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January 9, 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: Fourth Quarter 2024 – SVE System Update
Sunray B 1B
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident No: nAPP2212649502

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Fourth Quarter 2024 –SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the Sunray B 1B natural gas production well (Site) on land managed by the Bureau of Land Management (BLM) in Unit F, Section 15, Township 30 North, Range 10 West in San Juan County, New Mexico (Figure 1). After a temporary startup on August 29, 2023, followed by a month long shut down, the SVE system was put into full time operation on September 29, 2023, to remediate subsurface soil impacts resulting from a release of approximately 14 barrels (bbls) of natural gas condensate and 7 bbls of produced water. This report summarizes Site activities performed in October, November, and December of 2024.

SVE SYSTEM SPECIFICATIONS

The SVE system at the Site consists of a 3-phase, 5 horsepower Howden Roots 32 URAI rotary lobe blower capable of producing 112 cubic feet per minute (cfm) flow at 82 inches of water column (IWC) vacuum. The system is powered by a permanent power drop and is intended to run 24 hours per day. Three SVE wells are currently in operation and are shown on Figure 2. SVE wells SVE01, SVE02, and SVE03 are screened at varying depths up to 25 feet below ground surface (bgs) to address residual soil impacts in the unsaturated zone.

FOURTH QUARTER 2024 ACTIVITIES

The initial startup of the Site SVE system was performed on August 29 and 30, 2023. Based on the New Mexico Oil Conservation Division (NMOCD) Conditions of Approval (COAs), dated February 10, 2023, field data measurements were collected from the system and included the following parameters: total system flow, estimated flow rates from each SVE well, photoionization detector (PID) measurements of volatile organic compounds (VOCs) from each SVE well, vacuum measurements from each SVE well, and oxygen/carbon dioxide measurements via hand-held analyzers from each SVE well. Field visits were conducted bi-weekly throughout the fourth quarter of 2024. Field parameters noted above were collected during each visit. Field notes taken during operations and maintenance (O&M) visits are presented in Appendix A. On October 14, 2024, the valves for SVE wells SVE02 and SVE03 were closed in order to focus extraction on SVE01, the well with the highest PID readings. In October 2024, the system was winterized, and blower motor speed was reduced to allow for adequate current to run the heat trace. Between September 19

and December 17, 2024, the SVE system operated for 1,989.3 hours for a runtime efficiency of 93.1 percent (%). System downtime was the result of a blown transformer that was identified on October 6, 2024. The transformer was replaced on October 12, 2024, and the SVE system immediately resumed operation. Appendix B presents photographs of the runtime meter for calculating the fourth quarter of 2024 runtime efficiency. Table 1 presents the SVE system operational hours and calculated percentage runtime.

Based on the February 2023 COAs, vapor samples are required to be collected quarterly following the first year of operation from a sample port located between the SVE piping manifold and the SVE blower using a high vacuum air sampler. A vapor sample was collected on November 19, 2024. Prior to collection, the vapor sample was field screened with a PID for organic vapor monitoring (OVM). The vapor sample was 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, VOCs following EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide following Gas Processors Association (GPA) Method 2261. A summary of field measurements and analytical results are presented in Tables 2 and 3, respectively. The full laboratory analytical report is attached as Appendix C. Oxygen and carbon dioxide levels over time are presented in Graphs 1 and 2, respectively. Vapor samples will continue to be collected quarterly for the remainder of system operation.

Vapor sample data and measured influent flow rates are used to estimate total mass recovered and total emissions generated by the SVE system (Table 4). Based on these estimates, 1,871 pounds (0.94 tons) of TVPH have been removed by the system to date between system startup and November 19, 2024.

DISCUSSION AND RECOMMENDATIONS

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

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

Sincerely,

Ensolum, LLC

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Attachments:

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Figure 2	SVE System Radius of Influence and Radius of Effect
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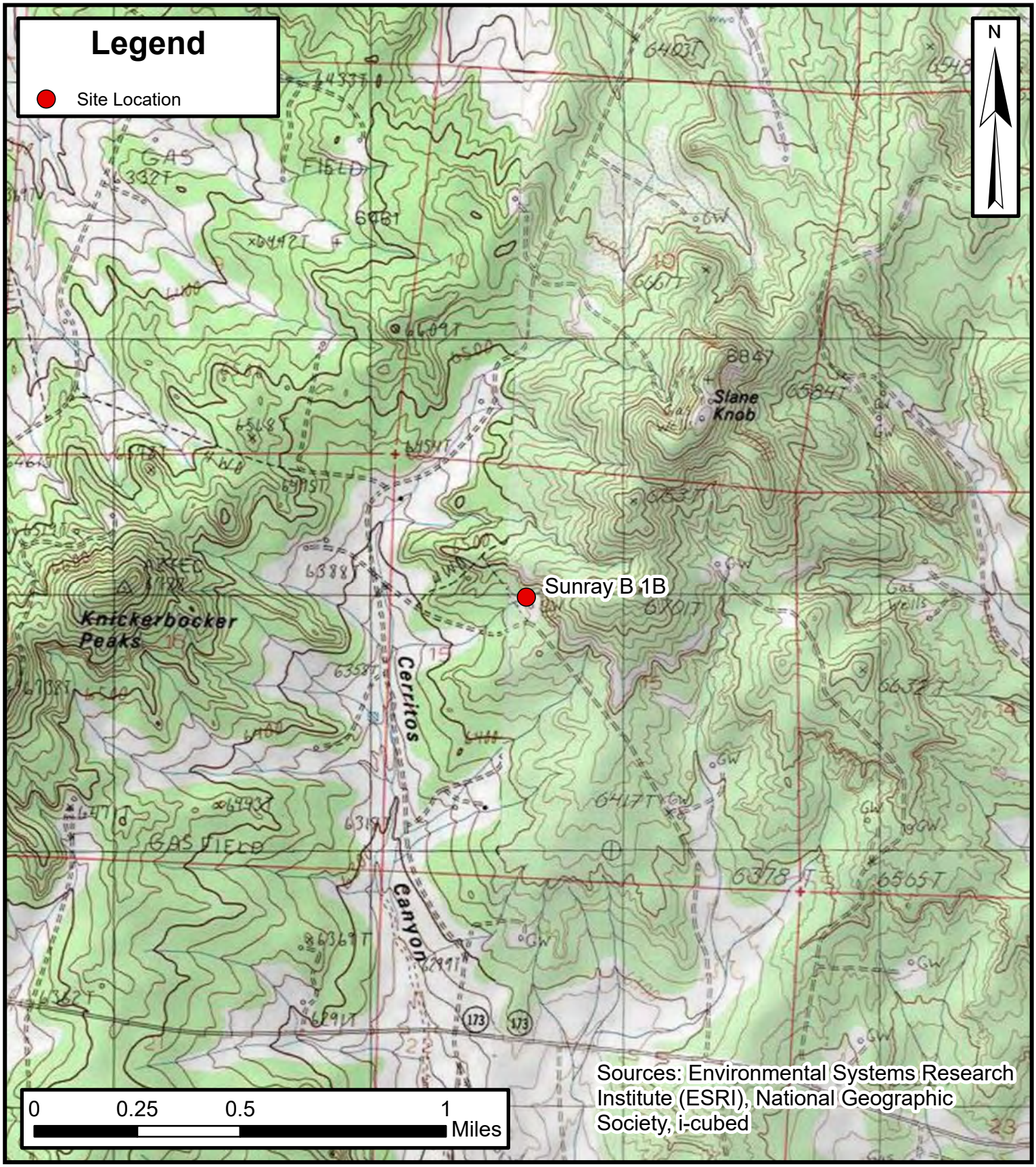

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Site Location Map

Sunray B 1B
Hilcorp Energy Company

36.8147621, -107.8746643
San Juan County, New Mexico

FIGURE
1

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SVE System Radius of Influence and Radius of Effect

Sunray B 1B
Hilcorp Energy Company
36.8147621, -107.8746643
San Juan County, New Mexico

FIGURE
2

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Tables & Graphs

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TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

Date	Total Operational Hours	Delta Hours	Days	Quarterly Percent Runtime	Cumulative Percent Runtime
9/29/2023	126.8	Startup			
12/28/2023	2,181.4	2,054.6	90	95.1%	95.1%
3/21/2024	4,185.4	2,004.0	84	99.4%	97.2%
6/26/2024	6,514.1	2,328.7	97	100%	98.2%
9/19/2024	8,519.0	2,004.9	85	98.3%	98.2%
12/17/2024	10,508.3	1,989.3	89	93.1%	97.2%

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2]	Vacuum (IWC)	Oxygen (%)	Carbon Dioxide (%)
Influent, All Wells	8/29/2023	788	2.70	144	92	74.8	--	--
	8/30/2023	1,826	--	--	--	68.0	20.9	0.62
	9/29/2023	538	3.00	151	99	68.0	20.9	0.26
	10/6/2023	431	3.00	151	101	60.5	20.9	0.00
	10/12/2023	356	5.30	201	127	80.0	20.9	0.00
	10/19/2023	399	5.70	209	131	81.0	20.9	0.10
	10/26/2023	165	6.50	223	146	68.0	20.9	0.10
	10/31/2023	278	5.60	207	134	72.1	--	--
	11/16/2023	378	6.90	230	153	61.2	--	--
	11/28/2023	147	7.20	235	156	61.2	--	--
	12/7/2023	205	7.00	231	157	54.4	19.6	0.02
	12/13/2023	165	6.90	230	153	61.2	19.3	0.02
	12/20/2023	182	7.10	233	155	61.2	--	--
	12/28/2023	39	4.80	192	135	40.8	--	--
	1/19/2024	59	3.79	170	118	46.9	20.9	0.06
	2/2/2024	143	3.65	167	116	47.6	20.9	0.02
	2/14/2024	329	3.40	161	111	51.0	--	--
	2/23/2024	204	3.50	164	128	51.0	--	--
	3/6/2024	101	3.30	159	125	47.6	--	--
	3/21/2024	86	3.54	164	129	42.5	--	--
	4/9/2024	91	3.43	162	127	40.8	--	--
	4/17/2024	99	3.25	158	124	16.3	--	--
	5/14/2024	53	4.32	182	143	61.2	--	--
	5/23/2024	57	4.35	182	143	61.2	--	--
	6/4/2024	134	4.12	177	139	61.2	--	--
	6/26/2024	35	4.04	176	138	61.2	--	--
	7/10/2024	96	6.78	228	179	64.6	--	--
	7/26/2024	35	3.99	175	137	61.2	--	--
	8/8/2024	23	3.77	170	133	61.2	--	--
	8/21/2024	32	3.75	169	133	61.2	--	--
	9/6/2024	22	3.61	166	130	61.2	--	--
	9/19/2024	30	3.73	169	133	61.2	--	--
	10/14/2024	130	3.98	174	137	69.4	--	--
	10/29/2024	219	0.08	25	19	68.0	--	--
	11/6/2024	241	0.11	29	23	68.0	--	--
	11/19/2024	58	0.08	25	19	68.0	--	--
	12/3/2024	93	0.07	23	18	68.0	--	--
	12/17/2024	85	0.08	25	19	68.0	--	--
SVE01	8/29/2023	2,789	--	--	16	78.9	--	--
	8/30/2023	3,588	--	--	20	--	20.9	0.62
	9/29/2023	1,312	--	--	10	76.2	20.9	0.18
	10/6/2023	1,429	--	--	10	66.0	20.9	--
	10/12/2023	2,450	--	--	9	76.0	20.9	0.18
	10/19/2023	672	--	--	10	70.0	20.9	0.08
	10/26/2023	420	--	--	10	68.0	20.9	0.08
	10/31/2023	348	--	--	--	72.1	20.9	0.02
	11/16/2023	688	--	--	8	78.9	19.8	0.06
	11/28/2023	453	--	--	8	62.6	20.2	0.04
	12/7/2023	430	--	--	8	58.0	19.6	0.02
	12/13/2023	405	--	--	10	59.8	19.3	0.02
	12/20/2023	--	--	--	12	59.8	--	--
	12/28/2023	20	--	--	9	49.0	19.3	0.04
	1/19/2024	151	--	--	8	49.0	20.9	0.04
	2/2/2024	345	0.60	68	48	38.0	20.9	0.04
	2/14/2024	215	0.13	32	22	43.5	20.9	0.02
	2/23/2024	245	0.04	17	14	32.6	20.9	0.02
	3/6/2024	268	--	--	--	40.0	20.7	0.00
	3/21/2024	187	0.06	21	17	38.1	20.9	0.02
	4/9/2024	174	0.04	17	14	38.1	20.9	0.02
	4/17/2024	180	0.04	17	14	39.4	20.9	0.02
	5/14/2024	134	0.06	21	17	54.4	20.9	0.03
	5/23/2024	100	0.05	20	15	35.4	20.5	0.04
	6/4/2024	213	0.08	25	19	54.4	20.9	0.04
	6/26/2024	187	0.06	21	17	54.4	20.9	0.04
	7/10/2024	139	0.06	21	17	57.1	20.9	0.05

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2]	Vacuum (IWC)	Oxygen (%)	Carbon Dioxide (%)
SVE01	7/26/2024	113	0.06	21	17	55.8	20.9	0.05
	8/8/2024	94	0.06	21	17	57.1	20.9	0.05
	8/21/2024	100	0.07	23	18	57.1	20.9	0.04
	9/6/2024	82	0.07	23	18	57.1	20.9	0.05
	9/19/2024	87	0.04	17	14	57.1	20.9	0.06
	10/14/2024	95	--	--	--	69.4	20.9	0.07
	10/29/2024	132	0.05	20	15	68.0	20.9	0.04
	11/6/2024	183	0.06	21	17	68.0	20.9	0.06
	11/19/2024	71	0.05	20	15	70.7	20.9	0.03
	12/3/2024	98	0.05	20	15	65.3	20.9	0.04
	12/17/2024	87	0.05	20	15	69.4	20.9	0.04
SVE02	8/29/2023	416	--	--	16	81.6	--	--
	8/30/2023	1,849	--	--	23	--	20.9	0.62
	9/29/2023	403	--	--	13	73.4	20.9	0.12
	10/6/2023	382	--	--	22	66.0	20.9	--
	10/12/2023	540	--	--	16	72.0	20.9	0.10
	10/19/2023	288	--	--	14	70.0	20.9	0.08
	10/26/2023	95	--	--	10	72.0	20.9	0.04
	10/31/2023	215	--	--	18	69.4	20.9	0.10
	11/16/2023	515	--	--	15	62.6	19.8	0.02
	11/28/2023	93	--	--	19	59.8	20.2	0.02
	12/7/2023	55	--	--	18	56.0	19.6	0.02
	12/13/2023	107	--	--	25	57.1	19.3	0.00
	12/20/2023	--	--	--	24	54.4	--	--
	12/28/2023	44	--	--	18	43.5	19.3	0.02
	1/19/2024	38	--	--	16	43.5	20.9	0.04
	2/2/2024	13	0.14	33	24	34.0	20.9	0.02
	2/14/2024	75	0.08	25	18	24.5	20.9	0.03
	2/23/2024	99	0.09	26	21	29.9	20.9	0.03
	3/6/2024	105	--	--	--	10.0	20.7	0.04
	3/21/2024	25	0.12	30	24	27.2	20.9	0.03
	4/9/2024	77	0.02	12	10	28.6	20.9	0.03
	4/17/2024	71	0.02	12	10	15.9	20.9	0.03
	5/14/2024	40	0.02	12	10	18.5	20.9	0.04
	5/23/2024	64	0.02	12	10	5.4	20.8	0.04
	6/4/2024	59	0.09	26	21	6.8	20.9	0.05
	6/26/2024	19	0.01	9	7	6.8	20.9	0.03
	7/10/2024	29	0.09	26	21	10.9	20.9	0.08
	7/26/2024	35	0.09	26	21	43.5	20.9	0.07
	8/8/2024	25	0.08	25	19	43.5	20.9	0.06
	8/21/2024	36	0.05	20	15	43.5	20.9	0.06
	9/6/2024	28	0.06	21	17	43.5	20.9	0.05
	9/19/2024	35	0.06	21	17	43.5	20.9	0.05
	10/14/2024	Well Taken Offline						
SVE03	8/29/2023	174	--	--	25	73.4	--	--
	8/30/2023	426	--	--	>25	--	20.9	0.62
	9/29/2023	248	--	--	>25	65.3	20.9	0.20
	10/6/2023	162	--	--	40	52.0	20.9	--
	10/12/2023	450	--	--	50	52.0	20.9	0.14
	10/19/2023	131	--	--	<50	55.0	20.9	0.10
	10/26/2023	88	--	--	>50	56.0	20.9	0.08
	10/31/2023	89	--	--	>50	53.0	20.9	0.02
	11/16/2023	258	--	--	>50	50.3	19.8	0.04
	11/28/2023	148	--	--	>50	47.6	20.2	0.02
	12/7/2023	45	--	--	>50	44.0	19.6	0.02
	12/13/2023	175	--	--	>50	50.3	19.3	0.02
	12/20/2023	--	--	--	>50	46.2	--	--
	12/28/2023	34	--	--	>50	35.4	19.3	0.04
	1/19/2024	31	--	--	36	35.4	20.9	0.08
	2/2/2024	74	0.73	75	55	24.0	20.9	0.02
	2/14/2024	54	0.88	82	61	23.1	20.9	0.06
	2/23/2024	63	0.60	68	53	23.1	20.9	0.06
	3/6/2024	125	--	--	--	24.0	20.5	0.06
	3/21/2024	51	0.36	52	41	23.1	20.9	0.06
	4/8/2024	55	0.73	75	59	23.1	20.9	0.07

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM FIELD MEASUREMENTS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

SVE Well ID	Date	PID (ppm)	Differential Pressure (IWC)	Flow Rate (acfm)	Flow Rate (scfm)[1][2]	Vacuum (IWC)	Oxygen (%)	Carbon Dioxide (%)
SVE03	4/17/2024	58	0.73	75	59	27.2	20.9	0.07
	5/14/2024	37	1.02	88	69	35.4	20.9	0.07
	5/23/2024	35	0.98	87	68	35.4	20.4	0.04
	6/4/2024	42	0.79	78	61	34.0	20.9	0.06
	6/26/2024	27	0.84	80	63	32.6	20.9	0.06
	7/10/2024	35	0.82	79	62	42.2	20.9	0.11
	7/26/2024	32	0.69	73	57	40.8	20.9	0.08
	8/8/2024	28	0.67	72	56	43.5	20.9	0.08
	8/21/2024	29	0.66	71	56	40.8	20.9	0.08
	9/6/2024	26	0.59	67	53	40.8	20.9	0.08
	9/19/2024	32	0.54	64	50	39.4	20.9	0.07
	10/14/2024	Well Taken Offline						

Notes:

(1): individual well flow rates in scfm estimated based on rotometer field measurements through 1/19/24; calculated from pitot tube differential pressure readings beginning 2/2/24

(2): total system flow rates in scfm calculated based on pitot tube differential pressure measurements

IWC: inches of water column

PID: photoionization detector

ppm: parts per million

acfm: actual cubic feet per minute

scfm: standard cubic feet per minute

%: percent

--: not measured

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TABLE 3
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
8/29/2023	788	18	190	6.8	58	5,900	18.38%	4.23%
8/30/2023	1,826	10	230	<10	77	6,000	21.39%	0.87%
9/29/2023	538	4.8	140	11	100	4,100	21.67%	0.36%
10/6/2023	529	<2.0	48	<5.0	41	1,400	21.74%	0.18%
10/12/2023	357	<2.0	47	<5.0	51	1,800	21.69%	0.22%
10/19/2023	399	<5.0	29	<5.0	29	1,200	21.81%	0.16%
10/26/2023	165	<5.0	26	<5.0	21	960	21.80%	0.15%
10/31/2023	278	0.53	30	3.3	42	900	21.60%	0.17%
11/16/2023	378	0.41	21	2.5	35	1,100	21.61%	0.10%
11/28/2023	147	<0.50	13	1.7	22	750	21.64%	0.10%
12/13/2023	165	<0.50	11	1.6	20	650	21.68%	0.10%
12/28/2023	39	<0.10	<0.10	<0.10	<0.15	7.5	21.73%	0.05%
1/19/2024	59	<0.50	4.7	0.58	6.0	300	21.73%	0.05%
3/6/2024	101	<5.0	<5.0	<5.0	<7.5	<250	22.19%	0.12%
5/14/2024	53	<0.10	3.1	0.44	6.4	210	21.43%	0.13%
7/26/2024	35	<0.20	2.4	0.28	4.1	180	21.79%	0.15%
9/6/2024	22	<0.50	<0.50	<0.50	<0.75	<25	21.73%	0.05%
11/19/2024	58	0.84	11	1.0	14	320	21.81%	0.14%

Notes:

GRO: gasoline range hydrocarbons

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

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

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TABLE 4
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Sunray B 1B
Hilcorp Energy Company
San Juan County, New Mexico

Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
8/29/2023	788	18	190	6.8	58	5,900
8/30/2023	1,826	10	230	*10*	77	6,000
9/29/2023	538	4.8	140	11	100	4,100
10/6/2023	529	*2.0*	48	*5.0*	41	1,400
10/12/2023	357	*2.0*	47	*5.0*	51	1,800
10/19/2023	399	*5.0*	29	*5.0*	29	1,200
10/26/2023	165	*5.0*	26	*5.0*	21	960
10/31/2023	278	0.53	30	3.3	42	900
11/16/2023	378	0.41	21	2.5	35	1,100
11/28/2023	147	*0.50*	13	1.7	22	750
12/13/2023	165	*0.50*	11	1.60	20	650
12/28/2023	39	*0.10*	*0.10*	*0.10*	*0.15*	7.5
1/19/2024	59	*0.50*	4.7	0.58	6.0	300
3/6/2024	101	*5.0*	*5.0*	*5.0*	*7.5*	*250*
5/14/2024	53	*0.10*	3.1	0.44	6.4	210
7/26/2024	35	*0.20*	2.4	0.28	4.1	180
9/6/2024	22	*0.50*	*0.50*	*0.50*	*0.75*	*25*
11/19/2024	58	0.84	11	1.0	14	320
Average	330	3	45	4	30	1,447

Vapor Extraction Summary

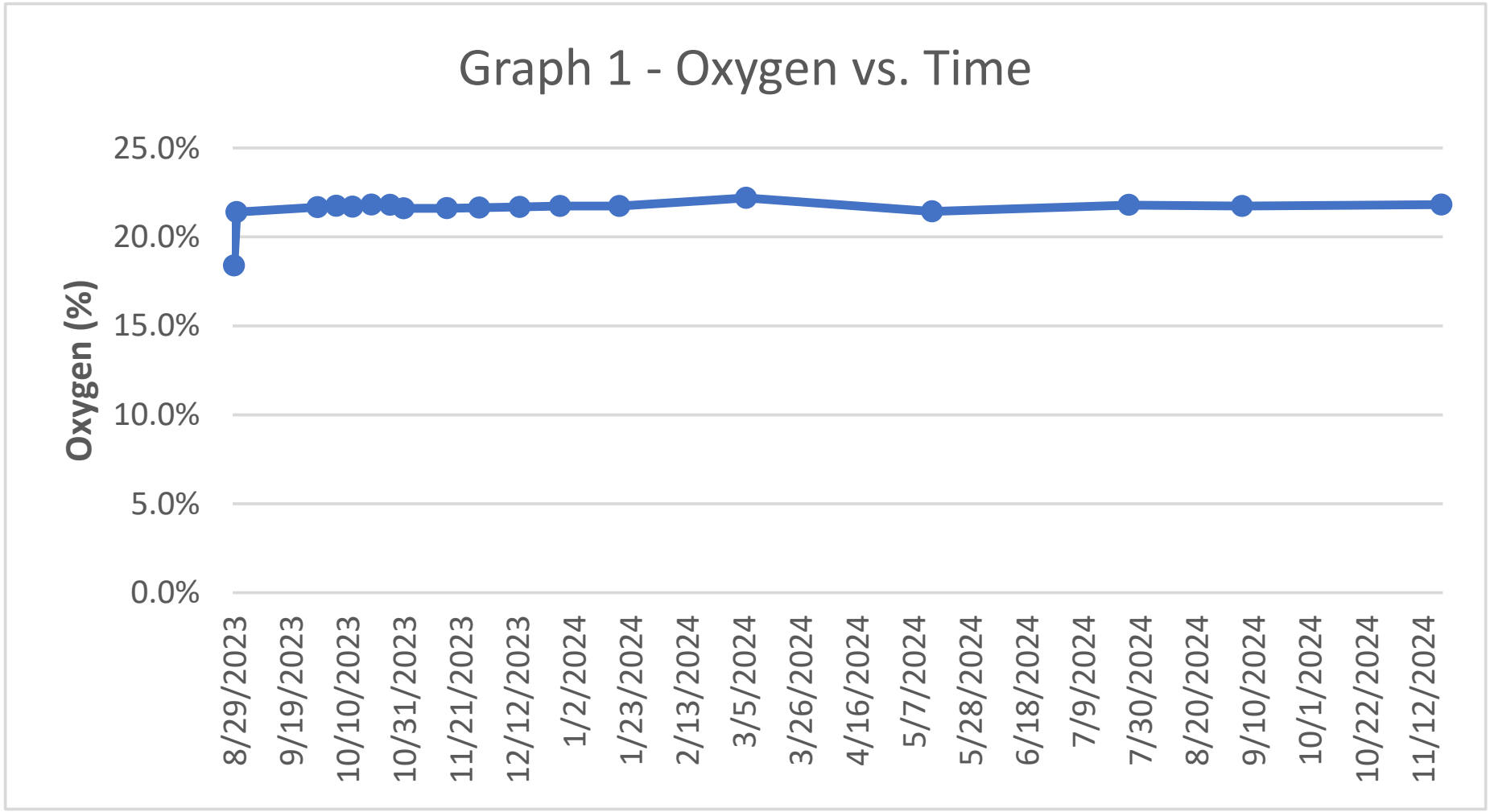
Date	Flow Rate (scfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
9/29/2023	99.0	Updated System Startup						
10/6/2023	101	1,015,656	1,015,656	0.00127	0.035	0.0030	0.026	1.03
10/12/2023	127	--	--	--	--	--	--	--
10/19/2023	131	5,575,242	4,559,586	0.0015	0.017	0.0022	0.0152	0.56
10/26/2023	146	7,013,634	1,438,392	0.0026	0.0142	0.0026	0.0130	0.56
10/31/2023	134	7,760,550	746,916	0.00145	0.0147	0.0022	0.0165	0.49
11/16/2023	153	11,259,048	3,498,498	0.00025	0.0137	0.0016	0.0207	0.54
11/28/2023	156	13,876,104	2,617,056	0.00026	0.0098	0.0012	0.0165	0.53
12/13/2023	153	17,154,282	3,278,178	0.00029	0.0069	0.0010	0.0121	0.40
12/28/2023	135	19,794,882	2,640,600	0.00016	0.0030	0.0005	0.0054	0.18
1/19/2024	118	23,462,322	3,667,440	0.00014	0.0011	0.0002	0.0015	0.07
3/6/2024	125	31,920,822	8,458,500	0.00125	0.0022	0.0013	0.0031	0.12
5/14/2024	143	46,119,006	14,198,184	0.00128	0.0020	0.0014	0.0035	0.12
7/26/2024	137	60,469,482	14,350,476	0.00008	0.0014	0.0002	0.0027	0.10
9/6/2024	133	68,267,538	7,798,056	0.00018	0.0007	0.0002	0.0012	0.05
11/19/2024	19	70,128,360	1,860,822	0.00019	0.0016	0.0002	0.0021	0.05
			Average	0.00078	0.009	0.0012	0.010	0.34

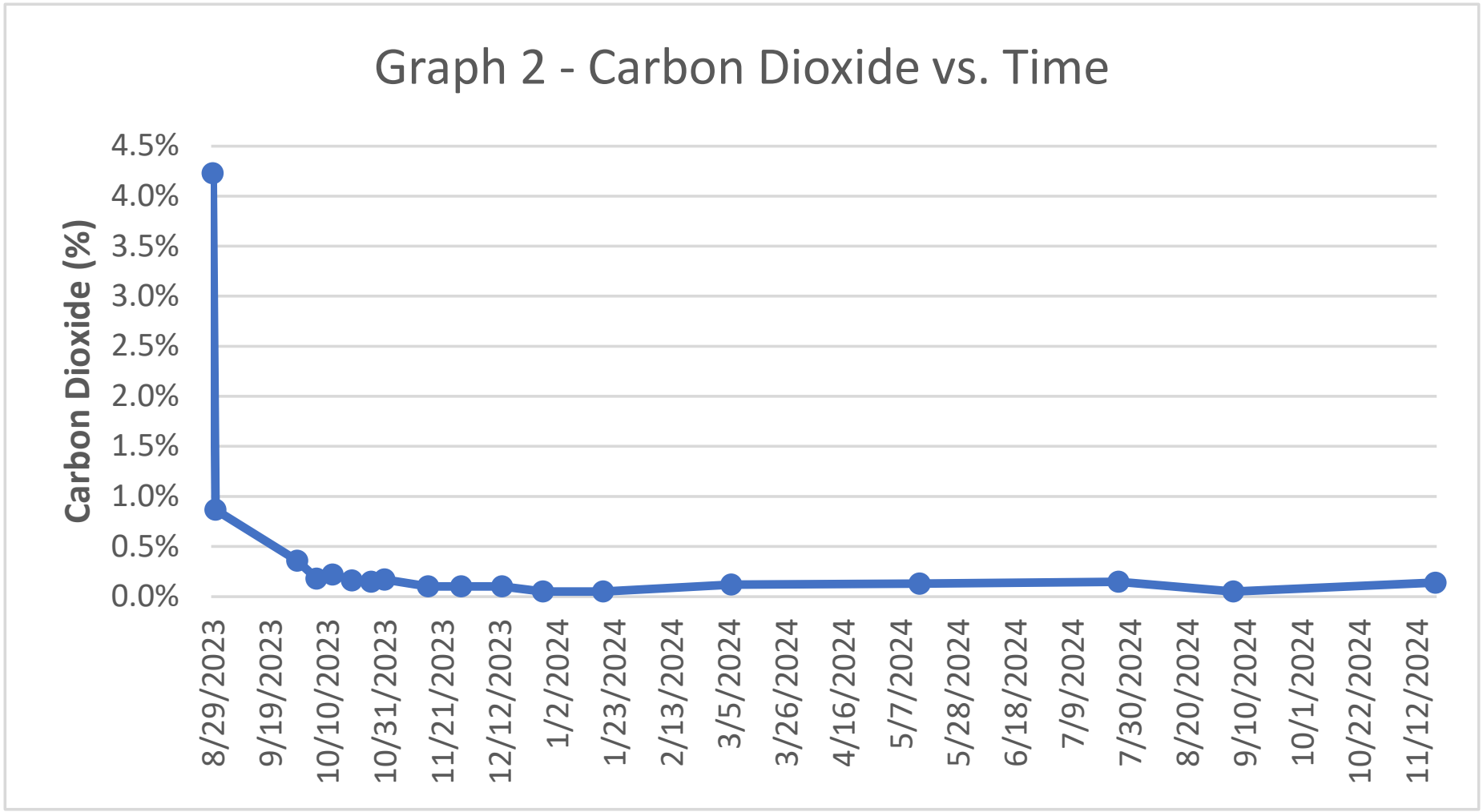
Mass Recovery

Date	Total Operational Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
9/29/2023	127	Updated System Startup						
10/6/2023	294	168	0.21	5.9	0.50	4.4	172	0.086
10/12/2023	--	--	--	--	--	--	--	--
10/19/2023	580	580	0.88	9.7	1.26	8.8	327	0.164
10/26/2023	744	164	0.43	2.3	0.43	2.1	92	0.046
10/31/2023	837	93	0.134	1.36	0.20	1.53	45	0.023
11/16/2023	1,218	381	0.096	5.2	0.59	7.9	205	0.102
11/28/2023	1,498	280	0.074	2.7	0.34	4.6	149	0.075
12/13/2023	1,855	357	0.103	2.5	0.34	4.3	144	0.072
12/28/2023	2,181	326	0.053	1.0	0.15	1.8	58	0.029
1/19/2024	2,699	518	0.074	0.6	0.08	0.8	38	0.019
3/6/2024	3,827	1,128	1.409	2.5	1.43	3.5	141	0.070
5/14/2024	5,482	1,655	2.115	3.4	2.26	5.8	191	0.095
7/26/2024	7,227	1,746	0.137	2.5	0.33	4.8	178	0.089
9/6/2024	8,205	977	0.173	0.7	0.19	1.2	51	0.025
11/19/2024	9,837	1,632	0.311	2.7	0.35	3.4	80	0.040
		Total Mass Recovery to Date	6.20	43	8.4	55	1,871	0.94

Notes:

cf: cubic feet
scfm: standard 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
--: not measured
gray: laboratory reporting limit used for calculating emissions





ENSOLUM

APPENDIX A

Field Notes

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 10-14
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	8973.5	1228
Inlet Vacuum (IHG)	5.1	
Differential Pressure (IWC)	3.98	
Inlet PID	129.8	
Exhaust PID	53.8	
exh ~~Inlet~~ Temperature	150	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

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

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%) ppm
SVE01	5.1	95.3		20.9	680
~~SVE02~~	~~3.1~~	~~37.3~~		~~20.9~~	~~520~~
~~SVE03~~	~~2.7~~	~~41.9~~	~~0.28~~	~~20.9~~	~~840~~

COMMENTS/OTHER MAINTENANCE:

closed valves 2 & 3

ENSOLUM

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 10-29
TIME ONSITE: _____

O&M PERSONNEL: B Sinclair
TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	9332.1	1310
Inlet Vacuum (IHG)	5.0	
Differential Pressure (IWC)	0.08	
Inlet PID	219.3	
Exhaust PID	28.4	
exh ~~Inlet~~ Temperature	110	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	15.5	

SVE SYSTEM SAMPLING

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

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%) ppm
SVE01	5.0	132.1	0.05	20.9	400
~~SVE02~~					
~~SVE03~~					

COMMENTS/OTHER MAINTENANCE:

closed valves 2 & 3 (again). MSO was unaware of change and opened values after system was winterized.

ENSOLUM

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 11-6
TIME ONSITE: _____

O&M PERSONNEL: B Sinclair
TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	✓

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	9523.9	1156
Inlet Vacuum (IHG)	5.0	
Differential Pressure (IWC)	0.11	
Inlet PID	241.3	
Exhaust PID	37.8	
~~Inlet~~ exh Temperature	110	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

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

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	5.0	182.9	0.06	20.9	560
~~SVE02~~					
~~SVE03~~					

COMMENTS/OTHER MAINTENANCE:

- Discarded oil had a milky/foamy appearance, which could indicate water mixing with the oil.
- System overload is preventing system from restarting. Frequency only reaches 21 Hz.
- Had to open release valve on KO tank to restart system.

LUM

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 11-19 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	9836.9	1353
Inlet Vacuum (IHG)	5.0	
Differential Pressure (IWC)	0.08	
Inlet PID	57.8	
Exhaust PID	26.5	
exh ~~Inlet~~ Temperature	100	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	8	

SVE SYSTEM SAMPLING

SAMPLE ID:	SVE-1	**SAMPLE TIME:** 1340
Analytes:	Sample Bi-Monthly (every other month) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)	
OPERATING WELLS		

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%) ppm
SVE01	5.2	71.2	0.05	20.9	300
~~SVE02~~					
~~SVE03~~					

COMMENTS/OTHER MAINTENANCE:

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 12-3 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	10172.6	1256
Inlet Vacuum (IHG)	5.0	
Differential Pressure (IWC)	0.07	
Inlet PID	93.3	
Exhaust PID	27.4	
ex~~Inlet~~ Temperature	120	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

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

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	4.8	97.9	0.05	20.9	380
~~SVE02~~					
~~SVE03~~					

COMMENTS/OTHER MAINTENANCE:

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SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 12-17 O&M PERSONNEL: B Sinclair
TIME ONSITE: _____ TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours **(take photo)**	10308.5	1150
Inlet Vacuum (IHG)	5.0	
Differential Pressure (IWC)	0.08	
Inlet PID	89.8	
Exhaust PID	29.3	
exh ~~Inlet~~ Temperature	110	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		

SVE SYSTEM SAMPLING

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

Change in Well Operation:

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	DIFF PRESSURE (IN W.C.)	OXYGEN (%)	CARBON DIOXIDE (%)
SVE01	5.1	86.7	0.05	20.9	360
~~SVE02~~					
~~SVE03~~					

COMMENTS/OTHER MAINTENANCE:

ENSOLUM

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Sunray B 1B
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on September 19, 2024 at 10:48 AM Hours = 8,519.0	
Photograph 2 Runtime meter taken on December 17, 2024 at 11:50 AM Hours = 10,508.3	

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 12/4/2024 12:33:38 PM Revision 1

JOB DESCRIPTION

Sunray B 1B

JOB NUMBER

885-15705-1

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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Revision 1

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

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Laboratory Job ID: 885-15705-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

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: Sunray B 1B

Job ID: 885-15705-1

Job ID: 885-15705-1 Eurofins Albuquerque

Job Narrative
885-15705-1

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..

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 11/21/2024 6:35 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 10.9°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: Sunray B 1B

Job ID: 885-15705-1

Client Sample ID: SVE-1
Date Collected: 11/19/24 13:40
Date Received: 11/21/24 06:35
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-15705-1
Matrix: Air

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]	**320**		25		ug/L			11/22/24 17:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*52 - 172*		*11/22/24 17:51*	*5*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50		ug/L			11/22/24 17:51	5
1,1,1-Trichloroethane	ND		0.50		ug/L			11/22/24 17:51	5
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			11/22/24 17:51	5
1,1,2-Trichloroethane	ND		0.50		ug/L			11/22/24 17:51	5
1,1-Dichloroethane	ND		0.50		ug/L			11/22/24 17:51	5
1,1-Dichloroethene	ND		0.50		ug/L			11/22/24 17:51	5
1,1-Dichloropropene	ND		0.50		ug/L			11/22/24 17:51	5
1,2,3-Trichlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
1,2,3-Trichloropropane	ND		1.0		ug/L			11/22/24 17:51	5
1,2,4-Trichlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
1,2,4-Trimethylbenzene	**1.2**		0.50		ug/L			11/22/24 17:51	5
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			11/22/24 17:51	5
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			11/22/24 17:51	5
1,2-Dichlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
1,2-Dichloroethane (EDC)	ND		0.50		ug/L			11/22/24 17:51	5
1,2-Dichloropropane	ND		0.50		ug/L			11/22/24 17:51	5
1,3,5-Trimethylbenzene	**1.4**		0.50		ug/L			11/22/24 17:51	5
1,3-Dichlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
1,3-Dichloropropane	ND		0.50		ug/L			11/22/24 17:51	5
1,4-Dichlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
1-Methylnaphthalene	ND		2.0		ug/L			11/22/24 17:51	5
2,2-Dichloropropane	ND		1.0		ug/L			11/22/24 17:51	5
2-Butanone	ND		5.0		ug/L			11/22/24 17:51	5
2-Chlorotoluene	ND		0.50		ug/L			11/22/24 17:51	5
2-Hexanone	ND		5.0		ug/L			11/22/24 17:51	5
2-Methylnaphthalene	ND		2.0		ug/L			11/22/24 17:51	5
4-Chlorotoluene	ND		0.50		ug/L			11/22/24 17:51	5
4-Isopropyltoluene	ND		0.50		ug/L			11/22/24 17:51	5
4-Methyl-2-pentanone	ND		5.0		ug/L			11/22/24 17:51	5
Acetone	ND		5.0		ug/L			11/22/24 17:51	5
Benzene	**0.84**		0.50		ug/L			11/22/24 17:51	5
Bromobenzene	ND		0.50		ug/L			11/22/24 17:51	5
Bromodichloromethane	ND		0.50		ug/L			11/22/24 17:51	5
Dibromochloromethane	ND		0.50		ug/L			11/22/24 17:51	5
Bromoform	ND		0.50		ug/L			11/22/24 17:51	5
Bromomethane	ND		1.5		ug/L			11/22/24 17:51	5
Carbon disulfide	ND		5.0		ug/L			11/22/24 17:51	5
Carbon tetrachloride	ND		0.50		ug/L			11/22/24 17:51	5
Chlorobenzene	ND		0.50		ug/L			11/22/24 17:51	5
Chloroethane	ND		1.0		ug/L			11/22/24 17:51	5
Chloroform	ND		0.50		ug/L			11/22/24 17:51	5

Client Sample Results

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

Client Sample ID: SVE-1
Date Collected: 11/19/24 13:40
Date Received: 11/21/24 06:35
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-15705-1
Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		1.5		ug/L			11/22/24 17:51	5
cis-1,2-Dichloroethene	ND		0.50		ug/L			11/22/24 17:51	5
cis-1,3-Dichloropropene	ND		0.50		ug/L			11/22/24 17:51	5
Dibromomethane	ND		0.50		ug/L			11/22/24 17:51	5
Dichlorodifluoromethane	ND		0.50		ug/L			11/22/24 17:51	5
Ethylbenzene	**1.0**		0.50		ug/L			11/22/24 17:51	5
Hexachlorobutadiene	ND		0.50		ug/L			11/22/24 17:51	5
Isopropylbenzene	ND		0.50		ug/L			11/22/24 17:51	5
Methyl-tert-butyl Ether (MTBE)	ND		0.50		ug/L			11/22/24 17:51	5
Methylene Chloride	ND		1.5		ug/L			11/22/24 17:51	5
n-Butylbenzene	ND		1.5		ug/L			11/22/24 17:51	5
N-Propylbenzene	ND		0.50		ug/L			11/22/24 17:51	5
Naphthalene	ND		1.0		ug/L			11/22/24 17:51	5
sec-Butylbenzene	ND		0.50		ug/L			11/22/24 17:51	5
Styrene	ND		0.50		ug/L			11/22/24 17:51	5
tert-Butylbenzene	ND		0.50		ug/L			11/22/24 17:51	5
Tetrachloroethene (PCE)	ND		0.50		ug/L			11/22/24 17:51	5
Toluene	**11**		0.50		ug/L			11/22/24 17:51	5
trans-1,2-Dichloroethene	ND		0.50		ug/L			11/22/24 17:51	5
trans-1,3-Dichloropropene	ND		0.50		ug/L			11/22/24 17:51	5
Trichloroethene (TCE)	ND		0.50		ug/L			11/22/24 17:51	5
Trichlorofluoromethane	ND		0.50		ug/L			11/22/24 17:51	5
Vinyl chloride	ND		0.50		ug/L			11/22/24 17:51	5
Xylenes, Total	**14**		0.75		ug/L			11/22/24 17:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 130*		*11/22/24 17:51*	*5*
Toluene-d8 (Surr)	*100*		*70 - 130*		*11/22/24 17:51*	*5*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*		*11/22/24 17:51*	*5*
Dibromofluoromethane (Surr)	*104*		*70 - 130*		*11/22/24 17:51*	*5*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

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

Lab Sample ID: MB 885-16598/4
Matrix: Air
Analysis Batch: 16598

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			11/22/24 14:38	1

Surrogate	*MB %Recovery*	*MB 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
Matrix: Air
Analysis Batch: 16598

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	4260		ug/L		100	70 - 130		

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

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

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

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			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

QC Sample Results

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

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

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

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	ND		0.40		ug/L			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
Bromobenzene	ND		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

Surrogate	*MB %Recovery*	*MB 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*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

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

Analyte	MB Result	MB 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
1,1,2,2-Tetrachloroethane	ND		2.0		ug/L			11/22/24 14:38	1
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		1.0		ug/L			11/22/24 14:38	1
Ethylbenzene	ND		1.0		ug/L			11/22/24 14:38	1
Hexachlorobutadiene	ND		1.0		ug/L			11/22/24 14:38	1

QC Sample Results

Client: Hilcorp Energy
Project/Site: Sunray B 1B

Job ID: 885-15705-1

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	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
Methylene Chloride	ND		3.0		ug/L			11/22/24 14:38	1
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

Surrogate	*MB %Recovery*	*MB 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
Matrix: Air
Analysis Batch: 16467

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	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		

Surrogate	*LCS %Recovery*	*LCS 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
Project/Site: Sunray B 1B

Job ID: 885-15705-1

GC/MS VOA

Analysis Batch: 16467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15705-1	SVE-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

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-15705-1	SVE-1	Total/NA	Air	8015M/D	
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
Project/Site: Sunray B 1B

Job ID: 885-15705-1

Client Sample ID: SVE-1
Date Collected: 11/19/24 13:40
Date Received: 11/21/24 06:35

Lab Sample ID: 885-15705-1
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015M/D		5	16598	CM	EET ALB	11/22/24 17:51
Total/NA	Analysis	8260B		5	16467	CM	EET ALB	11/22/24 17:51

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: Sunray B 1B

Job ID: 885-15705-1

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: Sunray B 1B

Job ID: 885-15705-1

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: Sunray B 1B

Job ID: 885-15705-1

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

December 02, 2024

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

Work Order: B24111779 Quote ID: B15626
Project Name: Sunray B 1B, 88501698

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 11/22/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24111779-001	(885-15705-1) SVE-1	11/19/24 13:40	11/22/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 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: Sunray B 1B, 88501698
Lab ID: B24111779-001
Client Sample ID: (885-15705-1) SVE-1

Report Date: 12/02/24
Collection Date: 11/19/24 13:40
DateReceived: 11/22/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.81	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Nitrogen	78.05	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Carbon Dioxide	0.14	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Hexanes plus	<0.01	Mol %		0.01		GPA 2261-13	11/25/24 10:06 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
Hexanes plus	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
GPM Total	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
GPM Pentanes plus	< 0.001	gpm		0.001		GPA 2261-13	11/25/24 10:06 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	ND			1		GPA 2261-13	11/25/24 10:06 / jrj
Net BTU per cu ft @ std cond. (LHV)	ND			1		GPA 2261-13	11/25/24 10:06 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-13	11/25/24 10:06 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-13	11/25/24 10:06 / jrj
Specific Gravity @ 60/60F	0.998			0.001		D3588-81	11/25/24 10:06 / jrj
Air, %	99.66			0.01		GPA 2261-13	11/25/24 10:06 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	11/25/24 10:06 / 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

Work Order: B24111779 **Report Date:** 12/02/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-13**										Batch: R433029
Lab ID: **B24111782-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_241125A				11/25/24 12:33
Oxygen		21.9	Mol %	0.01				0.1	20	
Nitrogen		77.8	Mol %	0.01				0	20	
Carbon Dioxide		0.29	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		0.03	Mol %	0.01				0.0	20	
Lab ID: **LCS112524**	11	Laboratory Control Sample				Run: GCNGA-B_241125A				11/25/24 14:10
Oxygen		0.65	Mol %	0.01	130	70	130			
Nitrogen		5.80	Mol %	0.01	97	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		75.0	Mol %	0.01	100	70	130			
Ethane		5.97	Mol %	0.01	99	70	130			
Propane		5.01	Mol %	0.01	101	70	130			
Isobutane		1.84	Mol %	0.01	92	70	130			
n-Butane		1.97	Mol %	0.01	98	70	130			
Isopentane		1.04	Mol %	0.01	104	70	130			
n-Pentane		0.99	Mol %	0.01	99	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

B24111779

Login completed by: Kyelie L. Pflock
Date Received: 11/22/2024
Reviewed by: lcadreau
Received by: CMJ
Reviewed Date: 11/24/2024
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:	11.3°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

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Laboratory Certifications and Accreditations

Current certificates are available at www.energylab.com website:

	Agency	Number
Billings, MT	Alaska	17-023
	California	3087
	Colorado	MT00005
	Department of Defense (DoD)/ISO17025	ADE-2588
	Florida (Primary NELAP)	E87668
	Idaho	MT00005
	Louisiana	05079
	Montana	CERT0044
	Nebraska	NE-OS-13-04
	Nevada	NV-C24-00250
	North Dakota	R-007
	National Radon Proficiency	109383-RMP
	Oregon	4184
	South Dakota	ARSD 74:04:07
	Texas	TX-C24-00302
	US EPA Region VIII	Reciprocal
	USDA Soil Permit	P330-20-00170
	Washington	C1039
Casper, WY	Alaska	20-006
	California	3021
	Colorado	WY00002
	Florida (Primary NELAP)	E87641
	Idaho	WY00002
	Louisiana	05083
	Montana	CERT0002
	Nebraska	NE-OS-08-04
	Nevada	NV-C24-00245
	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
Helena, MT	Colorado	MT00945
	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

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler: N/A	Lab PM: Garcia, Michelle	Carrier Tracking No(s): N/A	COC No: 885-2903.1
Client Contact: Shipping/Receiving	Phone: N/A	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 #: 885-15705-1
Address: 1120 South 27th Street, ,	Due Date Requested: 12/2/2024			
City: Billings	TAT Requested (days): N/A			
State, Zip: MT, 59101				
Phone: 406-252-6325(Tel)	PO #: N/A			
Email: N/A	WO #: N/A			
Project Name: Sunray B 1B	Project #: 88501698			
Site: N/A	SSOW#: N/A			

Analysis Requested

Preservation Codes: -

Other: N/A

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 (885-15705-1)	11/19/24	13:40 Mountain	G	Air			X	1	See Attached Instructions B24111779

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: 11/21/24 1300	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by: Crystal Jones	Date/Time: 11/22/24 10:05	Company ELT	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

Ver: 10/10/2024

ICOC No:
885-2903

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: Sunray B 1B

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☑ Yes ☐ No

# of Coolers: 1 (1 gal.)

Cooler Temp (Including CF): 10.6 to 0.3 = 10.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-15705 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			
11-19	1340	air	SVE-1	2 Tedlar		-1								✓			✓	✓			

Analysis Request

Date	Time	Relinquished by.	Received by.	Via.	Date	Time
11/20/24	1624				11/20/24	1624
11/20/24	1727			courier	11/21/24	6:35

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: 885-15705-1

Login Number: 15705 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Proctor, Nancy

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	

ENSOLUM

APPENDIX D

Correspondence

From: Mitch Killough
To: Velez, Nelson, EMNRD; Adeloye, Abiodun A
Cc: Stuart Hyde; Danny Burns; Hannah Mishriki; Brandon Sinclair
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE - Downtime Notification
Date: Tuesday, October 15, 2024 1:41:26 PM
Attachments: image001.png

[**EXTERNAL EMAIL**]

Hi Nelson and Emmanuel.

As of 10/12/2024 at 11:27 am (MT), the Sunray B 1B was brought BOL after Farmington Electric was able to restore power to the site. System is running as it should. Let me know if either of you have any questions or concerns.

Thanks!

Mitch Killough
Hilcorp Energy Company
713-757-5247 (Office)
281-851-2338 (Mobile)

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Thursday, October 10, 2024 2:33 PM
To: Mitch Killough <mkillough@hilcorp.com>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: shyde@ensolum.com; Danny Burns <dburns@ensolum.com>; 'hmishriki@ensolum.com' <hmishriki@ensolum.com>; Brandon Sinclair <Brandon.Sinclair@hilcorp.com>
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE - Downtime Notification

Good afternoon Mitch,

Thank you for the update. Hilcorp's transparency for this incident is very much appreciated. We look forward to hearing from you concerning the resolution.

Be safe and have a productive day!

Regards,

Nelson Velez ● Environmental Specialist - Adv

Environmental Bureau | EMNRD - Oil Conservation Division

1000 Rio Brazos Road | Aztec, NM 87410

(505) 469-6146 | nelson.velez@emnrd.nm.gov

http://www.emnrd.nm.gov/ocd

From: Mitch Killough <mkillough@hilcorp.com>
Sent: Thursday, October 10, 2024 1:28 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: shyde@ensolum.com <shyde@ensolum.com>; Danny Burns <dburns@ensolum.com>; 'hmishriki@ensolum.com' <hmishriki@ensolum.com>; Brandon Sinclair <Brandon.Sinclair@hilcorp.com>
Subject: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE - Downtime Notification

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Hi Nelson/Emmanuel.

I am writing to inform you both of on-going downtime that we have been experiencing at the Sunray B 1B SVE in San Juan County, NM. On Sunday, 10/6/2024 at 6:27 am (MT), an OFF alarm was sent out via CYGNET alerting Hilcorp that the SVE unit went offline. Upon receiving the alarm, a Hilcorp operator visited the site the same day in order to return the SVE unit back to service. However, upon inspection, the operator determined that the transformer on the meter pole had blown causing power to the site to cease immediately. The operator alerted his foreman and FEUS was also alerted of the issue. The operator collected the following pole information: HC MTR # 39220, FEUS #85 131 286, Serial # 4210638172, POLE # AA079423.

At this time, FEUS is aware of the transformer issue and we have requested to be alerted as soon as the power is restored. Once we get confirmation that power has been restored, I will respond back to the email communication. If either of you have any questions in the meantime, please let me know.

Sincerely,

Mitch Killough
Environmental Specialist

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Houston, TX 77002
713-757-5247 (office)
281-851-2338 (cell)
mkillough@hilcorp.com

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General Information
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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 419630

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 419630
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	SVE reviewed - 1. Continue O&M & sampling as stated in report. 2. Submit next quarterly report by April 15, 2025.	1/17/2025