/24/24 11:55*	*1*

Lab Sample ID: LCS 885-12855/4
Matrix: Air
Analysis Batch: 12855

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1,1-Dichloroethene			20.1	21.7		ug/L		108	70 - 130		
Benzene			20.1	23.2		ug/L		115	70 - 130		
Chlorobenzene			20.1	20.5		ug/L		102	70 - 130		
Toluene			20.2	20.8		ug/L		103	70 - 130		
Trichloroethene (TCE)			20.2	21.5		ug/L		107	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*
4-Bromofluorobenzene (Surr)	*92*		*70 - 130*
Dibromofluoromethane (Surr)	*103*		*70 - 130*

QC Association Summary

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

GC/MS VOA

Analysis Batch: 12855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-11590-1	SVE-1	Total/NA	Air	8260B	
MB 885-12855/1005	Method Blank	Total/NA	Air	8260B	
MB 885-12855/5	Method Blank	Total/NA	Air	8260B	
LCS 885-12855/4	Lab Control Sample	Total/NA	Air	8260B	

Analysis Batch: 12872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-11590-1	SVE-1	Total/NA	Air	8015M/D	
MB 885-12872/4	Method Blank	Total/NA	Air	8015M/D	
LCS 885-12872/3	Lab Control Sample	Total/NA	Air	8015M/D	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Client Sample ID: SVE-1

Date Collected: 09/10/24 12:30
Date Received: 09/11/24 07:30

Lab Sample ID: 885-11590-1

Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015M/D		50	12872	CM	EET ALB	09/23/24 18:43
Total/NA	Analysis	8260B		5	12855	CM	EET ALB	09/24/24 13:58

Laboratory References:

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

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

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Laboratory: Eurofins Albuquerque

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
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
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Laboratory: Eurofins Albuquerque (Continued)

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

Authority	Program	Identification Number	Expiration Date

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

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

Oregon	NELAP	NM100001	02-26-25

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

Analysis Method	Prep Method	Matrix	Analyte
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

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: SJ 28-6 #31

Job ID: 885-11590-1

Laboratory: Eurofins Albuquerque (Continued)

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

Authority	Program	Identification Number	Expiration Date

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

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

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ANALYTICAL SUMMARY REPORT

September 18, 2024

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

Work Order: B24091168 Quote ID: B15626
Project Name: SJ 28-6 #31 88501698

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 9/12/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24091168-001	SVE-1 (885-11590-1)	09/10/24 12:30	09/12/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 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.

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: SJ 28-6 #31 88501698
Lab ID: B24091168-001
Client Sample ID: SVE-1 (885-11590-1)

Report Date: 09/18/24
Collection Date: 09/10/24 12:30
DateReceived: 09/12/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.69	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Nitrogen	78.02	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Carbon Dioxide	0.23	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Hexanes plus	0.06	Mol %		0.01		GPA 2261-95	09/16/24 10:14 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
Hexanes plus	0.025	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
GPM Total	0.025	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
GPM Pentanes plus	0.025	gpm		0.001		GPA 2261-95	09/16/24 10:14 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	3			1		GPA 2261-95	09/16/24 10:14 / jrj
Net BTU per cu ft @ std cond. (LHV)	3			1		GPA 2261-95	09/16/24 10:14 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	09/16/24 10:14 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	09/16/24 10:14 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	09/16/24 10:14 / jrj
Air, %	99.10			0.01		GPA 2261-95	09/16/24 10:14 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	09/16/24 10:14 / jrj

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

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

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B24091168 **Report Date:** 09/18/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R428958
Lab ID: **B24091168-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_240916A				09/16/24 11:03
Oxygen		21.7	Mol %	0.01				0.2	20	
Nitrogen		78.0	Mol %	0.01				0.1	20	
Carbon Dioxide		0.23	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		<0.01	Mol %	0.01					20	
Ethane		<0.01	Mol %	0.01					20	
Propane		<0.01	Mol %	0.01					20	
Isobutane		<0.01	Mol %	0.01					20	
n-Butane		<0.01	Mol %	0.01					20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		0.06	Mol %	0.01				0.0	20	
Lab ID: **LCS091624**	11	Laboratory Control Sample				Run: GCNGA-B_240916A				09/16/24 02:25
Oxygen		0.63	Mol %	0.01	126	70	130			
Nitrogen		5.91	Mol %	0.01	98	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		75.1	Mol %	0.01	100	70	130			
Ethane		6.10	Mol %	0.01	102	70	130			
Propane		5.05	Mol %	0.01	102	70	130			
Isobutane		1.43	Mol %	0.01	71	70	130			
n-Butane		2.01	Mol %	0.01	100	70	130			
Isopentane		1.01	Mol %	0.01	101	70	130			
n-Pentane		1.01	Mol %	0.01	101	70	130			
Hexanes plus		0.79	Mol %	0.01	99	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B24091168

Login completed by: Gina McCartney
Date Received: 9/12/2024
Reviewed by: mstephens
Received by: DNH
Reviewed Date: 9/13/2024
Carrier name: FedEx NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	18.1°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

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

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Garcia, Michelle	Carrier Tracking No(s):	COC No: 885-1927.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: michelle.garcia@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Energy Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon; State - New Mexico		Job #: 885-11590-1
Address: 1120 South 27th Street, ,	Due Date Requested: 9/18/2024	Analysis Requested		Preservation Codes: -
City: Billings	TAT Requested (days):			
State, Zip: MT, 59101				
Phone: 406-252-6325(Tel)	PO #:			Other:
Email:	WO #:			
Project Name: SJ 28-6 #31	Project #: 88501698			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Fixed Gases)/ Fixed Gases	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SVE-1 (885-11590-1)	9/10/24	12:30 Mountain	G	Air			X	1	See Attached Instructions
									B24091168

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	9/11/24 1515				
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Darrell Hans	Date/Time: 9/12/24 0810	Company

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

Ver: 05/06/2024

ICOC No:
885-1927

Containers

Count	Container Type	Preservative
1	Tedlar Bag 1L	None

Subcontract Method Instructions

Sample IDs	Method	Method Description	Method Comments
1	SUBCONTRACT	SUB (Fixed Gases)/ Fixed Gases	Fixed Gases

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

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

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: SJ 28-6 #31

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☐ No

# of Coolers: 1 (1 @ 0.0)

Cooler Temp(including CF): 20.4+0.1=20.5 (°C)

HALL ENVIRONMENTAL ANALYSIS LABOR
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 871
Tel. 505-345-3975 Fax 505-345-4107

885-11590 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	8015 TVPH	Fixed gas O_2 & CO_2
9-10	1230	air	SVE-1	2 Tedlar										✓			✓	✓

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9/10/24	1633				9/10/24	1633
9/10/24	1714			courier	9/11/24	7:30

Remarks:

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-11590-1

Login Number: 11590 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

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

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

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

CONDITIONS

Action 392548

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 392548
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Continue O&M & sampling as stated in report. 2. Submit next quarterly report by January 15, 2025.	10/25/2024