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Review of the Fourth Quarter 2023--SVE System Update for Sunray B 1B: Content Satisfactory
1. Continue to perform O&M as scheduled and install pitot tubes as necessary. Please include field and installation notes when completed for next report to OCD.
2. Operate system as normal.
3. Submit next system update report to OCD as Hilcorp has scheduled.

January 15, 2024

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

Re: Fourth Quarter 2023 – 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 2023 –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 September, October, November, and December of 2023.

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.

SYSTEM STARTUP AND FOURTH QUARTER 2023 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. In accordance with the COAs, initial air samples were also collected on August 29 and 30, 2023; however, due to the high decibel output of the rotary lobe blower, Hilcorp and Ensolum determined a muffler/silencer was required in order to meet personnel health and safety requirements. As such, the system was shut down until a silencer

could be installed. The NMOCD and BLM were notified of the system shut down, with agency communications included as Appendix A.

Following the addition of the silencer, the system was re-started on September 29, 2023. In accordance with the NMOCD COAs for the Site, daily site visits were conducted for the first week of operation and then weekly thereafter for the remainder of September, October, November, and December 2023. Field parameters noted above were collected during each visit. Field notes taken during operations and maintenance (O&M) visits are presented in Appendix B. Since startup on September 29, 2023, vacuum extraction was performed on all Site SVE wells in order to induce flow in impacted soil zones. Between September 29 and December 28, 2023, the SVE system operated for 2,181.4 hours for a runtime efficiency of 95 percent (%). Appendix C presents photographs of the runtime meter for calculating the fourth quarter 2023 runtime efficiency. Table 1 presents the SVE system operational hours and calculated percentage runtime.

Based on the February 2023 COAs, initial air samples were collected on August 29 and 30, 2023, from a sample port located between the SVE piping manifold and the SVE blower using a high vacuum air sampler. Prior to collection, the emission sample was field screened with a PID for organic vapor monitoring (OVM). The emission sample was collected directly into two 1-Liter Tedlar® bags and submitted to Hall Environmental Analysis Laboratory (now 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. Upon re-starting the system on September 29, 2023, samples were collected weekly for the first month of operation and then bi-weekly (once every two weeks) through the end of the fourth quarter of 2023. A summary of field measurements and analytical data collected between September and December 2023 are presented in Tables 2 and 3, respectively. Note: analytical data from the last two sampling events conducted on December 13 and December 28, 2023, have not been received from the laboratory; this data will be included in the following quarterly report. Full laboratory analytical reports are attached as Appendix D. Oxygen and carbon dioxide levels over time are presented in Graphs 1 and 2, respectively.

Air 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, 825 pounds (0.41 tons) of TVPH have been removed by the system to date between system startup and November 28, 2023. No phase-separated hydrocarbons were recovered from the system during the O&M and sampling period described above.

DISCUSSION AND RECOMMENDATIONS

As approved by the NMOCD (Appendix D), activities and data collected during the fourth quarter of 2023 are summarized in this report. Accurate flow measurements at SVE03 could not be obtained during the fourth quarter of 2023 due to the rotameter being undersized. Ensolum has purchased pitot tubes to replace the individual well rotameters and will install the new flow measurement devices in first quarter of 2024 in order to obtain more accurate data on the individual well legs.

A decrease in mass removal rates was observed during the first quarter of system operation, as is expected following initial startup. Mass removal has remained consistent from October 19 through the end of November 2023 with the system continuing to remove over 10 pounds per day of petroleum hydrocarbons.

Monthly O&M visits and bi-monthly (every other month) 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

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

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

Attachments:

Figure 1	Site Location Map
Figure 2	SVE System Radius of Influence and Radius of Effect
Table 1	Soil Vapor Extraction System Runtime Calculations
Table 2	Soil Vapor Extraction System Field Measurements
Table 3	Soil Vapor Extraction System Air Analytical Results
Table 4	Soil Vapor Extraction System Mass Removal and Emissions
Graph 1	Oxygen vs Time
Graph 2	Carbon Dioxide vs Time
Appendix A	Agency Correspondence
Appendix B	Field Notes
Appendix C	Project Photographs
Appendix D	Laboratory Analytical Reports

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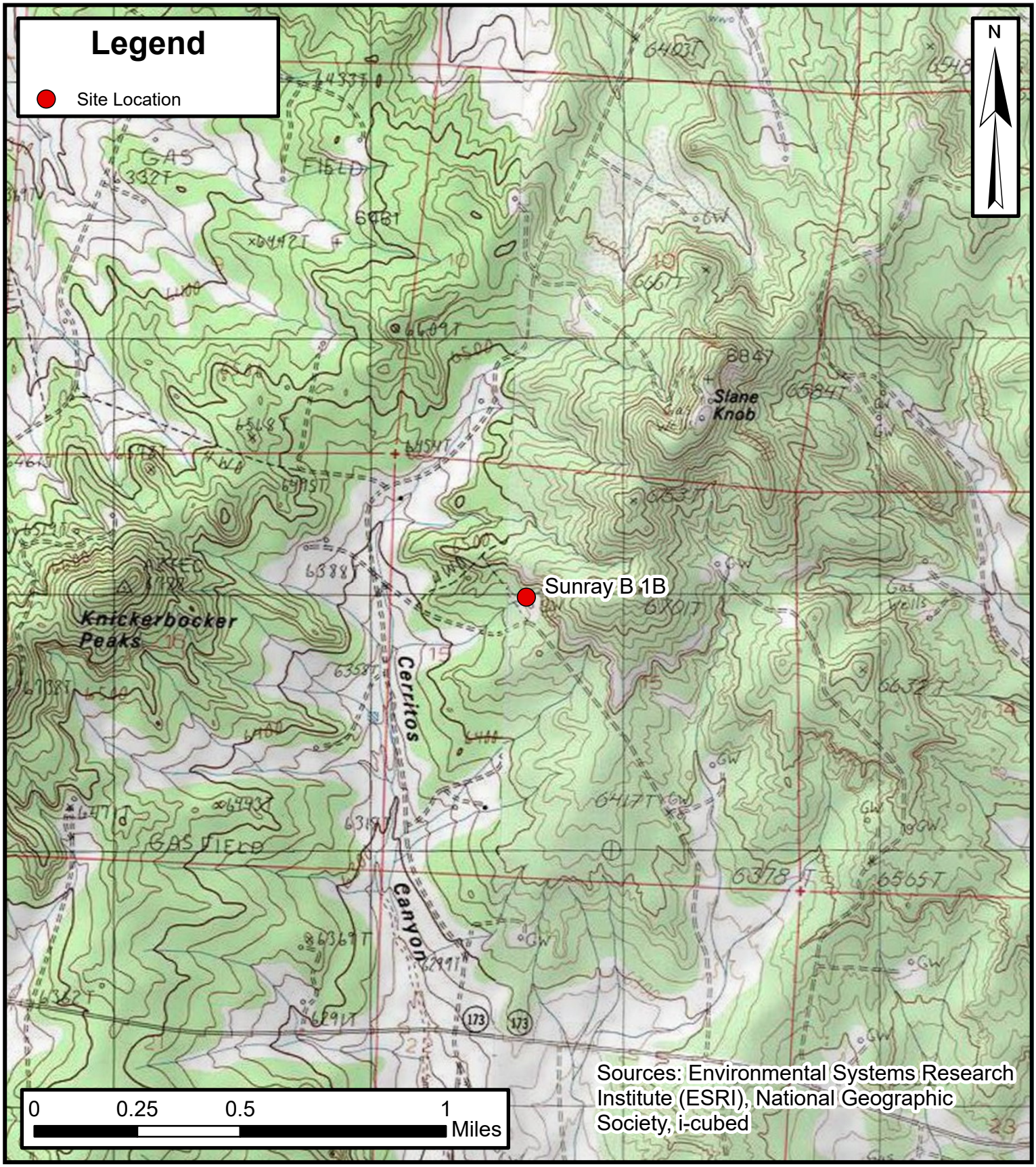
FIGURES



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Environmental, Engineering and Hydrogeologic Consultants

Site Location Map

Sunray B 1B
Hilcorp Energy Company

36.8147621, -107.8746643
San Juan County, New Mexico

FIGURE
1

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Environmental, Engineering and Hydrogeologic Consultants

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 AND 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	Percent Runtime
9/29/2023	126.8	Startup		
12/28/2023	2,181.4	2,054.6	90	95%

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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	2.7	144	92	74.8	--	--
	8/30/2023	1,826	--	--	--	68.0	20.9	0.62
	9/29/2023	538	3.0	151	99	68.0	20.9	0.26
	10/6/2023	431	3.0	151	101	60.5	20.9	0.00
	10/12/2023	356	5.3	201	127	80.0	20.9	0.00
	10/19/2023	399	5.7	209	131	81.0	20.9	0.10
	10/26/2023	165	6.5	223	146	68.0	20.9	0.10
	10/31/2023	278	5.6	207	134	72.1	--	--
	11/16/2023	378	6.9	230	153	61.2	--	--
	11/28/2023	147	7.2	235	156	61.2	--	--
	12/7/2023	205	7.0	231	157	54.4	19.6	0.02
	12/13/2023	165	6.9	230	153	61.2	19.3	0.02
	12/20/2023	182	7.1	233	155	61.2	--	--
	12/28/2023	39	4.8	192	135	40.8	--	--
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
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
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

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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 (%)

Notes:

(1): individual well flow rates in scfm estimated based on rotometer field measurements

(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%

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
Average	541	4.8	77	5.5	48	2,411

Vapor Extraction Summary

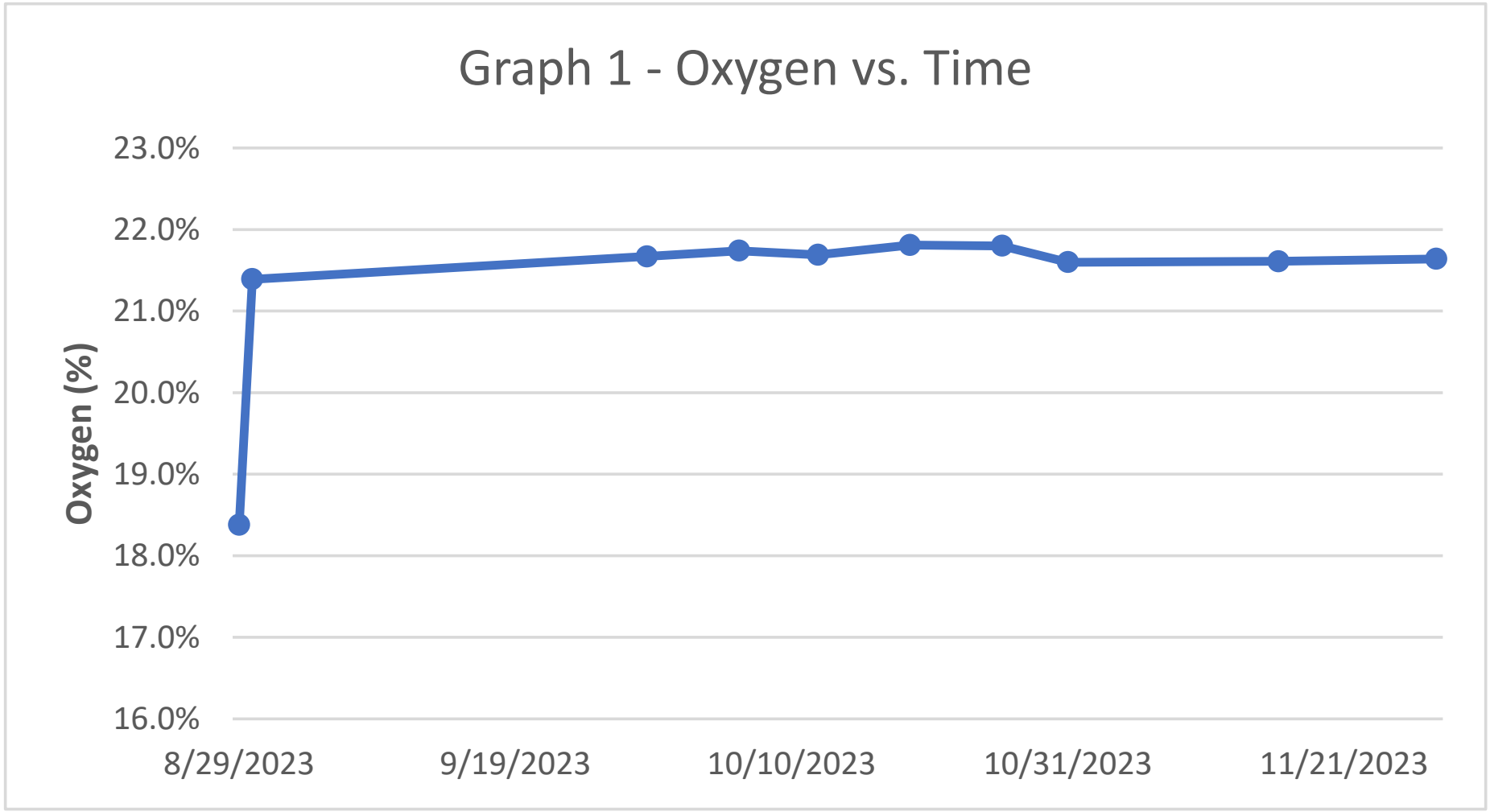
Date	Flow Rate (scfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
9/29/2023	99.0	Updated System Startup						
10/6/2023	101	1,015,656	1,015,656	0.00127	0.035	0.0030	0.026	1.03
10/12/2023	127	--	--	--	--	--	--	--
10/19/2023	131	3,261,258	2,245,602	0.0015	0.017	0.0022	0.0152	0.56
10/26/2023	146	4,699,650	1,438,392	0.0026	0.0142	0.0026	0.0130	0.56
10/31/2023	134	5,446,566	746,916	0.00145	0.0147	0.0022	0.016	0.49
11/16/2023	153	8,945,064	3,498,498	0.00025	0.0137	0.00156	0.021	0.54
11/28/2023	156	11,562,120	2,617,056	0.00026	0.0098	0.00121	0.0165	0.53
			Average	0.00122	0.017	0.0021	0.018	0.62

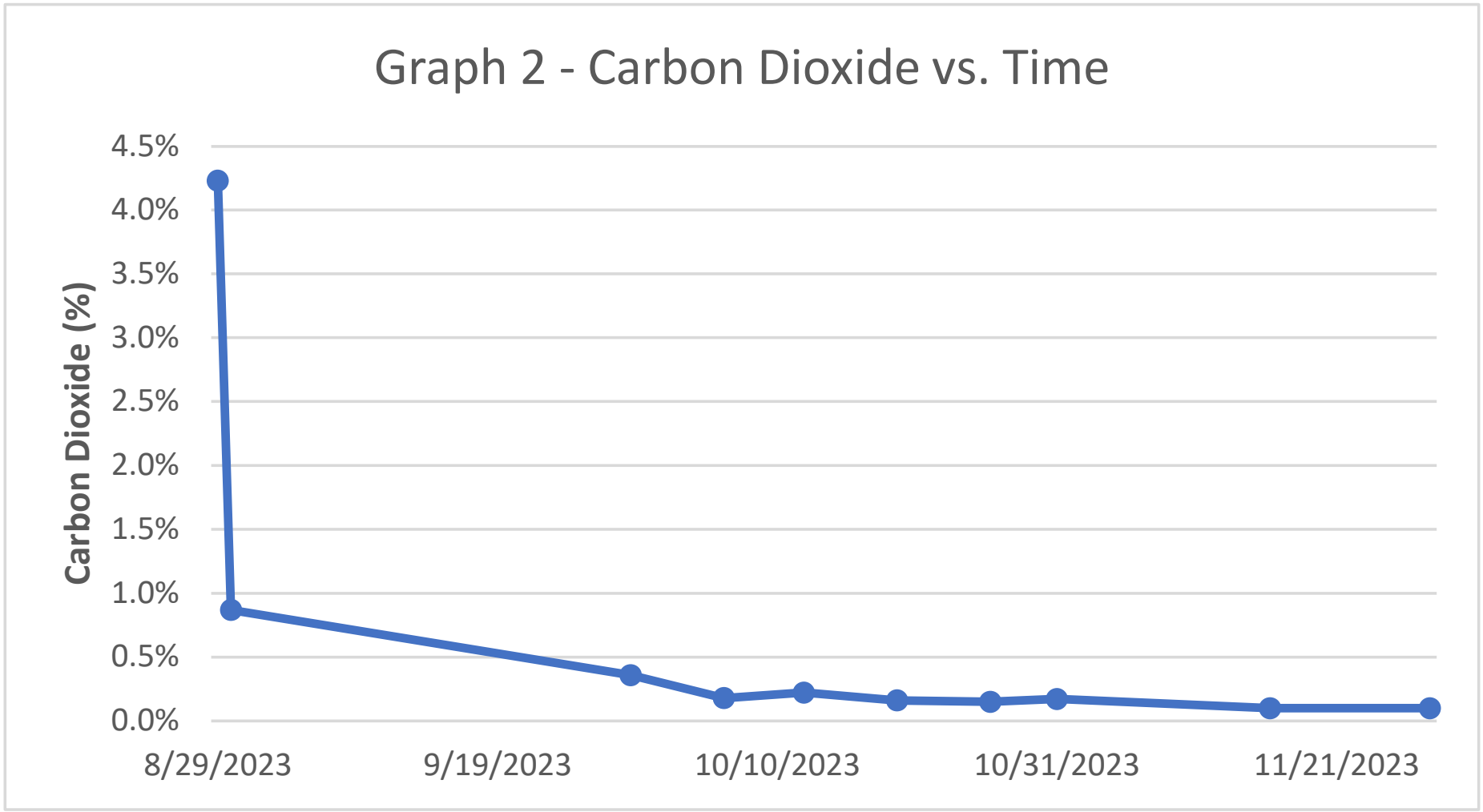
Mass Recovery

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	286	0.43	4.8	0.62	4.3	161	0.081
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
		Total Mass Recovery to Date	1.38	22	2.7	25	825	0.41

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





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APPENDIX A

NMOCD Correspondence

From: Adeloye, Abiodun A
To: Stuart Hyde; Velez, Nelson, EMNRD
Cc: Mitch Killough; Devin Hencmann; Danny Burns; Bryan Hall; Chad Perkins
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request
Date: Tuesday, October 3, 2023 7:53:53 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png

[**EXTERNAL EMAIL**]

Thank you Stuart for the updates.

Abiodun Adeloye (Emmanuel)
Natural Resources Specialist (NRS)
6251 College Blvd., Suite A
Farmington, NM 87402
Office: 505-564-7665
Mobile: 505-635-0984

From: Stuart Hyde <shyde@ensolum.com>
Sent: Monday, October 2, 2023 4:12 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>; Bryan Hall <bhall@hilcorp.com>; Chad Perkins <cperkins@hilcorp.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

All,

The SVE system at the Sunray B 1B site was re-started on Friday September 29th once we were able to install the proper sound controls. We visited the site today and we had 100% runtime over the weekend, so it appears that we are up and operating. We will be conducting daily site visits this week to ensure proper operation and will let you know if anything changes.

Please reach out with any questions. Thanks.

Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>

Sent: Wednesday, August 16, 2023 1:45 PM
To: Stuart Hyde <shyde@ensolum.com>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

[**EXTERNAL EMAIL**]

Stuart,

Time extension request for an additional 45-days is approved. Remediation Due date updated to October 2, 2023. Please notify OCD on when the startup occurs.

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.state.nm.us/OCD/

From: Stuart Hyde <shyde@ensolum.com>
Sent: Wednesday, August 16, 2023 12:20 PM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

Nelson,

As we discussed on the phone, we have had additional delays at the Sunray B 1B in obtaining the necessary parts and, now, equipment to complete the installation of the SVE system. As such, we are

requesting an additional 45 days for the startup deadline for the system. I hope this amount of time is overkill but would like to heir on the side of caution this time. If approved, the requested new deadline would be Sunday October 1, 2023.

Please reach out with any questions or comments. Thanks and have a good afternoon.

Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

From: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Sent: Tuesday, August 1, 2023 2:11 PM
To: Adeloye, Abiodun A <aadeloye@blm.gov>; Stuart Hyde <shyde@ensolum.com>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

[**EXTERNAL EMAIL**]

Good day Stuart,

Your 2 week time extension request is approved. Remediation Due date has been updated to August 17, 2023 within the incident page.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

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.state.nm.us/OCD/

From: Adeloye, Abiodun A <aadeloye@blm.gov>
Sent: Tuesday, August 1, 2023 11:55 AM
To: Stuart Hyde <shyde@ensolum.com>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

Hi, Stuart, the BLM-FFO approves the two weeks extension for the SVE work. Please include this approval with your closure report.
Please let me know if you have any questions.
Thank you.

Abiodun Adeloye (Emmanuel)
Natural Resources Specialist (NRS)
6251 College Blvd., Suite A
Farmington, NM 87402
Office: 505-564-7665
Mobile: 505-635-0984

From: Stuart Hyde <shyde@ensolum.com>
Sent: Tuesday, August 1, 2023 11:33 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Adeloye, Abiodun A <aadeloye@blm.gov>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

Nelson and Emmanuel,

On behalf of Hilcorp Energy Company, we are requesting a two-week extension to the August 3, 2023 startup deadline for the SVE system at the Sunray B 1B site (new deadline of August 17, 2023).

The SVE skid and equipment was installed at the Site on July 28, 2023 and is powered and ready to go. However, due to low inventory and delays in obtaining parts for the well connections and manifold (connecting the wells to the skid), we have not yet been able to complete the final installation. We are anticipating delivery of the remaining parts this week and should be able to start the system within the next week or so.

Please let us know if you have any questions or comments regarding the above request or the site. Thanks.

Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

From: Velez, Nelson, EMNRD
To: Danny Burns; Adeloye, Abiodun A; Stuart Hyde
Cc: Mitch Killough; Devin Hencmann
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup
Date: Thursday, August 31, 2023 7:11:54 AM
Attachments: image001.png
image002.png
image003.png
image004.png
Outlook-go2ug2qc.png

[**EXTERNAL EMAIL**]
Good morning Danny,

Thank you for the correspondence. Please let us know when the re-start will occur.

Have a good & safe 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.state.nm.us/OCD/

From: Danny Burns <dburns@ensolum.com>
Sent: Wednesday, August 30, 2023 4:39 PM
To: Adeloye, Abiodun A <aadeloye@blm.gov>; Stuart Hyde <shyde@ensolum.com>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup

Nelson and Emmanuel,

Hilcorp conducted a safety inspection of the new SVE skid at the Sunray B 1B and discovered that it exceeds noise standards on the pad, requiring ear protection. So, we are shutting the system down as of today until an exhaust silencer/muffler can be installed to mitigate the excessive noise. We will re-start the system with the sampling schedule per the conditions of approval after the installation. The remediation start up date was extended to October 2, 2023, and we anticipate we should be able to acquire and install the noise mitigation equipment before that date. If for some reason we

cannot, we will advise you before then.

Thanks,

Danny Burns
Senior Geologist
303-601-1420
Ensolum, LLC

From: Adeloye, Abiodun A <aadeloye@blm.gov>
Sent: Wednesday, August 30, 2023 9:01 AM
To: Stuart Hyde <shyde@ensolum.com>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup

[**EXTERNAL EMAIL**]
Thanks, Stuart for the notification.

Abiodun Adeloye (Emmanuel)
Natural Resources Specialist (NRS)
6251 College Blvd., Suite A
Farmington, NM 87402
Office: 505-564-7665
Mobile: 505-635-0984

From: Stuart Hyde <shyde@ensolum.com>
Sent: Wednesday, August 30, 2023 7:50 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Nelson and Emmanuel,

We were able to start the new SVE system at the Sunray B 1B yesterday afternoon, August 29, 2023. Per the NMOCD conditions of approval, we collected the initial startup air sample yesterday evening and will collect the follow up air sample this morning. We will keep you updated if there are any

issues with the system in the first few weeks of operation, but looks like we are up and running.

Also, due to only having one month left in the third quarter of 2023, we would like to delay the first quarterly report preparation in order to combine the last month of Q3 with Q4 O&M and sampling. As such, the first report would be submitted by January 15, 2024. Please let us know if you approve of this reporting timeline.

Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

From: Velez, Nelson, EMNRD
To: Stuart Hyde; Adeloye, Abiodun A
Cc: Mitch Killough; Devin Hencmann; Danny Burns; Bratcher, Michael, EMNRD
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup
Date: Wednesday, August 30, 2023 8:09:13 AM
Attachments: image001.png
image002.png
image003.png
image004.png
Outlook-lrzcoi3u.png

[**EXTERNAL EMAIL**]
Stuart,

Thank you for the correspondence.

Combining the 3rd and 4th quarters for the first O & M and sampling quarterly report would be acceptable to the OCD.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

The OCD requires a copy of all correspondence relative to remedial activities be included in all proposals and/or final closure reports. Correspondence required to be included in reports may include, but not limited to, notifications for liner inspections, sample events, spill/release/fire, and request for time extensions or variances.

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.state.nm.us/OCD/

From: Stuart Hyde <shyde@ensolum.com>
Sent: Wednesday, August 30, 2023 7:49 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>; Adeloye, Abiodun A <aadeloye@blm.gov>

Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup

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

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To: Adeloye, Abiodun A; Stuart Hyde
Cc: Mitch Killough; Devin Hencmann; Danny Burns
Subject: Re: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request
Date: Tuesday, August 1, 2023 12:11:31 PM
Attachments: image001.png
image002.png
image003.png
image004.png
Outlook-ko3bs0tn.png

[**EXTERNAL EMAIL**]
Good day Stuart,

Your 2 week time extension request is approved. Remediation Due date has been updated to August 17, 2023 within the incident page.

Please keep a copy of this communication for inclusion within the appropriate report submittal.

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.state.nm.us/OCD/

From: Adeloye, Abiodun A <aadeloye@blm.gov>
Sent: Tuesday, August 1, 2023 11:55 AM
To: Stuart Hyde <shyde@ensolum.com>; Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

Hi, Stuart, the BLM-FFO approves the two weeks extension for the SVE work. Please include this approval with your closure report.
Please let me know if you have any questions.
Thank you.

Abiodun Adeloye (Emmanuel)
Natural Resources Specialist (NRS)
6251 College Blvd., Suite A
Farmington, NM 87402
Office: 505-564-7665
Mobile: 505-635-0984

From: Stuart Hyde <shyde@ensolum.com>
Sent: Tuesday, August 1, 2023 11:33 AM
To: Velez, Nelson, EMNRD <Nelson.Velez@emnrd.nm.gov>
Cc: Mitch Killough <mkillough@hilcorp.com>; Adeloye, Abiodun A <aadeloye@blm.gov>; Devin Hencmann <dhencmann@ensolum.com>; Danny Burns <dburns@ensolum.com>
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Senior Geologist
970-903-1607
Ensolum, LLC

From: Adeloye, Abiodun A
To: Stuart Hyde; Velez, Nelson, EMNRD
Cc: Mitch Killough; Devin Hencmann; Danny Burns
Subject: RE: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request
Date: Tuesday, August 1, 2023 11:55:32 AM
Attachments: image001.png
image002.png
image003.png
image004.png

[**EXTERNAL EMAIL**]

Hi, Stuart, the BLM-FFO approves the two weeks extension for the SVE work. Please include this approval with your closure report.
Please let me know if you have any questions.
Thank you.

Abiodun Adeloye (Emmanuel)
Natural Resources Specialist (NRS)
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Farmington, NM 87402
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Subject: [EXTERNAL] NAPP2212649502 - Sunray B 1B SVE Startup Extension Request

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the system within the next week or so.

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Stuart Hyde, LG
Senior Geologist
970-903-1607
Ensolum, LLC

ENSOLUM

APPENDIX B

Field Notes

Location Sunray B1B Date 8-29-23

Project / Client HEC

Sunny, Hot 80's

DB Truck/tools, HVAS, PID

0930 - Onsite for SVE system start up
Review HASP, sign JSA.

Calibrate Mini RAE Lite PID w/
100 ppm Isobutylene. Passed bump

Headspace PID Readings w/system off
SVE 01 - 3,603 ppm
02 - 1,854
03 - 421

1315 - Start up SVE system. Hours
meter started w/ 1.5 hours on it.

1330 - SVE Parameters Total
Total Flow - Vac - 5.5 inHg

	Flow	Vac	PID
SVE 01	16 scfm	-5.8	2,789
02	16 scfm	-6.0	416
03	>25 scfm	5.4	174

Influent PID -
Exhaust PID - 1,141 ppm
Diff. Pressure - 2.7 iwc

1420 - Influent 8/29/23 collected.
PID 788 ppm

6

Location Sunray B1B Date 8-30-23

Project / Client HEC

EC, Truck, PID, 6-Gas, Vac

15:30 EC on site for SVE OBM & Sampling

Vac ~~73" IWC~~ 5 IWC

SVE01 20 SCFM

SVE02 23 SCFM

SVE03 725 SCFM

Headspace PID

SVE01 3,589

SVE02 1,849

SVE03 476

Influent PID 1826 ppm

O_2 20.9

H_2S 0.0

CO 0

CO_2 0.62

CH_4 7% LEL 0.08 % VPI

Influent 8-30 collected @ 1400

Hours 29

20 Sunray (HEC) 9-29-23
EC Truck, VAC, PID Sunny 70's

10:45 EC on site for OBM
System on & running

VAC: 5" in Hg
diff press: 73 IWC
Hours: 126.8 @ 11:29

Wells	SCFM Flow	inHg VAC	PPM PID	% CH_4	% O_2	% CO_2	PPM CO	PPM H_2S
SVE01	10	5.6	1312	2	20.9	0.18	0	0.0
02	12.5	5.4	403	0	20.9	0.12	0	0
03	7.25	4.8	248	0	20.9	0.26	0	0
Influent		5	538	2	20.9	0.26	0	0

Influent sample collected @ 11:20

Condensation in site tube of KO tank

11:40 EC off-site

9-29

Summary D 15 — Hilcorp Energy

10/21/2023

SH, Dodge 1500, PID, H-gas, Eagle, High Vac Pump!

1100 SH onsite, system on + running. General system O+M and emissions sampling

Vac	5" Hg
Diff Pressure	> 3" H_2O
Hours	198.8 @ 11:21 AM

Well	SCFM Flow	"H_2O ~~"Hg~~ Vac	ppm PID	% CH4	% O_2	% CO_2	ppm CO	ppm H_2S
SVE01	~~10~~	76	1800	290 ppm	20.9	0.00	0	0.0
SVE02	~~7.25~~	77	406.8	9	20.9	0.30	0	0.0
SVE03	>25	65	162.3	65 ppm	20.9	0.00	0	0.0
Influent	—		596	75 ppm	20.9	0.00	0	0.0

SVE01 Rotameter bouncing up to 23 scfm turned valve halfway to settle and reading 8 scfm at half flow

1145 - SVE01 rotameter stabilized @ 10 scfm w/ significant liquid in meter site tube

- No liquid in KO tank site tube

1205 - Offsite

Sunray B 1B
HEC

Date 10-3-23

Sunny, 70s

DB Truck/tools, PID, 6-gas, HVAS

10:00 - Onsite for week 1 SVE O+M
Review HASP, sign JSA.

SVE Parameters @ 12:30
Total Flow — 86 scfm
Vac — 5 in Hg
Exhaust PID — 736 ppm
Temp — 150 °F
Diff. Press — 3.8 in H_2O
KO Tank ~~empty~~

	Influent	SVE01	02	03
Flow (SCFM)	5 inHg 86	10	28	48
Vac (in. H_2O)	~~5~~ DO	70	68	58
PID (ppm)	502	1,320	481	294
CH_4 (ppm)	15	60	5	0
Oxy (vol%)	20.9	20.9	20.9	20.9
H_2S (ppm)	0.0	0.0	0.0	0.0
CO (ppm)	0	0	0	0
CO_2 (vol%)	-0.02	-0.02	-0.02	-0.02
CH_4 (% LEL)	-7	-7	-7	-7

14:30 - Offsite

14:33 Hours - 226.0

22

Location Sunray B 1B Date 10-4-23

Project / Client HEC Sunny 80s

DB Truck/tools, HVAS, PID, 6-gas

1030 - Onsite for start-up O+M
Review HASP, sign JSA
System on + running upon arrival.
Bump PID w/ 100 ppm isobutylene. Pass

SVE Parameters @ 12:30
Total Flow - 83 scfm
Total Vac - 5 in Hg
~~SVE OR Flow PZ Vac~~
Influent PID - 480 ppm
Exhaust PID - 628 ppm
Exhaust Temp - 150 °F
Differential Pressure - 3.8 in H_2O
KO Tank level - 0.5 in. visible in glass

	Influent	SVE01	02	03
Flow (SCFM)	83	10	25	48
Vac (in H_2O)	5 in Hg	68	66	58
PID (ppm)	480	1,118	407	221
CH_4 (ppm)	10	55	5	0
Oxy (vol %)	20.9	20.9	20.9	20.9
H_2S (ppm)	0.0	0.0	0.0	0.0
CO (ppm)	0	0	0	0
CO_2 (vol %)	-0.02	-0.02	-0.02	-0.02
CH_4 - %LEL	-7	-6	-7	-7

Location Sunray B 1B Date 10-4-23 23

Project / Client

O+M cont'd

- Greased the blower bearings

- Replaced 0-25 SCFM rotameter w/ 0-50 on SVE O2 + O3

14:08 - Hrs 249.6

14:30 - Offsite

24

Location Sunray B 1B Date 10-5-23

Project / Client HEC Sunny, 80's

DB Truck/Tools, PID, 6-gas, HVAS

1130 - Onsite for O+M. Review HASP, JSA. System on + running upon arrival.

SVE Parameters @ 13:00

Total Flow - 79 SCFM

Vac - 5 in. Hg 2735 hours

Exhaust PID - 661 ppm @ 14:00

Temp - 160 °F

Diff. Pressure - 4.2 in H_2O

KO Tank - 1.0 in visible in sight glass

	Influent	01	02	03
Flow (SCFM)	79	9	22	48
Vac (in H_2O)	5 in. Hg	66	68	54
PID (ppm)	405	1,326	364	178
CH_4 (ppm)	85	120	55	20
Oxy (vol %)	20.9	20.9	20.9	20.9
H_2S (ppm)	0.0	0.0	0.0	0.0
CO (ppm)	0	0	0	0

- changed oil in Roots Blower
- changed Hz to 45.00 as VFD is over amping. Called Bryan for troubleshoot. He is on way.

Location Sunray B 1B Date 10-6-23

Project / Client HEC Sunny, 80's

DB Truck/tools, HVAS, PID, 6-Gas

1030 - Onsite for O&M.
System on & running upon arrival.
Still operating @ 45.00 Hz on VFD

SVE Parameters	@ 11:00	Hrs
Total Flow —	72 scfm	294.4
Vac —	60.5 in H_2O	11,417
Exhaust PID —	641 ppm	
Temp —	155 °F	
D.H. Pressure —	3.0 in H_2O	
KO Tank —	~2" in sight glass.	

	Influent	SVE 01	02	03
Flow (SCFM)	72	10	22	40
Vac (in. H_2O)	60.5	66	66	52
PID (ppm)	431	1,429	382	162
CH_4 (ppm)	115	125	45	20
Oxy (vol%)	20.9	20.9	20.9	20.9
H_2S (ppm)	0.0	0.0	0.0	0.0
CO (ppm)	0	0	0	0

1315 - Influent 10-6-23 collected. PID-529
Hilcorp will be re-doing electrical to address Hz issues on elec. motor.
1330 - offsite

4

Location Sunray B 1B Date 10-12-23

Project / Client HEC Windy. 60s

DB Truck, HVAS, PID, 6-gas

1230 - Onsite for weekly O+M. HASP + JSA. Bryan + Chuck onsite finishing electrical setup. At the power pole source they stepped up voltage to 480 V and then stepped in back down to 240 V at the site control panel. System off until they finish.

- KO Tank ~ 6" in sight tube, approx 75% of tube filled.
- Drained approx 13 gallons

1320 - Start SVE system back up. Running @ 60 Hz max capacity. Amperages appers steady + below motor specs. maximum.

- Blower exhaust is notably louder
- HEC claims to have ordered a different muffler (same as @ 41A) to help reduce noise.

Oil

- Bleed valve seems to be leaking with increased load/60 Hz. Have to check oil levels next O+M visit.

Location Sunray OtM cont'd Date 10-12-23

Project / Client

SVE Parameters @	13:45				
Total Flow scfm –	74.5				
Vac in H_2O –	80				
Exhaust PID ppm –	414				
Temp °F –	175				
Diff. Pressure in H_2O –	5.3				
KO Tank – empty.					
	Influent	SVE01	02	03	
Flow scfm	74.5	8.5	16	50	
Vac in H_2O	80	76	72	52	
PID ppm	356	415	134	116	
CH_4 ppm	920	2,450	540	450	
Oxy vol%	20.9	20.9	20.9	20.9	
H_2S ppm	6.0	0.0	0.0	0.0	
CO ppm	0	0	0	0	
CO_2 vol%	0.20	0.18	0.10	0.14	
CH_4 %LEL	-4	-1	-5	-5	
1420 - Influent PID - 357		10-12-23	collected		
1445 - offsite					

Rite in the Rain

6

Location Sunray B 1B Date 10-19-23

Project / Client HEC Sunny, 80s

DB Truck, HVAS, PID, 6-gas

1130 - Onsite for weekly O+M. HASP + JSA

System running upon arrival.

SVE Parameters @ 12:00

Total Flow (SCFM) — 74

Vac (in. H_2O) — 81.0 (5 in Hg)

Exhaust PID (ppm) — 840

Temp (°F) — 190

Diff. Pressure (in. H_2O) - 5.7 ** Need a 0-10 mag.

KO Tank - 5½" visible in sight tube.

		Influent	SVE01	02	03
Flow	SCFM	74	10	14	<50
Vac	in H_2O	81	70	70	55
PID	ppm	399	672	288	131
CH_4	ppm	730	1,700	630	450
Oxy	vol%	20.9	20.9	20.9	20.9
H_2S	ppm	0.0	0.0	0.0	0.0
CO	ppm	0.	0	0	0
CO_2	vol%	0.10	0.08	0.08	0.10
CH4	% LEL	8	6	7	8

1235 - Influent 10-19-23 collected.

1245 - Alert HEC about shut down for O+M

Location Sunray B1B Date 10-19-23 7

Project / Client

O+M cont'd

- Flushed lines by opening J-plugs on top to remove liquid from lines & rotameters. Start w/ 01, then 03 and 02 last to get most liquids.

1250 - Shut down SVE system.

- Drain approx 12 gal from KO tank. Light Brown, opaque liquid w/ lt. brown sheen. Some PSH separation towards end.

Influent
10-19-23
74
81
364
850
20.9
0.0
0
0.12
7

- cleaned up oil residue by blower
- added a touch of new oil
- greased bearings

1335 - restart system
↳ HRS @ 580.1
Running @ 60.00 Hz

1345 - Offsite

Ritter the Rain.

8

Location Sunray B 1B Date 10/26/2023

Project / Client Hilcorp, 50°F, light wind, sunny

GMC 1500, PID, 6-gas, 4-gas, PID, HVAS

0730	Left Office	
0800	Grab gas and tire	put air in rear left
0845	Arrived onsite. Complete JSA, Begin O+M and Sampling, notes collected on O+M Form System running upon arrival	Calibrate PID w/ 100 ppm isobutylene
1010	Offsite	

10/26/2023 1010 AM

ENSOLUM

SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 10/26/2023 O&M PERSONNEL: S. Hyde
TIME ONSITE: 0845 TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	None	KO TANK HIGH LEVEL	N/A

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	10/26/23
QUARTERLY MAINTENANCE:	Blower Oil Change	—

SVE SYSTEM	READING	TIME
Blower Hours (**take photo**)	744.3	0945
Total Flow (scfm)		
Inlet Vacuum (IHG)	5.0	0915
Differential Pressure (IWC)	6.5	0915
Inlet PID	165	0925
Exhaust PID	326	0925
~~Exhaust Inlet~~ Temperature	150°F	0915
K/O Tank Liquid Level	3/4 inch	0915
K/O Liquid Drained (gallons)	—	—

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	**SAMPLE TIME:**
Analytes:	Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	SVE01 – 03

Change in Well Operation: None

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	O_2	CH_4	H_2S	CO_2	CO
				~~OXYGEN~~		CARBON DIOXIDE		
SVE01	68 IWC	420	N/A	20.9%	760 ppm	0 ppm	0.08%	0 ppm
SVE02	72 IWC	95.3	10	20.9%	165 ppm	0 ppm	0.04%	0 ppm
SVE03	56 IWC	88.3	>50	20.9%	165 ppm	0 ppm	0.08%	0 ppm
Influent	5.0 IHg	165	—	20.9%	~~0 ppm~~ 710 ppm	0 ppm	0.10%	~~0 ppm~~ 740 ppm

COMMENTS/OTHER MAINTENANCE:

SVE01 Rotameter float broken
SVE02 Float bouncing 0-30 scfm
Inlet Flow 5,000 FPM @ 61°F 2" sch 40 PVC

Location Sunray B 1B Date 10-31-23

Project / Client Hilcorp Sunny 60°

truck, PID, 6-gas, 4-gas, HVAS, sample kit

1400 on site for OTM and sampling

JSA signed

- System off upon arrival
- sight tube full, suspect KO tank full error, drained 1x cadet volume from tank, lt. brown water w/ sheen, PSH at end
- turned system back on and ran for 30 minutes before taking parameters or sampling
- rotameter on SVE #1 broken

2x tedlar bag samples taken

"Sunray B 1B Influent" at 1530

1545 leaving site

ENSOLUM

Sunray
SAN JUAN 32-9 ~~#41A SVE SYSTEM~~
O&M FORM

DATE:
TIME ONSITE: 1400
O&M PERSONNEL: Zach Myers
TIME OFFSITE: 1545

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	✓	KO TANK HIGH LEVEL	✓

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	10-31-23
QUARTERLY MAINTENANCE:	Blower Oil Change	

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	837.2	1420
Total Flow (scfm)	>68	
Inlet Vacuum (IHG)	0.18	
Differential Pressure (IWC)	5.6	
Inlet PID	278	
Exhaust PID	282	
~~Exhaust~~ ~~Inlet~~ Temperature	150°F	
K/O Tank Liquid Level	Full	
K/O Liquid Drained (gallons)	20	

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	**SAMPLE TIME:**
Analytes:	Sample Bi-Weekly (every other week) 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)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	5.3	348	rotameter broken	20.7	0.02
SVE02	5.1	215	18	20.9	0.10
SVE03	3.9	88.9	>50	20.9	0.02

COMMENTS/OTHER MAINTENANCE:

SVE01 rotameter broken attempted fix but needs replacement/parts
- full tank triggered shut off, drained ~ 20 gallons of fluid

10 Location Sunray B 1B Date 11-8-23

Project / Client HEC

DB Truck, HVAS, PID, multigas

1315 - Onsite for O+M.

System running upon arrival

SVE Parameters @ 1345

Total Flow scfm - 75

Vac iwc - 76.8 ~~76.6~~ (5 in Hg)

Exhaust PID ppm - 437

Temp °F - 145

Diff. Pressure. iwc - 6.32

KO Tank - No visible liquids.

SVE 01 Rotameter junked up w/ PSH and float/rod dislodged. Take apart, clean + fix float assembly. Needs rod holder replacement.

- Purged liquids from rotameters

Need 0-10 wc magnehelic for Diff pressure

- Need 0-100 scfm rotam. for SVE03

- Greased blower bearings

Location Summary Date 11-8-23

Project / Client

O+M cont'd

		Inflow	01	02	03
Flow	SCFM	75	9	16	>50
Vac	IWC	76.8	66	64	49
PID	PPM	282	769	286	178
CH_4	PPM	0	1	0	0
Oxy	vol%	20.2	20.0	20.2	20.2
H_2S	PPM	0.0	0.0	0.0	0.0
CO	PPM	0	0	0	0
CO_2	vol%	-0.04	0.08	-0.09	-0.04
CH_4	%LEL	-10	-8	-8	-8

1500 - Offsite.

12 Location Sunray B1B Date 11-16-23

Project / Client

ZM, truck+tools, 4-gas, 6-gas, H2S, sample kit, PID

1345 onsite for O+M and sampling
- PID calibrated at 41A, JSA signed

System running upon arrival, all valves open

Parameters on O+M form

2x tedlar bag sampler
"Sunray B1B Influent" at 1420

- Notified operator and turned off system to grease blower motor
- drained 12 gallons brown water from knockout tank orange oily residue at the last gallon that had been floating on the top
- All valves open, system on when leaving

1218.3 hours

- 1450 leaving site

Sunray

ENSOLUM

SVE SYSTEM O&M FORM

DATE: 11-16-23
TIME ONSITE: 1345
O&M PERSONNEL: Zach Myers
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	none	KO TANK HIGH LEVEL	—

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

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	1218.3	1430
Total Flow (scfm)		1350
Inlet Vacuum (IHG)	4.5	
Differential Pressure (IWC)	6.9	
Inlet PID	376	
Exhaust PID	405	
exhaust ~~Inlet~~ Temperature	150°F	
K/O Tank Liquid Level	Sight tube 50%	OK
K/O Liquid Drained (gallons)	12	1435

20.0 vol % O_2, 0.04 vol % CO_2

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	Sunray B 1B influent **SAMPLE TIME:** 1420
Analytes:	Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	

Change in Well Operation:

WELLHEAD MEASUREMENTS

vol %

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	5.8	688	8	19.8	0.06
SVE02	4.6	515	15	19.8	0.02
SVE03	3.7	258	>50	19.8	0.04

COMMENTS/OTHER MAINTENANCE:

Location Sunray B 1B Date 11-22-23 13

Project / Client

1305 on site for O+M
- PID calibrated at 41A, JSA signed
System running upon arrival, all valves open
Parameters collected on O+M form

- immediately shut down system to fix broken rotometer for SVE 01
- drained water from VAC 1,2,5
- fixed rotometer
- drained 15.5 gallons brownish water w/ orange surface floaties
- greased blower motor

Re-started system and collected parameters

-1420 leaving site

Sunray B1B

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SVE SYSTEM O&M FORM

DATE: 11-22-23 O&M PERSONNEL: Zach Myer

TIME ONSITE: 1305 TIME OFFSITE: 1420

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	N/A	KO TANK HIGH LEVEL	n/a

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	11-22
~~QUARTERLY MAINTENANCE~~:	Blower Oil Change	—

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	1,360.9	1315
Total Flow (scfm)	>78	1350
Inlet Vacuum (IHG)	5	1350
Differential Pressure (IWC)	6.5	1350
Inlet PID	127	1400
Exhaust PID	398	1310
~~Inlet~~ Exhaust Temperature	150°F	1310
K/O Tank Liquid Level	7" in tube	1310
K/O Liquid Drained (gallons)	15.5	1345

20.0 vol% O_2, 0.00 CO_2

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	Sample Bi-Weekly (every other week) 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)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	5	407	12	19.8	0.04
SVE02	~~5~~ 5.7	156	16	20.0	0.00
SVE03	3.6	45.3	>50	20.0	0.02

COMMENTS/OTHER MAINTENANCE:

Fixed broken rotometer on SVE01

ENSOLUM

Sunray

SVE SYSTEM O&M FORM

DATE: 11-28-23 O&M PERSONNEL: Zach Myers

TIME ONSITE: 1355 TIME OFFSITE: 1445

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	—	KO TANK HIGH LEVEL	—

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	11-28
QUARTERLY MAINTENANCE:	Blower Oil Change	—

SVE SYSTEM	READING	TIME
Blower Hours (**take** photo)	1,497.9	1430
Total Flow (scfm)	>76.5	1400
Inlet Vacuum (IHG)	4.5	1400
Differential Pressure (IWC)	7.2	1400
Inlet PID	147	1420
Exhaust PID	335	1400
Ex ~~Inlet~~ Temperature	140°F	1400
K/O Tank Liquid Level	0.5" in sight tube	1400
K/O Liquid Drained (gallons)	3.5	1435

20.2 vol % O_2, 0.02 vol % CO_2

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: Sunray BiB Influent **SAMPLE TIME:** 1420

Analytes: Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)

OPERATING WELLS 1,2,3

Change in Well Operation: —

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	4.6	453	7.5	20.2	0.04
SVE02	4.4	93.1	19	20.2	0.02
SVE03	3.5	148	>50	20.2	0.02

COMMENTS/OTHER MAINTENANCE:

14

Location Sunray B1B Date 11-28-23

Project / Client

1355 ZM onsite Per O+M and sampling
- PID calibrated at #41A
System running, all valves open
Parameters collected on O+M form

Drained 3.5 gallons from KO tank
Greased blower motor
2x tedlar bag sample "Sunry B1B InDuct"

1445 leaving site

Sunny B 15

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SVE SYSTEM
O&M FORM

DATE: 12/7/23 O&M PERSONNEL: Reece Hansen
TIME ONSITE: 9:55 TIME OFFSITE: 12:15

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	–	KO TANK HIGH LEVEL	–

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	✓ / 12/7/23
QUARTERLY MAINTENANCE:	Blower Oil Change	NA

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	1709.1	10:40
Total Flow (scfm)	~ 74	10:23
Inlet Vacuum (IHG)	4	10:17
Differential Pressure (IWC)	-7	10:20
Inlet PID	205	11:35
Exhaust PID	330	11:40
Inlet Temperature	NA	NA
K/O Tank Liquid Level	Half of Sight tube	
K/O Liquid Drained (gallons)	~ 10	11:50

02 03 01
18 + >50 + 8

O_2 CO_2
19.6 0.02

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	NA	SAMPLE TIME:	NA
Analytes:	Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)		
OPERATING WELLS	01, 02, 03		

Change in Well Operation: leave all wells open

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (~~IHG~~ WC)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	58	430	8	19.6	0.02
SVE02	56	55	18	19.6	0.02
SVE03	44	45	>50	19.6	0.02

COMMENTS/OTHER MAINTENANCE:
Trouble shoot HVAS & re-do head space readings
- Grease blower

Location Sunray B 1 B Date 12/7/23

Project / Client Hilcorp

RH, Truck/tools, PID, HVAS, Eagle, 4-gas

9:55 - RH on Site for O+M
- Calibrate PID w/ 100 ppm Isobutylene
- System running on arrival
- fill out + Sign JSA
- fill all Tedlar bags for headspace / inlet readings - seem low
- trouble shoot HVAS
  - repair + re-pull tedlar bags for readings
- See form for all parameters

12:15 - RH off Site

RH

Sunray B 1B

ENSOLUM

SVE SYSTEM O&M FORM

DATE: 12-13-23 O&M PERSONNEL: Zach Myers

TIME ONSITE: 1220 TIME OFFSITE: 1305

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	–	KO TANK HIGH LEVEL	

		Check/Date
WEEKLY MAINTENANCE:	Blower Bearing Grease	12-13
QUARTERLY MAINTENANCE:	Blower Oil Change	–

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	1250	1855.0
Total Flow (scfm)	>85	1230
Inlet Vacuum (IHG)	4.5	1230
Differential Pressure (IWC)	6.9	1230
Inlet PID	165	1240
Exhaust PID	287	1225
Ex ~~Inlet~~ Temperature	135°F	1230
K/O Tank Liquid Level	0.5"	1230
K/O Liquid Drained (gallons)	3.5	1255

19.3 Vol % O_2, 0.02 CO_2

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	Sunray B1B Influent	SAMPLE TIME:	1240
Analytes:	Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)		
OPERATING WELLS			

Change in Well Operation:

WELLHEAD MEASUREMENTS

Vol %

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	4.4	405	10	19.3	0.02
SVE02	4.2	107	25	19.3	0.00
SVE03	3.7	175	>50	19.3	0.02

COMMENTS/OTHER MAINTENANCE:

greased blower motor

16

Location Sunray BIB Date 12-13-23

Project / Client

1220 onsite for SVE system O+M and sampling
- JSA signed PID calibrated at #41A
- System running upon arrival
Parameters on O+M form
1855.0 hours at 1250

Operator notified and system shut down to grease blower motor and drain 3.5 gallons of liquid from KO tank

2x tedlar bag samples taken at 1240
"Sunray BIB Influent"
PID 165 ppm
1305 leaving site

ZM

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SUNRAY B 1B SVE SYSTEM
O&M FORM

DATE: 12-20-23
TIME ONSITE: 11:00

O&M PERSONNEL: D. Burns
TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	NA	KO TANK HIGH LEVEL	

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

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	2021.5	1130
Total Flow (scfm)	86	
Inlet Vacuum (IHG)	4.5	
Differential Pressure (IWC)	7.1	
Inlet PID	182	
Exhaust PID	287	
~~Inlet~~ EX Temperature	130	
K/O Tank Liquid Level	NA	
K/O Liquid Drained (gallons)	4.0 gal	

SVE SYSTEM - QUARTERLY SAMPLING

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

Change in Well Operation: None

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	4.4		12		
SVE02	4.0		24		
SVE03	3.4		~50		

COMMENTS/OTHER MAINTENANCE: 86

Inlet 0% LEL
19.0 Oxy vol%
0.0 ppm H_2S
0 ppm CO
0.04 wl% CO_2
5% CH_4

18

Location Sunray B1B Date 12-28

Project / Client Hilcorp

2m, truck, 4-gas, 6-gas, HVAC, PID

1330 Onsite for OHM and sample
- encountered Hilcorp employee Chuck who was making some electrical system changes to SVE system, tuned down from 60Hz to 50Hz to make heating elements function ~~better~~
- volume of system is significantly lower

System running upon arrival 2181.4 hours at 134
PID calibrated at #414
Parameters recorded on OHM form

System shut down to grease blower motor

2x tedlar bag gas sample 'Sunray B1B Influent' at 1425

1435 leaving site

cm

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Sunray

SVE SYSTEM O&M FORM

DATE: 12-28 O&M PERSONNEL: Zach

TIME ONSITE: 1330 TIME OFFSITE: 1435

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)	2181.4	1340
Total Flow (scfm)	>70	
Inlet Vacuum (IHG)	3.0	
Differential Pressure (IWC)	4.8	
Inlet PID	38.7	
Exhaust PID	295	
EX ~~Inlet~~ Temperature	115	
K/O Tank Liquid Level	2" in sight tube	
K/O Liquid Drained (gallons)	4	

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	**SAMPLE TIME:** 1425
Analytes:	Sample Bi-Weekly (every other week) for TVPH (8015), BTEX (8260), Fixed Gas (CO2 AND O2)
OPERATING WELLS	1, 2, 3

Change in Well Operation: –

WELLHEAD MEASUREMENTS

WELL ID	VACUUM (IHG)	PID HEADSPACE (PPM)	FLOW (CFM)	OXYGEN	CARBON DIOXIDE
SVE01	3.6	20.4	9	19.3	0.04
SVE02	3.2	43.9	18	19.3	0.02
SVE03	2.6	34.4	>50	19.3	0.04

COMMENTS/OTHER MAINTENANCE:

greased blower motor

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APPENDIX C

Project Photographs

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

Photograph 1 Runtime meter taken on September 29, 2023 at 11:29 AM Hours = 126.8	
Photograph 2 Runtime meter taken on December 28, 2023 at 1:38 PM Hours = 2,181.4	

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

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APPENDIX D

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 14, 2023

Mitch Killough
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B 1B OrderNo.: 2308G06

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/30/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2308G06**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 8/29/23
Project: Sunray B 1B
Collection Date: 8/29/2023 2:20:00 PM
Lab ID: 2308G06-001 **Matrix:** AIR
Received Date: 8/30/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	5900	500		µg/L	100	9/7/2023 3:35:23 PM
Surr: BFB	124	15-412		%Rec	100	9/7/2023 3:35:23 PM
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	18	5.0		µg/L	50	9/11/2023 3:25:00 PM
Toluene	190	5.0		µg/L	50	9/11/2023 3:25:00 PM
Ethylbenzene	6.8	5.0		µg/L	50	9/11/2023 3:25:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Naphthalene	ND	10		µg/L	50	9/11/2023 3:25:00 PM
1-Methylnaphthalene	ND	20		µg/L	50	9/11/2023 3:25:00 PM
2-Methylnaphthalene	ND	20		µg/L	50	9/11/2023 3:25:00 PM
Acetone	ND	50		µg/L	50	9/11/2023 3:25:00 PM
Bromobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Bromodichloromethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Bromoform	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Bromomethane	ND	10		µg/L	50	9/11/2023 3:25:00 PM
2-Butanone	ND	50		µg/L	50	9/11/2023 3:25:00 PM
Carbon disulfide	ND	50		µg/L	50	9/11/2023 3:25:00 PM
Carbon tetrachloride	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Chlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Chloroethane	ND	10		µg/L	50	9/11/2023 3:25:00 PM
Chloroform	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Chloromethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
2-Chlorotoluene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
4-Chlorotoluene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
cis-1,2-DCE	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	9/11/2023 3:25:00 PM
Dibromochloromethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Dibromomethane	ND	10		µg/L	50	9/11/2023 3:25:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Dichlorodifluoromethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2308G06**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 8/29/23
Project: Sunray B 1B
Collection Date: 8/29/2023 2:20:00 PM
Lab ID: 2308G06-001 **Matrix:** AIR
Received Date: 8/30/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,2-Dichloropropane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,3-Dichloropropane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
2,2-Dichloropropane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1-Dichloropropene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
2-Hexanone	ND	50		µg/L	50	9/11/2023 3:25:00 PM
Isopropylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
4-Isopropyltoluene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
4-Methyl-2-pentanone	ND	50		µg/L	50	9/11/2023 3:25:00 PM
Methylene chloride	ND	15		µg/L	50	9/11/2023 3:25:00 PM
n-Butylbenzene	ND	15		µg/L	50	9/11/2023 3:25:00 PM
n-Propylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
sec-Butylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Styrene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
tert-Butylbenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
trans-1,2-DCE	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Trichloroethene (TCE)	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Trichlorofluoromethane	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
1,2,3-Trichloropropane	ND	10		µg/L	50	9/11/2023 3:25:00 PM
Vinyl chloride	ND	5.0		µg/L	50	9/11/2023 3:25:00 PM
Xylenes, Total	58	7.5		µg/L	50	9/11/2023 3:25:00 PM
Surr: Dibromofluoromethane	87.0	70-130		%Rec	50	9/11/2023 3:25:00 PM
Surr: 1,2-Dichloroethane-d4	79.2	70-130		%Rec	50	9/11/2023 3:25:00 PM
Surr: Toluene-d8	120	70-130		%Rec	50	9/11/2023 3:25:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	50	9/11/2023 3:25:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

September 14, 2023

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

Work Order: B23090042 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 9/1/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23090042-001	2308G06-001B, Influent 8/29/23	08/29/23 14:20	09/01/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23090042-001
Client Sample ID: 2308G06-001B, Influent 8/29/23

Report Date: 09/14/23
Collection Date: 08/29/23 14:20
DateReceived: 09/01/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	18.38	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Nitrogen	77.18	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Carbon Dioxide	4.23	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Hexanes plus	0.21	Mol %		0.01		GPA 2261-95	09/05/23 12:54 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
Hexanes plus	0.088	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
GPM Total	0.088	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
GPM Pentanes plus	0.088	gpm		0.001		GPA 2261-95	09/05/23 12:54 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	10			1		GPA 2261-95	09/05/23 12:54 / jrj
Net BTU per cu ft @ std cond. (LHV)	9			1		GPA 2261-95	09/05/23 12:54 / jrj
Pseudo-critical Pressure, psia	561			1		GPA 2261-95	09/05/23 12:54 / jrj
Pseudo-critical Temperature, deg R	252			1		GPA 2261-95	09/05/23 12:54 / jrj
Specific Gravity @ 60/60F	1.02			0.001		D3588-81	09/05/23 12:54 / jrj
Air, %	83.97			0.01		GPA 2261-95	09/05/23 12:54 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	09/05/23 12:54 / 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:** B23090042 **Report Date:** 09/14/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95										Batch: R408198
Lab ID: LCS090523	11	Laboratory Control Sample				Run: GCNGA-B_230905A				09/05/23 11:08
Oxygen		0.64	Mol %	0.01	128	70	130			
Nitrogen		5.99	Mol %	0.01	100	70	130			
Carbon Dioxide		1.01	Mol %	0.01	102	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.10	Mol %	0.01	102	70	130			
Propane		4.92	Mol %	0.01	100	70	130			
Isobutane		2.00	Mol %	0.01	100	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.78	Mol %	0.01	98	70	130			
Lab ID: B23090041-001ADUP	12	Sample Duplicate				Run: GCNGA-B_230905A				09/05/23 12:16
Oxygen		21.7	Mol %	0.01				0	20	
Nitrogen		78.1	Mol %	0.01				0	20	
Carbon Dioxide		0.26	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		<0.01	Mol %	0.01					20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B23090042

Login completed by: Richard L. Shular
Date Received: 9/1/2023
Reviewed by: darcy
Received by: car
Reviewed Date: 9/9/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	21.0°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.

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2308G06-001B	Influent 8/29/23	TEDLAR	Air	8/29/2023 2:20:00 PM	1	Natural Gas Analysis. CO2+02

B23090042

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/30/2023	Time: 7:02 AM	Received By: Cindy Rohrer	Date: 9/1/23	Time: 09:50
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard RUSH Next BD 2nd BD 3rd BD

REPORT TRANSMITTAL DESIRED:
HARDCOPY (extra cost) FAX EMAIL ONLINE

FOR LAB USE ONLY
Temp of samples °C Attempt to Cool ?
Comments:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2308G06 RcptNo: 1

Received By: Tracy Casarrubias 8/30/2023 6:30:00 AM

Completed By: Tracy Casarrubias 8/30/2023 6:59:48 AM

Reviewed By: JM 8-30-23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: JM 8/30/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number and Email/ Fax are missing on COC- TMC 8/30/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy Company

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

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: Stuart Hyde

Sampler: Danny Burns

On Ice: ☐ Yes ☒ No

# of Coolers: 1

Cooler Temp(Including CF): N/A (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2308C106	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) Full List	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed Gas O_2 tCO_2
8-29-23	14:20	A:S	Influent 8/29/23	2-4oz	NA	001		X						X			X

Page

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8-29-23	14:35				8/29/23	1435
8/29/23	17:47			Courier	8/30/23	6:30

Remarks: cc: dburns shyde dhenderman @ensolum.com

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 14, 2023

Stuart Hyde
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sanroy B1B OrderNo.: 2308H03

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/31/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2308H03**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 8-30
Project: Sanroy B1B
Collection Date: 8/30/2023 4:00:00 PM
Lab ID: 2308H03-001 **Matrix:** AIR
Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	10	10		µg/L	100	9/11/2023 3:50:00 PM
Toluene	230	10		µg/L	100	9/11/2023 3:50:00 PM
Ethylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Naphthalene	ND	20		µg/L	100	9/11/2023 3:50:00 PM
1-Methylnaphthalene	ND	40		µg/L	100	9/11/2023 3:50:00 PM
2-Methylnaphthalene	ND	40		µg/L	100	9/11/2023 3:50:00 PM
Acetone	ND	100		µg/L	100	9/11/2023 3:50:00 PM
Bromobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Bromodichloromethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Bromoform	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Bromomethane	ND	20		µg/L	100	9/11/2023 3:50:00 PM
2-Butanone	ND	100		µg/L	100	9/11/2023 3:50:00 PM
Carbon disulfide	ND	100		µg/L	100	9/11/2023 3:50:00 PM
Carbon tetrachloride	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Chlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Chloroethane	ND	20		µg/L	100	9/11/2023 3:50:00 PM
Chloroform	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Chloromethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
2-Chlorotoluene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
4-Chlorotoluene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
cis-1,2-DCE	ND	10		µg/L	100	9/11/2023 3:50:00 PM
cis-1,3-Dichloropropene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	100	9/11/2023 3:50:00 PM
Dibromochloromethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Dibromomethane	ND	20		µg/L	100	9/11/2023 3:50:00 PM
1,2-Dichlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,3-Dichlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,4-Dichlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Dichlorodifluoromethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1-Dichloroethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1-Dichloroethene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2-Dichloropropane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,3-Dichloropropane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
2,2-Dichloropropane	ND	10		µg/L	100	9/11/2023 3:50:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2308H03**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 8-30
Project: Sanroy B1B
Collection Date: 8/30/2023 4:00:00 PM
Lab ID: 2308H03-001 **Matrix:** AIR
Received Date: 8/31/2023 6:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,1-Dichloropropene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Hexachlorobutadiene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
2-Hexanone	ND	100		µg/L	100	9/11/2023 3:50:00 PM
Isopropylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
4-Isopropyltoluene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
4-Methyl-2-pentanone	ND	100		µg/L	100	9/11/2023 3:50:00 PM
Methylene chloride	ND	30		µg/L	100	9/11/2023 3:50:00 PM
n-Butylbenzene	ND	30		µg/L	100	9/11/2023 3:50:00 PM
n-Propylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
sec-Butylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Styrene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
tert-Butylbenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1,2,2-Tetrachloroethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Tetrachloroethene (PCE)	ND	10		µg/L	100	9/11/2023 3:50:00 PM
trans-1,2-DCE	ND	10		µg/L	100	9/11/2023 3:50:00 PM
trans-1,3-Dichloropropene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1,1-Trichloroethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,1,2-Trichloroethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Trichloroethene (TCE)	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Trichlorofluoromethane	ND	10		µg/L	100	9/11/2023 3:50:00 PM
1,2,3-Trichloropropane	ND	20		µg/L	100	9/11/2023 3:50:00 PM
Vinyl chloride	ND	10		µg/L	100	9/11/2023 3:50:00 PM
Xylenes, Total	77	15		µg/L	100	9/11/2023 3:50:00 PM
Surr: Dibromofluoromethane	90.8	70-130		%Rec	100	9/11/2023 3:50:00 PM
Surr: 1,2-Dichloroethane-d4	84.1	70-130		%Rec	100	9/11/2023 3:50:00 PM
Surr: Toluene-d8	113	70-130		%Rec	100	9/11/2023 3:50:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	100	9/11/2023 3:50:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	6000	500		µg/L	100	9/11/2023 3:50:00 PM
Surr: BFB	87.1	70-130		%Rec	100	9/11/2023 3:50:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

September 14, 2023

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

Work Order: B23090044 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 9/1/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23090044-001	2308H03-001B, Influent 8-30	08/30/23 16:00	09/01/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23090044-001
Client Sample ID: 2308H03-001B, Influent 8-30

Report Date: 09/14/23
Collection Date: 08/30/23 16:00
DateReceived: 09/01/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.39	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Nitrogen	77.55	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Carbon Dioxide	0.87	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Methane	0.02	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Hexanes plus	0.17	Mol %		0.01		GPA 2261-95	09/05/23 13:21 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
Hexanes plus	0.072	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
GPM Total	0.072	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
GPM Pentanes plus	0.072	gpm		0.001		GPA 2261-95	09/05/23 13:21 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	8			1		GPA 2261-95	09/05/23 13:21 / jrj
Net BTU per cu ft @ std cond. (LHV)	8			1		GPA 2261-95	09/05/23 13:21 / jrj
Pseudo-critical Pressure, psia	549			1		GPA 2261-95	09/05/23 13:21 / jrj
Pseudo-critical Temperature, deg R	242			1		GPA 2261-95	09/05/23 13:21 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	09/05/23 13:21 / jrj
Air, %	97.75			0.01		GPA 2261-95	09/05/23 13:21 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	09/05/23 13:21 / 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:** B23090044 **Report Date:** 09/14/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R408198
Lab ID: **LCS090523**	11	Laboratory Control Sample				Run: GCNGA-B_230905A				09/05/23 11:08
Oxygen		0.64	Mol %	0.01	128	70	130			
Nitrogen		5.99	Mol %	0.01	100	70	130			
Carbon Dioxide		1.01	Mol %	0.01	102	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.10	Mol %	0.01	102	70	130			
Propane		4.92	Mol %	0.01	100	70	130			
Isobutane		2.00	Mol %	0.01	100	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.78	Mol %	0.01	98	70	130			
Lab ID: **B23090041-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_230905A				09/05/23 12:16
Oxygen		21.7	Mol %	0.01				0	20	
Nitrogen		78.1	Mol %	0.01				0	20	
Carbon Dioxide		0.26	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		<0.01	Mol %	0.01					20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B23090044

Login completed by: Richard L. Shular
Date Received: 9/1/2023
Reviewed by: darcy
Received by: car
Reviewed Date: 9/9/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	20.6°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.

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2308H03-001B	Influent 8-30	TEDLAR	Air	8/30/2023 4:00:00 PM	1	Natural Gas Analysis- 02+C02

B23090044

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/31/2023	Time: 7:52 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Cindy Rohrer	Date: 9/1/23	Time: 09:50

TAT: Standard RUSH Next BD 2nd BD 3rd BD

REPORT TRANSMITTAL DESIRED:
HARDCOPY (extra cost) FAX EMAIL ONLINE

FOR LAB USE ONLY
Temp of samples °C Attempt to Cool ?
Comments:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2308H03 RcptNo: 1

Received By: Tracy Casarrubias 8/31/2023 6:10:00 AM

Completed By: Tracy Casarrubias 8/31/2023 7:49:05 AM

Reviewed By: 8/31/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: CMC 8/31/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: Mailing address and phone number are missing on COC- TMC 8/31/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

email or Fax#: MKillough@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 BIB

Project #:

Project Manager: Stuart Hyde

Sampler: E. Carroll

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(including CF): N/A (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2308H03	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)	Fixed Gases (O_2,CO_2)
8-30	1600	Air	Influent 8-30	2 Tedlar		001		X						X			X

Page 1

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
8/30	1646	Eric Carroll	[illegible]		8/30/23	1640
8/30/23	1810	[signature]	[signature]	courier	8/31/23	6:10

Remarks:
cc: dburns@ensolum.com
ecarroll@ensolum.com

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 25, 2023

Stuart Hyde
Hilcorp Energy
PO Box 61529
Houston, TX 77208-1529
TEL: (337) 276-7676
FAX:

RE: Sunray B1B OrderNo.: 2309H67

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/30/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2309H67**
Date Reported: **10/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Project: Sunray B1B
Lab ID: 2309H67-001 **Matrix:** AIR

Client Sample ID: Sunray Influent 9-29-23
Collection Date: 9/29/2023 11:20:00 AM
Received Date: 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**	
Gasoline Range Organics (GRO)	4100	250		µg/L	50	10/11/2023 3:39:46 PM	GA10037
Surr: BFB	181	15-412		%Rec	50	10/11/2023 3:39:46 PM	GA10037
EPA METHOD 8260B: VOLATILES						Analyst: **JR**	
Benzene	4.8	2.5		µg/L	50	10/10/2023 10:55:16 AM	R100362
Toluene	140	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Ethylbenzene	11	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2,4-Trimethylbenzene	6.6	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,3,5-Trimethylbenzene	6.2	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2-Dichloroethane (EDC)	ND	2.5		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Naphthalene	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
1-Methylnaphthalene	ND	20		µg/L	50	10/10/2023 10:55:16 AM	R100362
2-Methylnaphthalene	ND	20		µg/L	50	10/10/2023 10:55:16 AM	R100362
Acetone	ND	50		µg/L	50	10/10/2023 10:55:16 AM	R100362
Bromobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Bromodichloromethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Bromoform	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Bromomethane	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
2-Butanone	ND	50		µg/L	50	10/10/2023 10:55:16 AM	R100362
Carbon disulfide	ND	50		µg/L	50	10/10/2023 10:55:16 AM	R100362
Carbon tetrachloride	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Chlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Chloroethane	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
Chloroform	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Chloromethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
2-Chlorotoluene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
4-Chlorotoluene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
cis-1,2-DCE	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
Dibromochloromethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Dibromomethane	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2-Dichlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,3-Dichlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,4-Dichlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Dichlorodifluoromethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1-Dichloroethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1-Dichloroethene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2309H67**
Date Reported: **10/25/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Client Sample ID: Sunray Influent 9-29-23
Project: Sunray B1B
Collection Date: 9/29/2023 11:20:00 AM
Lab ID: 2309H67-001 **Matrix:** AIR
Received Date: 9/30/2023 8:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **JR**	
1,2-Dichloropropane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,3-Dichloropropane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
2,2-Dichloropropane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1-Dichloropropene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Hexachlorobutadiene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
2-Hexanone	ND	50		µg/L	50	10/10/2023 10:55:16 AM	R100362
Isopropylbenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
4-Isopropyltoluene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
4-Methyl-2-pentanone	ND	50		µg/L	50	10/10/2023 10:55:16 AM	R100362
Methylene chloride	ND	15		µg/L	50	10/10/2023 10:55:16 AM	R100362
n-Butylbenzene	ND	15		µg/L	50	10/10/2023 10:55:16 AM	R100362
n-Propylbenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
sec-Butylbenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Styrene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
tert-Butylbenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
trans-1,2-DCE	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1,1-Trichloroethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,1,2-Trichloroethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Trichloroethene (TCE)	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Trichlorofluoromethane	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
1,2,3-Trichloropropane	ND	10		µg/L	50	10/10/2023 10:55:16 AM	R100362
Vinyl chloride	ND	5.0		µg/L	50	10/10/2023 10:55:16 AM	R100362
Xylenes, Total	100	7.5		µg/L	50	10/10/2023 10:55:16 AM	R100362
Surr: Dibromofluoromethane	96.5	70-130		%Rec	50	10/10/2023 10:55:16 AM	R100362
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	50	10/10/2023 10:55:16 AM	R100362
Surr: Toluene-d8	99.2	70-130		%Rec	50	10/10/2023 10:55:16 AM	R100362
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	50	10/10/2023 10:55:16 AM	R100362

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

October 05, 2023

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

Work Order: B23100339 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/4/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23100339-001	2309H67-001B, Sunray Influent 9-29-23	09/29/23 11:20	10/04/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23100339-001
Client Sample ID: 2309H67-001B, Sunray Influent 9-29-23

Report Date: 10/05/23
Collection Date: 09/29/23 11:20
DateReceived: 10/04/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.67	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Nitrogen	77.87	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Carbon Dioxide	0.36	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Hexanes plus	0.10	Mol %		0.01		GPA 2261-95	10/05/23 10:19 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
Hexanes plus	0.042	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
GPM Total	0.042	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
GPM Pentanes plus	0.042	gpm		0.001		GPA 2261-95	10/05/23 10:19 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	5			1		GPA 2261-95	10/05/23 10:19 / jrj
Net BTU per cu ft @ std cond. (LHV)	4			1		GPA 2261-95	10/05/23 10:19 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	10/05/23 10:19 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	10/05/23 10:19 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	10/05/23 10:19 / jrj
Air, %	99.00			0.01		GPA 2261-95	10/05/23 10:19 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	10/05/23 10:19 / 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)

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B23100339 **Report Date:** 10/05/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R410004
Lab ID: **B23100339-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_231005A				10/05/23 10:49
Oxygen		21.7	Mol %	0.01				0.0	20	
Nitrogen		77.9	Mol %	0.01				0.0	20	
Carbon Dioxide		0.36	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		0.10	Mol %	0.01				0.0	20	
Lab ID: **LCS100523**	11	Laboratory Control Sample				Run: GCNGA-B_231005A				10/05/23 11:18
Oxygen		0.61	Mol %	0.01	122	70	130			
Nitrogen		6.06	Mol %	0.01	101	70	130			
Carbon Dioxide		1.01	Mol %	0.01	102	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.05	Mol %	0.01	101	70	130			
Propane		4.88	Mol %	0.01	99	70	130			
Isobutane		2.00	Mol %	0.01	100	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		1.02	Mol %	0.01	102	70	130			
n-Pentane		1.01	Mol %	0.01	101	70	130			
Hexanes plus		0.81	Mol %	0.01	101	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

B23100339

Login completed by: Addison A. Gilbert
Date Received: 10/4/2023

Reviewed by:
Received by: aag

Reviewed Date:
Carrier name: Return-FedEx Ground

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:	17.4°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.

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: **Energy Labs -Billings**	COMPANY: **Energy Laboratories**	PHONE: **(406) 869-6253**	FAX: **(406) 252-6069**
ADDRESS: **1120 South 27th Street**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Billings, MT 59107**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2309H67-001B	Sunray Influent 9-29-23	TEDLAR	Air	9/29/2023 11:20:00 AM	1	Natural Gas Analysis- 02+C02

B23100339

NO
10/27

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 10/2/2023	Time: 1:17 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: G. Matt A. Dallas	Date: 10/27	Time: 0920

TAT: Standard ☒ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples _____ °C Attempt to Cool ? _____
Comments: _____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309H67**

25-Oct-23

Client: Hilcorp Energy

Project: Sunray B1B

Sample ID: **2309h67-001adup** SampType: **DUP** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **Sunray Influent 9-29-** Batch ID: **GA100376** RunNo: **100376**

Prep Date: Analysis Date: **10/11/2023** SeqNo: **3677482** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	4200	250						1.84	20	
Surr: BFB	190000		100000		185	15	412	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309H67**

25-Oct-23

Client: Hilcorp Energy

Project: Sunray B1B

Sample ID: **2309h67-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Sunray Influent 9-29-** Batch ID: **R100362** RunNo: **100362**

Prep Date: Analysis Date: **10/10/2023** SeqNo: **3675829** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.9	2.5						1.91	20	
Toluene	130	5.0						4.78	20	
Ethylbenzene	9.6	5.0						11.5	20	
Methyl tert-butyl ether (MTBE)	ND	5.0						0	20	
1,2,4-Trimethylbenzene	5.3	5.0						21.8	20	R
1,3,5-Trimethylbenzene	5.3	5.0						15.7	20	
1,2-Dichloroethane (EDC)	ND	2.5						0	20	
1,2-Dibromoethane (EDB)	ND	5.0						0	20	
Naphthalene	ND	10						0	20	
1-Methylnaphthalene	ND	20						0	20	
2-Methylnaphthalene	ND	20						0	20	
Acetone	ND	50						0	20	
Bromobenzene	ND	5.0						0	20	
Bromodichloromethane	ND	5.0						0	20	
Bromoform	ND	5.0						0	20	
Bromomethane	ND	10						0	20	
2-Butanone	ND	50						0	20	
Carbon disulfide	ND	50						0	20	
Carbon tetrachloride	ND	5.0						0	20	
Chlorobenzene	ND	5.0						0	20	
Chloroethane	ND	10						0	20	
Chloroform	ND	5.0						0	20	
Chloromethane	ND	5.0						0	20	
2-Chlorotoluene	ND	5.0						0	20	
4-Chlorotoluene	ND	5.0						0	20	
cis-1,2-DCE	ND	5.0						0	20	
cis-1,3-Dichloropropene	ND	5.0						0	20	
1,2-Dibromo-3-chloropropane	ND	10						0	20	
Dibromochloromethane	ND	5.0						0	20	
Dibromomethane	ND	10						0	20	
1,2-Dichlorobenzene	ND	5.0						0	20	
1,3-Dichlorobenzene	ND	5.0						0	20	
1,4-Dichlorobenzene	ND	5.0						0	20	
Dichlorodifluoromethane	ND	5.0						0	20	
1,1-Dichloroethane	ND	5.0						0	20	
1,1-Dichloroethene	ND	5.0						0	20	
1,2-Dichloropropane	ND	5.0						0	20	
1,3-Dichloropropane	ND	5.0						0	20	
2,2-Dichloropropane	ND	5.0						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309H67**

25-Oct-23

Client: Hilcorp Energy

Project: Sunray B1B

Sample ID: **2309h67-001adup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Sunray Influent 9-29-** Batch ID: **R100362** RunNo: **100362**

Prep Date: Analysis Date: **10/10/2023** SeqNo: **3675829** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	5.0						0	20	
Hexachlorobutadiene	ND	5.0						0	20	
2-Hexanone	ND	50						0	20	
Isopropylbenzene	ND	5.0						0	20	
4-Isopropyltoluene	ND	5.0						0	20	
4-Methyl-2-pentanone	ND	50						0	20	
Methylene chloride	ND	15						0	20	
n-Butylbenzene	ND	15						0	20	
n-Propylbenzene	ND	5.0						0	20	
sec-Butylbenzene	ND	5.0						0	20	
Styrene	ND	5.0						0	20	
tert-Butylbenzene	ND	5.0						0	20	
1,1,1,2-Tetrachloroethane	ND	5.0						0	20	
1,1,2,2-Tetrachloroethane	ND	5.0						0	20	
Tetrachloroethene (PCE)	ND	5.0						0	20	
trans-1,2-DCE	ND	5.0						0	20	
trans-1,3-Dichloropropene	ND	5.0						0	20	
1,2,3-Trichlorobenzene	ND	5.0						0	20	
1,2,4-Trichlorobenzene	ND	5.0						0	20	
1,1,1-Trichloroethane	ND	5.0						0	20	
1,1,2-Trichloroethane	ND	5.0						0	20	
Trichloroethene (TCE)	ND	5.0						0	20	
Trichlorofluoromethane	ND	5.0						0	20	
1,2,3-Trichloropropane	ND	10						0	20	
Vinyl chloride	ND	5.0						0	20	
Xylenes, Total	92	7.5						8.37	20	
Surr: Dibromofluoromethane	47		50.00		94.2	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	48		50.00		95.3	70	130	0	0	
Surr: Toluene-d8	50		50.00		99.7	70	130	0	0	
Surr: 4-Bromofluorobenzene	53		50.00		107	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Hilcorp Energy | Work Order Number: 2309H67 | RcptNo: 1

Received By: Tracy Casarrubias 9/30/2023 8:10:00 AM

Completed By: Tracy Casarrubias 9/30/2023 9:47:56 AM

Reviewed By: JR 10/2/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☑ ✓ per COC. NR 10/2/23	NA ☑ NR 10/2/23
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: TMC 9/30/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address and phone number are missing on COC- TMC 9/30/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address:

Phone #:

email or Fax#: mkillough@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 B7B

Project #:

Project Manager: S. Hyde - Ensolum

Sampler: E. Carroll

On Ice: ☐ Yes ☒ No

# of Coolers: 1

Cooler Temp(Including CF): NA (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2309H67	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)	Fixed Gas (O_2, CO_2)
9-29	11:20	Air	Sunray Effluent 9-29-23	2 Tedlar		001		X						X			X

Date: 9-29 Time: 1427 Relinquished by: E Ca

Received by: Via: Date: 9/29/23 Time: 1427

Date: 9/29/23 Time: 1754 Relinquished by: Martin Wells

Received by: Via: Courier Date: 9/30/23 Time: 8:10

Remarks:

cc: shyde@ensolum.com

ccarroll@ensolum.com

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 02, 2023

Stuart Hyde
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B 1B OrderNo.: 2310673

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/13/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2310673**
Date Reported: **11/2/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-6-23
Project: Sunray B 1B
Collection Date: 10/6/2023 1:15:00 PM
Lab ID: 2310673-001 **Matrix:** AIR
Received Date: 10/13/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	1400	250		µg/L	50	10/19/2023 3:04:48 PM
Surr: BFB	118	15-412		%Rec	50	10/19/2023 3:04:48 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
Benzene	ND	2.0		µg/L	50	10/19/2023 10:15:36 AM
Toluene	48	5.0		µg/L	50	10/19/2023 10:15:36 AM
Ethylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	50	10/19/2023 10:15:36 AM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Naphthalene	ND	10		µg/L	50	10/19/2023 10:15:36 AM
1-Methylnaphthalene	ND	20		µg/L	50	10/19/2023 10:15:36 AM
2-Methylnaphthalene	ND	20		µg/L	50	10/19/2023 10:15:36 AM
Acetone	ND	50		µg/L	50	10/19/2023 10:15:36 AM
Bromobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Bromodichloromethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Bromoform	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Bromomethane	ND	10		µg/L	50	10/19/2023 10:15:36 AM
2-Butanone	ND	50		µg/L	50	10/19/2023 10:15:36 AM
Carbon disulfide	ND	50		µg/L	50	10/19/2023 10:15:36 AM
Carbon tetrachloride	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Chlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Chloroethane	ND	10		µg/L	50	10/19/2023 10:15:36 AM
Chloroform	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Chloromethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
2-Chlorotoluene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
4-Chlorotoluene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
cis-1,2-DCE	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	10/19/2023 10:15:36 AM
Dibromochloromethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Dibromomethane	ND	10		µg/L	50	10/19/2023 10:15:36 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Dichlorodifluoromethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1-Dichloroethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1-Dichloroethene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2310673**
Date Reported: **11/2/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-6-23
Project: Sunray B 1B
Collection Date: 10/6/2023 1:15:00 PM
Lab ID: 2310673-001 **Matrix:** AIR
Received Date: 10/13/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
1,2-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,3-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
2,2-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Hexachlorobutadiene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
2-Hexanone	ND	50		µg/L	50	10/19/2023 10:15:36 AM
Isopropylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
4-Isopropyltoluene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
4-Methyl-2-pentanone	ND	50		µg/L	50	10/19/2023 10:15:36 AM
Methylene chloride	ND	15		µg/L	50	10/19/2023 10:15:36 AM
n-Butylbenzene	ND	15		µg/L	50	10/19/2023 10:15:36 AM
n-Propylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
sec-Butylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Styrene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
tert-Butylbenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
trans-1,2-DCE	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Trichloroethene (TCE)	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Trichlorofluoromethane	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
1,2,3-Trichloropropane	ND	10		µg/L	50	10/19/2023 10:15:36 AM
Vinyl chloride	ND	5.0		µg/L	50	10/19/2023 10:15:36 AM
Xylenes, Total	41	7.5		µg/L	50	10/19/2023 10:15:36 AM
Surr: Dibromofluoromethane	99.3	70-130		%Rec	50	10/19/2023 10:15:36 AM
Surr: 1,2-Dichloroethane-d4	91.3	70-130		%Rec	50	10/19/2023 10:15:36 AM
Surr: Toluene-d8	97.0	70-130		%Rec	50	10/19/2023 10:15:36 AM
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	50	10/19/2023 10:15:36 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

November 01, 2023

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

Work Order: B23101318 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/17/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23101318-001	2310673-001B, Influent 10-6-23	10/06/23 13:15	10/17/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23101318-001
Client Sample ID: 2310673-001B, Influent 10-6-23

Report Date: 11/01/23
Collection Date: 10/06/23 13:15
DateReceived: 10/17/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.74	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Nitrogen	78.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Carbon Dioxide	0.18	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Hexanes plus	0.07	Mol %		0.01		GPA 2261-95	10/19/23 12:24 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
Hexanes plus	0.029	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
GPM Total	0.029	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
GPM Pentanes plus	0.029	gpm		0.001		GPA 2261-95	10/19/23 12:24 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	3			1		GPA 2261-95	10/19/23 12:24 / jrj
Net BTU per cu ft @ std cond. (LHV)	3			1		GPA 2261-95	10/19/23 12:24 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	10/19/23 12:24 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	10/19/23 12:24 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	10/19/23 12:24 / jrj
Air, %	99.34			0.01		GPA 2261-95	10/19/23 12:24 / jrj
- The analysis was not corrected for air.							

COMMENTS

-						-	10/19/23 12:24 / 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:** B23101318 **Report Date:** 11/01/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95										Batch: R410813
Lab ID: B23101079-004ADUP	12	Sample Duplicate				Run: GCNGA-B_231019A				10/19/23 14:38
Oxygen		0.83	Mol %	0.01				1.2	20	
Nitrogen		14.4	Mol %	0.01				0.4	20	
Carbon Dioxide		0.03	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		83.6	Mol %	0.01				0.1	20	
Ethane		0.75	Mol %	0.01				0.0	20	
Propane		0.21	Mol %	0.01				0.0	20	
Isobutane		0.09	Mol %	0.01				12	20	
n-Butane		0.03	Mol %	0.01				0.0	20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		<0.01	Mol %	0.01					20	
Lab ID: LCS101923	11	Laboratory Control Sample				Run: GCNGA-B_231019A				10/19/23 15:12
Oxygen		0.60	Mol %	0.01	120	70	130			
Nitrogen		6.00	Mol %	0.01	100	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.1	Mol %	0.01	99	70	130			
Ethane		5.98	Mol %	0.01	100	70	130			
Propane		5.56	Mol %	0.01	113	70	130			
Isobutane		1.98	Mol %	0.01	99	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.03	Mol %	0.01	103	70	130			
n-Pentane		1.02	Mol %	0.01	102	70	130			
Hexanes plus		0.76	Mol %	0.01	95	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

ENERGY LABORATORIES
Trust our People. Trust our Data.
www.energylab.com
Billings, MT 406.252.6325 • Casper, WY 307.235.0515
Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

Work Order Receipt Checklist

Hall Environmental

B23101318

Login completed by: Yvonna E. Smith
Date Received: 10/17/2023
Reviewed by: lleprowse
Received by: dnh
Reviewed Date: 10/21/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	15.2°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2310673-001B	Influent 10-6-23	TEDLAR	Air	10/6/2023 1:15:00 PM	1	Natural Gas Analysis- CO2+O2

B23101318

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 10/13/2023	Time: 8:10 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 10/17/23	Time: 09:15

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples °C Attempt to Cool ?
Comments:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310673**

02-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310673-001adup**	SampType: **DUP**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Influent 10-6-23**	Batch ID: **GA100590**	RunNo: **100590**
Prep Date:	Analysis Date: **10/19/2023**	SeqNo: **3687273** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1400	250						0.587	20	
Surr: BFB	130000		100000		126	15	412	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310673**

02-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310673-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Influent 10-6-23**	Batch ID: **R100597**	RunNo: **100597**
Prep Date:	Analysis Date: **10/19/2023**	SeqNo: **3687769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	2.0						0	20	
Toluene	42	5.0						12.2	20	
Ethylbenzene	ND	5.0						0	20	
Methyl tert-butyl ether (MTBE)	ND	5.0						0	20	
1,2,4-Trimethylbenzene	ND	5.0						0	20	
1,3,5-Trimethylbenzene	ND	5.0						0	20	
1,2-Dichloroethane (EDC)	ND	2.0						0	20	
1,2-Dibromoethane (EDB)	ND	5.0						0	20	
Naphthalene	ND	10						0	20	
1-Methylnaphthalene	ND	20						0	20	
2-Methylnaphthalene	ND	20						0	20	
Acetone	ND	50						0	20	
Bromobenzene	ND	5.0						0	20	
Bromodichloromethane	ND	5.0						0	20	
Bromoform	ND	5.0						0	20	
Bromomethane	ND	10						0	20	
2-Butanone	ND	50						0	20	
Carbon disulfide	ND	50						0	20	
Carbon tetrachloride	ND	5.0						0	20	
Chlorobenzene	ND	5.0						0	20	
Chloroethane	ND	10						0	20	
Chloroform	ND	5.0						0	20	
Chloromethane	ND	5.0						0	20	
2-Chlorotoluene	ND	5.0						0	20	
4-Chlorotoluene	ND	5.0						0	20	
cis-1,2-DCE	ND	5.0						0	20	
cis-1,3-Dichloropropene	ND	5.0						0	20	
1,2-Dibromo-3-chloropropane	ND	10						0	20	
Dibromochloromethane	ND	5.0						0	20	
Dibromomethane	ND	10						0	20	
1,2-Dichlorobenzene	ND	5.0						0	20	
1,3-Dichlorobenzene	ND	5.0						0	20	
1,4-Dichlorobenzene	ND	5.0						0	20	
Dichlorodifluoromethane	ND	5.0						0	20	
1,1-Dichloroethane	ND	5.0						0	20	
1,1-Dichloroethene	ND	5.0						0	20	
1,2-Dichloropropane	ND	5.0						0	20	
1,3-Dichloropropane	ND	5.0						0	20	
2,2-Dichloropropane	ND	5.0						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310673**

02-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310673-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Influent 10-6-23**	Batch ID: **R100597**	RunNo: **100597**
Prep Date:	Analysis Date: **10/19/2023**	SeqNo: **3687769** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	5.0						0	20	
Hexachlorobutadiene	ND	5.0						0	20	
2-Hexanone	ND	50						0	20	
Isopropylbenzene	ND	5.0						0	20	
4-Isopropyltoluene	ND	5.0						0	20	
4-Methyl-2-pentanone	ND	50						0	20	
Methylene chloride	ND	15						0	20	
n-Butylbenzene	ND	15						0	20	
n-Propylbenzene	ND	5.0						0	20	
sec-Butylbenzene	ND	5.0						0	20	
Styrene	ND	5.0						0	20	
tert-Butylbenzene	ND	5.0						0	20	
1,1,1,2-Tetrachloroethane	ND	5.0						0	20	
1,1,2,2-Tetrachloroethane	ND	5.0						0	20	
Tetrachloroethene (PCE)	ND	5.0						0	20	
trans-1,2-DCE	ND	5.0						0	20	
trans-1,3-Dichloropropene	ND	5.0						0	20	
1,2,3-Trichlorobenzene	ND	5.0						0	20	
1,2,4-Trichlorobenzene	ND	5.0						0	20	
1,1,1-Trichloroethane	ND	5.0						0	20	
1,1,2-Trichloroethane	ND	5.0						0	20	
Trichloroethene (TCE)	ND	5.0						0	20	
Trichlorofluoromethane	ND	5.0						0	20	
1,2,3-Trichloropropane	ND	10						0	20	
Vinyl chloride	ND	5.0						0	20	
Xylenes, Total	38	7.5						7.99	20	
Surr: Dibromofluoromethane	49		50.00		97.7	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	46		50.00		91.2	70	130	0	0	
Surr: Toluene-d8	46		50.00		92.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	50		50.00		101	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2310673 RcptNo: 1

Received By: Tracy Casarrubias 10/13/2023 6:30:00 AM

Completed By: Tracy Casarrubias 10/13/2023 7:19:00 AM

Reviewed By: SCM 10/13/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: 10-13-23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number and Email/Fax are missing on COC- TMC 10/13/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy
Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

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: Stuart Hyde

Sampler: Danny Burns

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(Including CF): N/A (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2310673
10-6-2023	1315	Air	Influent 10-6-23	2 Tedlar	—	001

Analysis Request

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) Full list	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed Gas Co+O2
	X						X			X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10-12-23	800			courier	10/13/23	6:30
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

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.

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 03, 2023

Stuart Hyde
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B 1B OrderNo.: 2310A08

Dear Stuart Hyde:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 10/20/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2310A08**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-19-23
Project: Sunray B 1B
Collection Date: 10/19/2023 12:35:00 PM
Lab ID: 2310A08-001 **Matrix:** AIR
Received Date: 10/20/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	1200	250		µg/L	50	10/31/2023 10:27:51 AM
Surr: BFB	135	15-412		%Rec	50	10/31/2023 10:27:51 AM
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Toluene	29	5.0		µg/L	50	10/30/2023 2:16:00 PM
Ethylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Naphthalene	ND	10		µg/L	50	10/30/2023 2:16:00 PM
1-Methylnaphthalene	ND	20		µg/L	50	10/30/2023 2:16:00 PM
2-Methylnaphthalene	ND	20		µg/L	50	10/30/2023 2:16:00 PM
Acetone	ND	50		µg/L	50	10/30/2023 2:16:00 PM
Bromobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Bromodichloromethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Bromoform	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Bromomethane	ND	10		µg/L	50	10/30/2023 2:16:00 PM
2-Butanone	ND	50		µg/L	50	10/30/2023 2:16:00 PM
Carbon disulfide	ND	50		µg/L	50	10/30/2023 2:16:00 PM
Carbon tetrachloride	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Chlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Chloroethane	ND	10		µg/L	50	10/30/2023 2:16:00 PM
Chloroform	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Chloromethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
2-Chlorotoluene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
4-Chlorotoluene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
cis-1,2-DCE	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	10/30/2023 2:16:00 PM
Dibromochloromethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Dibromomethane	ND	10		µg/L	50	10/30/2023 2:16:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Dichlorodifluoromethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2310A08**
Date Reported: **11/3/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-19-23
Project: Sunray B 1B
Collection Date: 10/19/2023 12:35:00 PM
Lab ID: 2310A08-001 **Matrix:** AIR
Received Date: 10/20/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,2-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,3-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
2,2-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
2-Hexanone	ND	50		µg/L	50	10/30/2023 2:16:00 PM
Isopropylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
4-Isopropyltoluene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
4-Methyl-2-pentanone	ND	50		µg/L	50	10/30/2023 2:16:00 PM
Methylene chloride	ND	15		µg/L	50	10/30/2023 2:16:00 PM
n-Butylbenzene	ND	15		µg/L	50	10/30/2023 2:16:00 PM
n-Propylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
sec-Butylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Styrene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
tert-Butylbenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
trans-1,2-DCE	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Trichloroethene (TCE)	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Trichlorofluoromethane	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
1,2,3-Trichloropropane	ND	10		µg/L	50	10/30/2023 2:16:00 PM
Vinyl chloride	ND	5.0		µg/L	50	10/30/2023 2:16:00 PM
Xylenes, Total	29	7.5		µg/L	50	10/30/2023 2:16:00 PM
Surr: Dibromofluoromethane	89.1	70-130		%Rec	50	10/30/2023 2:16:00 PM
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%Rec	50	10/30/2023 2:16:00 PM
Surr: Toluene-d8	109	70-130		%Rec	50	10/30/2023 2:16:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	50	10/30/2023 2:16:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

November 02, 2023

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

Work Order: B23101902 Quote ID: B15626

Project Name: Tedlar Gas Analysis

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/25/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23101902-001	2310A08-001B, Influent 10-19-23	10/19/23 12:35	10/25/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Tedlar Gas Analysis
Lab ID: B23101902-001
Client Sample ID: 2310A08-001B, Influent 10-19-23

Report Date: 11/02/23
Collection Date: 10/19/23 12:35
DateReceived: 10/25/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.81	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Nitrogen	78.00	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Carbon Dioxide	0.16	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Hexanes plus	0.03	Mol %		0.01		GPA 2261-95	10/26/23 10:57 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
Hexanes plus	0.013	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
GPM Total	0.013	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
GPM Pentanes plus	0.013	gpm		0.001		GPA 2261-95	10/26/23 10:57 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	1			1		GPA 2261-95	10/26/23 10:57 / jrj
Net BTU per cu ft @ std cond. (LHV)	1			1		GPA 2261-95	10/26/23 10:57 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	10/26/23 10:57 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	10/26/23 10:57 / jrj
Specific Gravity @ 60/60F	0.999			0.001		D3588-81	10/26/23 10:57 / jrj
Air, %	99.64			0.01		GPA 2261-95	10/26/23 10:57 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	10/26/23 10:57 / 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:** B23101902 **Report Date:** 11/02/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R411208
Lab ID: **B23101903-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_231026A				10/26/23 12:42
Oxygen		18.1	Mol %	0.01				0.2	20	
Nitrogen		79.3	Mol %	0.01				0.1	20	
Carbon Dioxide		0.88	Mol %	0.01				1.1	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		0.02	Mol %	0.01					20	
Ethane		<0.01	Mol %	0.01					20	
Propane		<0.01	Mol %	0.01					20	
Isobutane		0.03	Mol %	0.01				0.0	20	
n-Butane		0.08	Mol %	0.01				0.0	20	
Isopentane		0.11	Mol %	0.01				0.0	20	
n-Pentane		0.10	Mol %	0.01				9.5	20	
Hexanes plus		1.44	Mol %	0.01				5.7	20	
Lab ID: **LCS102623**	11	Laboratory Control Sample				Run: GCNGA-B_231026A				10/26/23 14:30
Oxygen		0.59	Mol %	0.01	118	70	130			
Nitrogen		5.79	Mol %	0.01	96	70	130			
Carbon Dioxide		1.01	Mol %	0.01	102	70	130			
Methane		74.8	Mol %	0.01	100	70	130			
Ethane		6.05	Mol %	0.01	101	70	130			
Propane		4.88	Mol %	0.01	99	70	130			
Isobutane		2.01	Mol %	0.01	100	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		0.83	Mol %	0.01	104	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

B23101902

Login completed by: Danielle N. Harris
Date Received: 10/25/2023
Reviewed by: lleprowse
Received by: dnh
Reviewed Date: 10/27/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	8.8°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

B23101902

SUB CONTRATOR: Energy Labs -Billings	COMPANY: Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS: 1120 South 27th Street		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Billings, MT 59107			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2310A08-001B	Influent 10-19-23	TEDLAR	Air	10/19/2023 12:35:00 PM	1	Natural Gas Analysis

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: CMC	Date: 10/20/2023	Time: 7:56 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 10/20/23	Time: 12:15

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples ____ °C Attempt to Cool ? ____
Comments: ____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310A08**

03-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310a08-001adup**	SampType: **DUP**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Influent 10-19-23**	Batch ID: **GA100845**	RunNo: **100845**
Prep Date:	Analysis Date: **10/31/2023**	SeqNo: **3700405** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1300	250						11.0	20	
Surr: BFB	140000		100000		141	15	412	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310A08**

03-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310A08-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **Influent 10-19-23**	Batch ID: **R100818**	RunNo: **100818**
Prep Date:	Analysis Date: **10/30/2023**	SeqNo: **3699532** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	5.0						0	20	
Toluene	26	5.0						11.5	20	
Ethylbenzene	ND	5.0						0	20	
Methyl tert-butyl ether (MTBE)	ND	5.0						0	20	
1,2,4-Trimethylbenzene	ND	5.0						0	20	
1,3,5-Trimethylbenzene	ND	5.0						0	20	
1,2-Dichloroethane (EDC)	ND	5.0						0	20	
1,2-Dibromoethane (EDB)	ND	5.0						0	20	
Naphthalene	ND	10						0	20	
1-Methylnaphthalene	ND	20						0	20	
2-Methylnaphthalene	ND	20						0	20	
Acetone	ND	50						0	20	
Bromobenzene	ND	5.0						0	20	
Bromodichloromethane	ND	5.0						0	20	
Bromoform	ND	5.0						0	20	
Bromomethane	ND	10						0	20	
2-Butanone	ND	50						0	20	
Carbon disulfide	ND	50						0	20	
Carbon tetrachloride	ND	5.0						0	20	
Chlorobenzene	ND	5.0						0	20	
Chloroethane	ND	10						0	20	
Chloroform	ND	5.0						0	20	
Chloromethane	ND	5.0						0	20	
2-Chlorotoluene	ND	5.0						0	20	
4-Chlorotoluene	ND	5.0						0	20	
cis-1,2-DCE	ND	5.0						0	20	
cis-1,3-Dichloropropene	ND	5.0						0	20	
1,2-Dibromo-3-chloropropane	ND	10						0	20	
Dibromochloromethane	ND	5.0						0	20	
Dibromomethane	ND	10						0	20	
1,2-Dichlorobenzene	ND	5.0						0	20	
1,3-Dichlorobenzene	ND	5.0						0	20	
1,4-Dichlorobenzene	ND	5.0						0	20	
Dichlorodifluoromethane	ND	5.0						0	20	
1,1-Dichloroethane	ND	5.0						0	20	
1,1-Dichloroethene	ND	5.0						0	20	
1,2-Dichloropropane	ND	5.0						0	20	
1,3-Dichloropropane	ND	5.0						0	20	
2,2-Dichloropropane	ND	5.0						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310A08**

03-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310A08-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **Influent 10-19-23**	Batch ID: **R100818**	RunNo: **100818**							
Prep Date:	Analysis Date: **10/30/2023**	SeqNo: **3699532**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	5.0						0	20	
Hexachlorobutadiene	ND	5.0						0	20	
2-Hexanone	ND	50						0	20	
Isopropylbenzene	ND	5.0						0	20	
4-Isopropyltoluene	ND	5.0						0	20	
4-Methyl-2-pentanone	ND	50						0	20	
Methylene chloride	ND	15						0	20	
n-Butylbenzene	ND	15						0	20	
n-Propylbenzene	ND	5.0						0	20	
sec-Butylbenzene	ND	5.0						0	20	
Styrene	ND	5.0						0	20	
tert-Butylbenzene	ND	5.0						0	20	
1,1,1,2-Tetrachloroethane	ND	5.0						0	20	
1,1,2,2-Tetrachloroethane	ND	5.0						0	20	
Tetrachloroethene (PCE)	ND	5.0						0	20	
trans-1,2-DCE	ND	5.0						0	20	
trans-1,3-Dichloropropene	ND	5.0						0	20	
1,2,3-Trichlorobenzene	ND	5.0						0	20	
1,2,4-Trichlorobenzene	ND	5.0						0	20	
1,1,1-Trichloroethane	ND	5.0						0	20	
1,1,2-Trichloroethane	ND	5.0						0	20	
Trichloroethene (TCE)	ND	5.0						0	20	
Trichlorofluoromethane	ND	5.0						0	20	
1,2,3-Trichloropropane	ND	10						0	20	
Vinyl chloride	ND	5.0						0	20	
Xylenes, Total	25	7.5						13.2	20	
Surr: Dibromofluoromethane	44		50.00		87.6	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	47		50.00		93.4	70	130	0	0	
Surr: Toluene-d8	54		50.00		108	70	130	0	0	
Surr: 4-Bromofluorobenzene	52		50.00		105	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2310A08 RcptNo: 1

Received By: Cheyenne Cason 10/20/2023 7:30:00 AM
Completed By: Cheyenne Cason 10/20/2023 7:52:50 AM
Reviewed By: TMC 10/20/23

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ ~~NA ☑~~ ✓ per COC. NV 10/20/23
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☐ NA ☑
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no. notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: /
(<2 or >12 unless noted)
Adjusted?
Checked by: SCM 10/20/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes	NA		

Chain-of-Custody Record

Client: Hilcorp Energy

Attn: Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

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: Stuart Hyde

Sampler: Danny Burns

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(Including CF): NA (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA) Full	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed Gas
10-19	12:35	Air	Influent 10-19-23	2 Tedlar	—	2310A08-001		X						X			X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10-19-23	15:45					
10/19/23	1749			Courier	10/20/23	0730

Remarks:

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 08, 2023

Stuart Hyde
Hilcorp Energy
PO Box 61529
Houston, TX 77208-1529
TEL: (337) 276-7676
FAX:

RE: Sunray B 1B OrderNo.: 2310D01

Dear Stuart Hyde:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 10/27/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2310D01**
Date Reported: **11/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Client Sample ID: Inlet
Project: Sunray B 1B
Collection Date: 10/26/2023 9:40:00 AM
Lab ID: 2310D01-001 **Matrix:** AIR
Received Date: 10/27/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**	
Gasoline Range Organics (GRO)	960	250		µg/L	50	10/31/2023 12:02:05 PM	GA10084
Surr: BFB	123	15-412		%Rec	50	10/31/2023 12:02:05 PM	GA10084
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
Benzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Toluene	26	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Ethylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Naphthalene	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
1-Methylnaphthalene	ND	20		µg/L	50	10/30/2023 3:53:00 PM	R100818
2-Methylnaphthalene	ND	20		µg/L	50	10/30/2023 3:53:00 PM	R100818
Acetone	ND	50		µg/L	50	10/30/2023 3:53:00 PM	R100818
Bromobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Bromodichloromethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Bromoform	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Bromomethane	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
2-Butanone	ND	50		µg/L	50	10/30/2023 3:53:00 PM	R100818
Carbon disulfide	ND	50		µg/L	50	10/30/2023 3:53:00 PM	R100818
Carbon tetrachloride	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Chlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Chloroethane	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
Chloroform	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Chloromethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
2-Chlorotoluene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
4-Chlorotoluene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
cis-1,2-DCE	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
Dibromochloromethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Dibromomethane	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,3-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,4-Dichlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Dichlorodifluoromethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1-Dichloroethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1-Dichloroethene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2310D01**
Date Reported: **11/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Hilcorp Energy
Client Sample ID: Inlet
Project: Sunray B 1B
Collection Date: 10/26/2023 9:40:00 AM
Lab ID: 2310D01-001 **Matrix:** AIR
Received Date: 10/27/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**	
1,2-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,3-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
2,2-Dichloropropane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Hexachlorobutadiene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
2-Hexanone	ND	50		µg/L	50	10/30/2023 3:53:00 PM	R100818
Isopropylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
4-Isopropyltoluene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
4-Methyl-2-pentanone	ND	50		µg/L	50	10/30/2023 3:53:00 PM	R100818
Methylene chloride	ND	15		µg/L	50	10/30/2023 3:53:00 PM	R100818
n-Butylbenzene	ND	15		µg/L	50	10/30/2023 3:53:00 PM	R100818
n-Propylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
sec-Butylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Styrene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
tert-Butylbenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
trans-1,2-DCE	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1,1-Trichloroethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,1,2-Trichloroethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Trichloroethene (TCE)	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Trichlorofluoromethane	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
1,2,3-Trichloropropane	ND	10		µg/L	50	10/30/2023 3:53:00 PM	R100818
Vinyl chloride	ND	5.0		µg/L	50	10/30/2023 3:53:00 PM	R100818
Xylenes, Total	21	7.5		µg/L	50	10/30/2023 3:53:00 PM	R100818
Surr: Dibromofluoromethane	91.1	70-130		%Rec	50	10/30/2023 3:53:00 PM	R100818
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	50	10/30/2023 3:53:00 PM	R100818
Surr: Toluene-d8	108	70-130		%Rec	50	10/30/2023 3:53:00 PM	R100818
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	50	10/30/2023 3:53:00 PM	R100818

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

November 08, 2023

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

Work Order: B23102199 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/31/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23102199-001	2310D01-001B, Inlet	10/26/23 9:40	10/31/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23102199-001
Client Sample ID: 2310D01-001B, Inlet

Report Date: 11/08/23
Collection Date: 10/26/23 09:40
DateReceived: 10/31/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.80	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Nitrogen	78.03	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Carbon Dioxide	0.15	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Hexanes plus	0.02	Mol %		0.01		GPA 2261-95	11/02/23 09:45 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
Hexanes plus	0.008	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
GPM Total	0.008	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
GPM Pentanes plus	0.008	gpm		0.001		GPA 2261-95	11/02/23 09:45 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	1			1		GPA 2261-95	11/02/23 09:45 / jrj
Net BTU per cu ft @ std cond. (LHV)	1			1		GPA 2261-95	11/02/23 09:45 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	11/02/23 09:45 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	11/02/23 09:45 / jrj
Specific Gravity @ 60/60F	0.999			0.001		D3588-81	11/02/23 09:45 / jrj
Air, %	99.60			0.01		GPA 2261-95	11/02/23 09:45 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	11/02/23 09:45 / 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:** B23102199 **Report Date:** 11/08/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R411585
Lab ID: **B23102199-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_231102A				11/02/23 10:13
Oxygen		21.8	Mol %	0.01				0.0	20	
Nitrogen		78.0	Mol %	0.01				0.0	20	
Carbon Dioxide		0.15	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		<0.01	Mol %	0.01					20	
Ethane		<0.01	Mol %	0.01					20	
Propane		<0.01	Mol %	0.01					20	
Isobutane		<0.01	Mol %	0.01					20	
n-Butane		<0.01	Mol %	0.01					20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		0.02	Mol %	0.01				0.0	20	
Lab ID: **LCS110223**	11	Laboratory Control Sample				Run: GCNGA-B_231102A				11/02/23 12:50
Oxygen		0.60	Mol %	0.01	120	70	130			
Nitrogen		5.94	Mol %	0.01	99	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.4	Mol %	0.01	99	70	130			
Ethane		5.97	Mol %	0.01	99	70	130			
Propane		5.42	Mol %	0.01	110	70	130			
Isobutane		1.98	Mol %	0.01	99	70	130			
n-Butane		1.98	Mol %	0.01	99	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.77	Mol %	0.01	96	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

B23102199

Login completed by: Danielle N. Harris
Date Received: 10/31/2023
Reviewed by: darcy
Received by: lel
Reviewed Date: 11/3/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	12.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

B23102199

SUB CONTRATOR: Energy Labs -Billings	COMPANY: Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS: 1120 South 27th Street		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Billings, MT 59107			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2310D01-001B	Inlet	TEDLAR	Air	10/26/2023 9:40:00 AM	1	Natural Gas Analysis

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: Cme	Date: 10/27/2023	Time: 10:05 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Lyndi Lebrane	Date: 10/31/23	Time: 09:15

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples ____ °C Attempt to Cool ? ____
Comments: ____

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Hilcorp Energy | Work Order Number: 2310D01 | RcptNo: 1

Received By: Cheyenne Cason 10/27/2023 7:30:00 AM

Completed By: Cheyenne Cason 10/27/2023 10:01:03 AM

Reviewed By: JN 10/27/23

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? ~~Client~~ COURIER JN 10/27/23

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☑ per COC. JN 10/27/23 ~~NA ☑~~
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ No ☐ NA ☑
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
Adjusted? ____
Checked by: SCM 10/27/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Not Present	NA		

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address: 1111 Travis St

Houston TX

Phone #:

email or Fax#: mkillough@hilcorp.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☒ EDD (Type) EXCEL

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Sunray B #1B

Project #: —

Project Manager:

Stuart Hyde

shyde@ensolum.com

Sampler: S Hyde

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp (including CF): NA (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2310D01	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)	O_2 / CO_2 Fixed gases				
10/26/23	0940	Air	Inlet	2 tedlar	—	001		X						X			X				

Date: 10/26/23 Time: 1245 Relinquished by:

Received by: Via: Date Time

Date: 10/24/23 Time: 1836 Relinquished by:

Received by: Via: Date Time 10/27/23 0730

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 02, 2023

Stuart Hyde
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B 1B OrderNo.: 2310675

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 10/13/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2310675**
Date Reported: **11/2/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-12-23
Project: Sunray B 1B
Collection Date: 10/12/2023 2:20:00 PM
Lab ID: 2310675-001 **Matrix:** AIR
Received Date: 10/13/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	1800	250		µg/L	50	10/20/2023 11:09:25 AM
Surr: BFB	148	15-412		%Rec	50	10/20/2023 11:09:25 AM
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
Benzene	ND	2.0		µg/L	50	10/19/2023 11:12:28 AM
Toluene	47	5.0		µg/L	50	10/19/2023 11:12:28 AM
Ethylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	50	10/19/2023 11:12:28 AM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Naphthalene	ND	10		µg/L	50	10/19/2023 11:12:28 AM
1-Methylnaphthalene	ND	20		µg/L	50	10/19/2023 11:12:28 AM
2-Methylnaphthalene	ND	20		µg/L	50	10/19/2023 11:12:28 AM
Acetone	ND	50		µg/L	50	10/19/2023 11:12:28 AM
Bromobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Bromodichloromethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Bromoform	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Bromomethane	ND	10		µg/L	50	10/19/2023 11:12:28 AM
2-Butanone	ND	50		µg/L	50	10/19/2023 11:12:28 AM
Carbon disulfide	ND	50		µg/L	50	10/19/2023 11:12:28 AM
Carbon tetrachloride	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Chlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Chloroethane	ND	10		µg/L	50	10/19/2023 11:12:28 AM
Chloroform	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Chloromethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
2-Chlorotoluene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
4-Chlorotoluene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
cis-1,2-DCE	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	10/19/2023 11:12:28 AM
Dibromochloromethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Dibromomethane	ND	10		µg/L	50	10/19/2023 11:12:28 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Dichlorodifluoromethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1-Dichloroethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1-Dichloroethene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2310675**
Date Reported: **11/2/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 10-12-23
Project: Sunray B 1B
Collection Date: 10/12/2023 2:20:00 PM
Lab ID: 2310675-001 **Matrix:** AIR **Received Date:** 10/13/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **JR**
1,2-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,3-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
2,2-Dichloropropane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Hexachlorobutadiene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
2-Hexanone	ND	50		µg/L	50	10/19/2023 11:12:28 AM
Isopropylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
4-Isopropyltoluene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
4-Methyl-2-pentanone	ND	50		µg/L	50	10/19/2023 11:12:28 AM
Methylene chloride	ND	15		µg/L	50	10/19/2023 11:12:28 AM
n-Butylbenzene	ND	15		µg/L	50	10/19/2023 11:12:28 AM
n-Propylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
sec-Butylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Styrene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
tert-Butylbenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
trans-1,2-DCE	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Trichloroethene (TCE)	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Trichlorofluoromethane	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
1,2,3-Trichloropropane	ND	10		µg/L	50	10/19/2023 11:12:28 AM
Vinyl chloride	ND	5.0		µg/L	50	10/19/2023 11:12:28 AM
Xylenes, Total	51	7.5		µg/L	50	10/19/2023 11:12:28 AM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	50	10/19/2023 11:12:28 AM
Surr: 1,2-Dichloroethane-d4	88.8	70-130		%Rec	50	10/19/2023 11:12:28 AM
Surr: Toluene-d8	93.0	70-130		%Rec	50	10/19/2023 11:12:28 AM
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	50	10/19/2023 11:12:28 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

November 01, 2023

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

Work Order: B23101316 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/17/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23101316-001	2310675-001B, Influent 10-12-23	10/12/23 14:20	10/17/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23101316-001
Client Sample ID: 2310675-001B, Influent 10-12-23

Report Date: 11/01/23
Collection Date: 10/12/23 14:20
DateReceived: 10/17/23
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	10/19/23 11:53 / jrj
Nitrogen	78.00	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Carbon Dioxide	0.22	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Hexanes plus	0.09	Mol %		0.01		GPA 2261-95	10/19/23 11:53 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
Hexanes plus	0.038	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
GPM Total	0.038	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
GPM Pentanes plus	0.038	gpm		0.001		GPA 2261-95	10/19/23 11:53 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	4			1		GPA 2261-95	10/19/23 11:53 / jrj
Net BTU per cu ft @ std cond. (LHV)	4			1		GPA 2261-95	10/19/23 11:53 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	10/19/23 11:53 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	10/19/23 11:53 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	10/19/23 11:53 / jrj
Air, %	99.11			0.01		GPA 2261-95	10/19/23 11:53 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	10/19/23 11:53 / jrj

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

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

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B23101316 **Report Date:** 11/01/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R410813
Lab ID: **B23101079-004ADUP**	12	Sample Duplicate				Run: GCNGA-B_231019A				10/19/23 14:38
Oxygen		0.83	Mol %	0.01				1.2	20	
Nitrogen		14.4	Mol %	0.01				0.4	20	
Carbon Dioxide		0.03	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		83.6	Mol %	0.01				0.1	20	
Ethane		0.75	Mol %	0.01				0.0	20	
Propane		0.21	Mol %	0.01				0.0	20	
Isobutane		0.09	Mol %	0.01				12	20	
n-Butane		0.03	Mol %	0.01				0.0	20	
Isopentane		<0.01	Mol %	0.01					20	
n-Pentane		<0.01	Mol %	0.01					20	
Hexanes plus		<0.01	Mol %	0.01					20	
Lab ID: **LCS101923**	11	Laboratory Control Sample				Run: GCNGA-B_231019A				10/19/23 15:12
Oxygen		0.60	Mol %	0.01	120	70	130			
Nitrogen		6.00	Mol %	0.01	100	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.1	Mol %	0.01	99	70	130			
Ethane		5.98	Mol %	0.01	100	70	130			
Propane		5.56	Mol %	0.01	113	70	130			
Isobutane		1.98	Mol %	0.01	99	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.03	Mol %	0.01	103	70	130			
n-Pentane		1.02	Mol %	0.01	102	70	130			
Hexanes plus		0.76	Mol %	0.01	95	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

B23101316

Login completed by: Yvonna E. Smith
Date Received: 10/17/2023
Reviewed by: lleprowse
Received by: dnh
Reviewed Date: 10/21/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	15.2°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2310675-001B	Influent 10-12-23	TEDLAR	Air	10/12/2023 2:20:00 PM	1	Natural Gas Analysis- CO2+O2

B23101316

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 10/13/2023	Time: 8:15 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 10/17/10	Time: 09:15

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples °C Attempt to Cool ?
Comments:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2310675**

02-Nov-23

Client: HILCORP ENERGY

Project: Sunray B 1B

Sample ID: **2310675-001adup**	SampType: **DUP**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Influent 10-12-23**	Batch ID: **GA100615**	RunNo: **100615**
Prep Date:	Analysis Date: **10/20/2023**	SeqNo: **3688783** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1700	250						8.23	20	
Surr: BFB	140000		100000		137	15	412	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2310675 RcptNo: 1

Received By: Tracy Casarrubias 10/13/2023 6:30:00 AM

Completed By: Tracy Casarrubias 10/13/2023 8:15:44 AM

Reviewed By: SCM 10/13/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: JS 10-13-23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number and Email/Fax are missing on COC- TMC 10/13/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp Energy CO
Mitch Killough

Mailing Address:

Phone #:

email or Fax#:

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:
Stuart Hyde

Sampler: D. Burns
On Ice: ☐ Yes ☑ No
# of Coolers: 1
Cooler Temp(including CF): N/A (°C)

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2310675
10-12-23	1420	Air	Influent 10-12-23	2 Tedlar	—	001

Analysis Request

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) Full List	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed Gas
	X						X			X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
10-12-23	15:05			courier	10/13/23	0:30
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

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.

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 15, 2023

Mitch Killough
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B1B OrderNo.: 2311001

Dear Mitch Killough:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 11/1/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2311001**
Date Reported: **11/15/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 10/31/2023 3:30:00 PM
Lab ID: 2311001-001 **Matrix:** AIR
Received Date: 11/1/2023 6:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	900	250		µg/L	50	11/8/2023 2:56:00 PM
Surr: BFB	126	15-412		%Rec	50	11/8/2023 2:56:00 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	0.53	0.50		µg/L	5	11/8/2023 3:07:52 PM
Toluene	30	0.50		µg/L	5	11/8/2023 3:07:52 PM
Ethylbenzene	3.3	0.50		µg/L	5	11/8/2023 3:07:52 PM
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2,4-Trimethylbenzene	4.0	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,3,5-Trimethylbenzene	3.7	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Naphthalene	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
1-Methylnaphthalene	ND	2.0		µg/L	5	11/8/2023 3:07:52 PM
2-Methylnaphthalene	ND	2.0		µg/L	5	11/8/2023 3:07:52 PM
Acetone	ND	5.0		µg/L	5	11/8/2023 3:07:52 PM
Bromobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Bromodichloromethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Bromoform	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Bromomethane	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
2-Butanone	ND	5.0		µg/L	5	11/8/2023 3:07:52 PM
Carbon disulfide	ND	5.0		µg/L	5	11/8/2023 3:07:52 PM
Carbon tetrachloride	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Chlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Chloroethane	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
Chloroform	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Chloromethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
2-Chlorotoluene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
4-Chlorotoluene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
cis-1,2-DCE	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
Dibromochloromethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Dibromomethane	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Dichlorodifluoromethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1-Dichloroethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1-Dichloroethene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2311001**
Date Reported: **11/15/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 10/31/2023 3:30:00 PM
Lab ID: 2311001-001 **Matrix:** AIR
Received Date: 11/1/2023 6:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
1,2-Dichloropropane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,3-Dichloropropane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
2,2-Dichloropropane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1-Dichloropropene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Hexachlorobutadiene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
2-Hexanone	ND	5.0		µg/L	5	11/8/2023 3:07:52 PM
Isopropylbenzene	0.70	0.50		µg/L	5	11/8/2023 3:07:52 PM
4-Isopropyltoluene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	5	11/8/2023 3:07:52 PM
Methylene chloride	ND	1.5		µg/L	5	11/8/2023 3:07:52 PM
n-Butylbenzene	ND	1.5		µg/L	5	11/8/2023 3:07:52 PM
n-Propylbenzene	0.64	0.50		µg/L	5	11/8/2023 3:07:52 PM
sec-Butylbenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Styrene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
tert-Butylbenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
trans-1,2-DCE	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Trichloroethene (TCE)	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Trichlorofluoromethane	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	5	11/8/2023 3:07:52 PM
Vinyl chloride	ND	0.50		µg/L	5	11/8/2023 3:07:52 PM
Xylenes, Total	42	0.75		µg/L	5	11/8/2023 3:07:52 PM
Surr: Dibromofluoromethane	80.0	70-130		%Rec	5	11/8/2023 3:07:52 PM
Surr: 1,2-Dichloroethane-d4	91.0	70-130		%Rec	5	11/8/2023 3:07:52 PM
Surr: Toluene-d8	114	70-130		%Rec	5	11/8/2023 3:07:52 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	5	11/8/2023 3:07:52 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

November 06, 2023

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

Work Order: B23110156 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 11/2/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23110156-001	2311001-001B, Sunray B1B Influent	10/31/23 15:30	11/02/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23110156-001
Client Sample ID: 2311001-001B, Sunray B1B Influent

Report Date: 11/06/23
Collection Date: 10/31/23 15:30
DateReceived: 11/02/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.60	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Nitrogen	78.20	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Carbon Dioxide	0.17	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Hexanes plus	0.03	Mol %		0.01		GPA 2261-95	11/03/23 10:58 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
Hexanes plus	0.013	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
GPM Total	0.013	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
GPM Pentanes plus	0.013	gpm		0.001		GPA 2261-95	11/03/23 10:58 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	1			1		GPA 2261-95	11/03/23 10:58 / jrj
Net BTU per cu ft @ std cond. (LHV)	1			1		GPA 2261-95	11/03/23 10:58 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	11/03/23 10:58 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	11/03/23 10:58 / jrj
Specific Gravity @ 60/60F	0.999			0.001		D3588-81	11/03/23 10:58 / jrj
Air, %	98.69			0.01		GPA 2261-95	11/03/23 10:58 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	11/03/23 10:58 / 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:** B23110156 **Report Date:** 11/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R411666
Lab ID: **B23110154-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_231103A				11/03/23 10:27
Oxygen		21.5	Mol %	0.01				0.0	20	
Nitrogen		78.1	Mol %	0.01				0	20	
Carbon Dioxide		0.35	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		0.08	Mol %	0.01				13	20	
Lab ID: **LCS110323**	11	Laboratory Control Sample				Run: GCNGA-B_231103A				11/03/23 12:38
Oxygen		0.61	Mol %	0.01	122	70	130			
Nitrogen		6.07	Mol %	0.01	101	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.4	Mol %	0.01	99	70	130			
Ethane		6.01	Mol %	0.01	100	70	130			
Propane		5.12	Mol %	0.01	104	70	130			
Isobutane		1.99	Mol %	0.01	99	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.04	Mol %	0.01	104	70	130			
n-Pentane		1.02	Mol %	0.01	102	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)

ENERGY LABORATORIES
Trust our People. Trust our Data.
www.energylab.com
Billings, MT 406.252.6325 • Casper, WY 307.235.0515
Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

Work Order Receipt Checklist

Hall Environmental

B23110156

Login completed by: Danielle N. Harris
Date Received: 11/2/2023
Reviewed by: gmccartney
Received by: lel
Reviewed Date: 11/3/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.0°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

BZ 31101S6

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2311001-001B	Sunray B1B Influent	TEDLAR	Air	10/31/2023 3:30:00 PM	1	**5 DAY TAT** Natural Gas Analysis. CO2+02

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: ~~11/1/2023~~	Time: 7:03 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Hydi LeBrand	Date: 11/2/23	Time: 09:05

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples ____ ℃ Attempt to Cool ? ____
Comments: ____

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2311001**

15-Nov-23

Client: HILCORP ENERGY

Project: Sunray B1B

Sample ID: **2311001-001adup** SampType: **DUP** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **Sunray B1B Influent** Batch ID: **R101035** RunNo: **101035**

Prep Date: Analysis Date: **11/8/2023** SeqNo: **3710509** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	850	250						5.96	20	
Surr: BFB	120000		100000		122	15	412	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2311001**

15-Nov-23

Client: HILCORP ENERGY

Project: Sunray B1B

Sample ID: **2311001-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Sunray B1B Influent** Batch ID: **R101045** RunNo: **101045**

Prep Date: Analysis Date: **11/8/2023** SeqNo: **3709412** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.49	0.25						8.22	20	
Toluene	29	0.50						5.27	20	
Ethylbenzene	3.0	0.50						8.33	20	
Methyl tert-butyl ether (MTBE)	ND	0.50						0	20	
1,2,4-Trimethylbenzene	3.7	0.50						9.31	20	
1,3,5-Trimethylbenzene	3.4	0.50						8.93	20	
1,2-Dichloroethane (EDC)	ND	0.50						0	20	
1,2-Dibromoethane (EDB)	ND	0.50						0	20	
Naphthalene	ND	1.0						0	20	
1-Methylnaphthalene	ND	2.0						0	20	
2-Methylnaphthalene	ND	2.0						0	20	
Acetone	ND	5.0						0	20	
Bromobenzene	ND	0.50						0	20	
Bromodichloromethane	ND	0.50						0	20	
Bromoform	ND	0.50						0	20	
Bromomethane	ND	1.0						0	20	
2-Butanone	ND	5.0						0	20	
Carbon disulfide	ND	5.0						0	20	
Carbon tetrachloride	ND	0.50						0	20	
Chlorobenzene	ND	0.50						0	20	
Chloroethane	ND	1.0						0	20	
Chloroform	ND	0.50						0	20	
Chloromethane	ND	0.50						0	20	
2-Chlorotoluene	ND	0.50						0	20	
4-Chlorotoluene	ND	0.50						0	20	
cis-1,2-DCE	ND	0.50						0	20	
cis-1,3-Dichloropropene	ND	0.50						0	20	
1,2-Dibromo-3-chloropropane	ND	1.0						0	20	
Dibromochloromethane	ND	0.50						0	20	
Dibromomethane	ND	1.0						0	20	
1,2-Dichlorobenzene	ND	0.50						0	20	
1,3-Dichlorobenzene	ND	0.50						0	20	
1,4-Dichlorobenzene	ND	0.50						0	20	
Dichlorodifluoromethane	ND	0.50						0	20	
1,1-Dichloroethane	ND	0.50						0	20	
1,1-Dichloroethene	ND	0.50						0	20	
1,2-Dichloropropane	ND	0.50						0	20	
1,3-Dichloropropane	ND	0.50						0	20	
2,2-Dichloropropane	ND	0.50						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2311001**

15-Nov-23

Client: HILCORP ENERGY

Project: Sunray B1B

Sample ID: **2311001-001a dup** SampType: **DUP** TestCode: **EPA Method 8260B: Volatiles**

Client ID: **Sunray B1B Influent** Batch ID: **R101045** RunNo: **101045**

Prep Date: Analysis Date: **11/8/2023** SeqNo: **3709412** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50						0	20	
Hexachlorobutadiene	ND	0.50						0	20	
2-Hexanone	ND	5.0						0	20	
Isopropylbenzene	0.65	0.50						8.36	20	
4-Isopropyltoluene	ND	0.50						0	20	
4-Methyl-2-pentanone	ND	5.0						0	20	
Methylene chloride	ND	1.5						0	20	
n-Butylbenzene	ND	1.5						0	20	
n-Propylbenzene	0.59	0.50						7.51	20	
sec-Butylbenzene	ND	0.50						0	20	
Styrene	ND	0.50						0	20	
tert-Butylbenzene	ND	0.50						0	20	
1,1,1,2-Tetrachloroethane	ND	0.50						0	20	
1,1,2,2-Tetrachloroethane	ND	0.50						0	20	
Tetrachloroethene (PCE)	ND	0.50						0	20	
trans-1,2-DCE	ND	0.50						0	20	
trans-1,3-Dichloropropene	ND	0.50						0	20	
1,2,3-Trichlorobenzene	ND	0.50						0	20	
1,2,4-Trichlorobenzene	ND	0.50						0	20	
1,1,1-Trichloroethane	ND	0.50						0	20	
1,1,2-Trichloroethane	ND	0.50						0	20	
Trichloroethene (TCE)	ND	0.50						0	20	
Trichlorofluoromethane	ND	0.50						0	20	
1,2,3-Trichloropropane	ND	1.0						0	20	
Vinyl chloride	ND	0.50						0	20	
Xylenes, Total	38	0.75						11.2	20	
Surr: Dibromofluoromethane	3.9		5.000		78.3	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	4.6		5.000		91.7	70	130	0	0	
Surr: Toluene-d8	5.6		5.000		112	70	130	0	0	
Surr: 4-Bromofluorobenzene	5.4		5.000		108	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2311001 RcptNo: 1

Received By: Tracy Casarrubias 11/1/2023 6:15:00 AM

Completed By: Tracy Casarrubias 11/1/2023 6:56:16 AM

Reviewed By: 11-1-23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 11/01/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number, and Email/Fax are missing on COC- TMC 11/1/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp attn: Mitch Killough
mkillough@hilcorp.com

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5-day
☑ Standard ☐ Rush

Project Name: Sunray B1B

Project #:

Project Manager: Stuart Hyde
shyde@ensolum.com

Sampler: Zach Myers

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(Including CF): N/A (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2311001	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) full list	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed gas CO_2, O_2
10/31/23	1530	air	Sunray B1B Influent	2x tedlar	—	001		✓						✓			✓

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/31/23	1606				10/31/23	1606
10/31/23	1724			Courier	11/1/23	6:15

Remarks:
cc: zmyers@ensolum.com

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.

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 04, 2023

Mitch Killough
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B1B OrderNo.: 2311964

Dear Mitch Killough:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 11/17/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2311964**
Date Reported: **12/4/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 11/16/2023 2:20:00 PM
Lab ID: 2311964-001 **Matrix:** AIR
Received Date: 11/17/2023 6:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	0.41	0.25		µg/L	5	11/22/2023 1:09:00 PM
Toluene	21	0.50		µg/L	5	11/22/2023 1:09:00 PM
Ethylbenzene	2.5	0.50		µg/L	5	11/22/2023 1:09:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2,4-Trimethylbenzene	6.3	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,3,5-Trimethylbenzene	5.5	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Naphthalene	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
1-Methylnaphthalene	ND	2.0		µg/L	5	11/22/2023 1:09:00 PM
2-Methylnaphthalene	ND	2.0		µg/L	5	11/22/2023 1:09:00 PM
Acetone	ND	5.0		µg/L	5	11/22/2023 1:09:00 PM
Bromobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Bromodichloromethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Bromoform	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Bromomethane	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
2-Butanone	ND	5.0		µg/L	5	11/22/2023 1:09:00 PM
Carbon disulfide	ND	5.0		µg/L	5	11/22/2023 1:09:00 PM
Carbon tetrachloride	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Chlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Chloroethane	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
Chloroform	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Chloromethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
2-Chlorotoluene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
4-Chlorotoluene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
cis-1,2-DCE	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
Dibromochloromethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Dibromomethane	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Dichlorodifluoromethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1-Dichloroethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1-Dichloroethene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2-Dichloropropane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,3-Dichloropropane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
2,2-Dichloropropane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2311964**
Date Reported: **12/4/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 11/16/2023 2:20:00 PM
Lab ID: 2311964-001 **Matrix:** AIR
Received Date: 11/17/2023 6:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,1-Dichloropropene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Hexachlorobutadiene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
2-Hexanone	ND	5.0		µg/L	5	11/22/2023 1:09:00 PM
Isopropylbenzene	0.64	0.50		µg/L	5	11/22/2023 1:09:00 PM
4-Isopropyltoluene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	5	11/22/2023 1:09:00 PM
Methylene chloride	ND	1.5		µg/L	5	11/22/2023 1:09:00 PM
n-Butylbenzene	ND	1.5		µg/L	5	11/22/2023 1:09:00 PM
n-Propylbenzene	0.69	0.50		µg/L	5	11/22/2023 1:09:00 PM
sec-Butylbenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Styrene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
tert-Butylbenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
trans-1,2-DCE	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Trichloroethene (TCE)	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Trichlorofluoromethane	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	5	11/22/2023 1:09:00 PM
Vinyl chloride	ND	0.50		µg/L	5	11/22/2023 1:09:00 PM
Xylenes, Total	35	0.75		µg/L	5	11/22/2023 1:09:00 PM
Surr: Dibromofluoromethane	97.6	70-130		%Rec	5	11/22/2023 1:09:00 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130		%Rec	5	11/22/2023 1:09:00 PM
Surr: Toluene-d8	115	70-130		%Rec	5	11/22/2023 1:09:00 PM
Surr: 4-Bromofluorobenzene	116	70-130		%Rec	5	11/22/2023 1:09:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	1100	25		µg/L	5	11/22/2023 1:09:00 PM
Surr: BFB	108	70-130		%Rec	5	11/22/2023 1:09:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

December 04, 2023

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

Work Order: B23111613 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 11/21/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23111613-001	2311964-001B, Sunray B1B Influent	11/16/23 14:20	11/21/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23111613-001
Client Sample ID: 2311964-001B, Sunray B1B Influent

Report Date: 12/04/23
Collection Date: 11/16/23 14:20
DateReceived: 11/21/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.61	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Nitrogen	78.06	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Carbon Dioxide	0.10	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Methane	0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Ethane	0.03	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Hexanes plus	0.19	Mol %		0.01		GPA 2261-95	12/01/23 11:49 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
Hexanes plus	0.080	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
GPM Total	0.080	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
GPM Pentanes plus	0.080	gpm		0.001		GPA 2261-95	12/01/23 11:49 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	10			1		GPA 2261-95	12/01/23 11:49 / jrj
Net BTU per cu ft @ std cond. (LHV)	9			1		GPA 2261-95	12/01/23 11:49 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	12/01/23 11:49 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	12/01/23 11:49 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	12/01/23 11:49 / jrj
Air, %	98.74			0.01		GPA 2261-95	12/01/23 11:49 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	12/01/23 11:49 / 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:** B23111613 **Report Date:** 12/04/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R413045
Lab ID: **B23111612-001ADUP**	12	Sample Duplicate				Run: GC7890_231201A				12/01/23 10:57
Oxygen		21.5	Mol %	0.01				0.2	20	
Nitrogen		78.2	Mol %	0.01				0	20	
Carbon Dioxide		0.20	Mol %	0.01				14	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		0.17	Mol %	0.01				5.7	20	
Lab ID: **LCS120123**	11	Laboratory Control Sample				Run: GC7890_231201A				12/01/23 04:00
Oxygen		0.52	Mol %	0.01	104	70	130			
Nitrogen		7.02	Mol %	0.01	117	70	130			
Carbon Dioxide		1.01	Mol %	0.01	102	70	130			
Methane		73.7	Mol %	0.01	99	70	130			
Ethane		5.99	Mol %	0.01	100	70	130			
Propane		5.02	Mol %	0.01	102	70	130			
Isobutane		1.85	Mol %	0.01	92	70	130			
n-Butane		2.02	Mol %	0.01	101	70	130			
Isopentane		1.03	Mol %	0.01	103	70	130			
n-Pentane		1.04	Mol %	0.01	104	70	130			
Hexanes plus		0.83	Mol %	0.01	104	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

B23111613

Login completed by: Danielle N. Harris
Date Received: 11/21/2023

Reviewed by: lleprowse
Received by: lel

Reviewed Date: 11/27/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	16.2°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

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CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

B23111613

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE: (406) 869-6253	FAX: (406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	Billings, MT 59107				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2311964-001B	Sunray B1B Influent	TEDLAR	Air	11/16/2023 2:20:00 PM	1	Natural Gas Analysis- CO2+02

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 11/17/2023	Time: 11:46 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: Lyndi LeBlanc	Date: 11/17/23	Time: 09:25

TAT: Standard RUSH Next BD 2nd BD 3rd BD

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples °C Attempt to Cool ?
Comments:

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Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2311964 RcptNo: 1

Received By: Tracy Casarrubias 11/17/2023 6:15:00 AM

Completed By: Tracy Casarrubias 11/17/2023 11:42:24 AM

Reviewed By: CM 11/17/23

Chain of Custody

1. Is Chain of Custody complete? Yes ☐ No ☑ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☐ No ☑ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☐ ~~No ☑~~ NA ☑ Not required W 11/17/23
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by SCM 11/17/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: Mailing address, phone number, and Email/Fax are missing on COC- TMC 11/17/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	N/A	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp attn: Mitch Killough
mkillough@hilcorp.com
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: Sunray B1B
Project #:
Project Manager: Stuart Hyde
shyde@ensolum.com
Sampler: Zach Myer
On Ice: ☐ Yes ☑ No
# of Coolers: 1
Cooler Temp (Including CF): N/A (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2311964	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) full list	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed gas CO_2, O_2
11/16/23	1420	air	Sunray B1B Influent	2x tedlar	—	001		✓						✓			✓

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
11/16/23	1520				11/16/23	1520
11/16/23	1800			courier	11/17/23	6:15

Remarks: cc:
zmyers@ensolum.com
dburns

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.

eurofins
Environment Testing

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR	Energy Labs -Billings	COMPANY	Energy Laboratories	PHONE	(406) 869-6253	FAX	(406) 252-6069
ADDRESS	1120 South 27th Street			ACCOUNT #		EMAIL	
CITY, STATE, ZIP	Billings, MT 59107						

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2311964-001B	Sunray B1B Influent	TEDLAR	Air	11/16/2023 2:20:00 PM	1	Natural Gas Analysis- CO2+02

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 11/17/2023	Time: 11:46 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard RUSH Next BD 2nd BD 3rd BD

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples °C Attempt to Cool ?

Comments:

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 12, 2023

Stuart Hyde
HILCORP ENERGY
PO Box 4700
Farmington, NM 87499
TEL: (505) 564-0733
FAX:

RE: Sunray B1B OrderNo.: 2311D07

Dear Stuart Hyde:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 11/29/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2311D07**
Date Reported: **12/12/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 11/28/2023 2:20:00 PM
Lab ID: 2311D07-001 **Matrix:** AIR
Received Date: 11/29/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	750	25		µg/L	5	12/7/2023 1:07:12 PM
Surr: BFB	516	15-412	S	%Rec	5	12/7/2023 1:07:12 PM
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Toluene	13	0.50		µg/L	5	12/6/2023 3:21:00 PM
Ethylbenzene	1.7	0.50		µg/L	5	12/6/2023 3:21:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2,4-Trimethylbenzene	4.0	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,3,5-Trimethylbenzene	3.6	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Naphthalene	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
1-Methylnaphthalene	ND	2.0		µg/L	5	12/6/2023 3:21:00 PM
2-Methylnaphthalene	ND	2.0		µg/L	5	12/6/2023 3:21:00 PM
Acetone	ND	5.0		µg/L	5	12/6/2023 3:21:00 PM
Bromobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Bromodichloromethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Bromoform	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Bromomethane	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
2-Butanone	ND	5.0		µg/L	5	12/6/2023 3:21:00 PM
Carbon disulfide	ND	5.0		µg/L	5	12/6/2023 3:21:00 PM
Carbon tetrachloride	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Chlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Chloroethane	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
Chloroform	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Chloromethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
2-Chlorotoluene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
4-Chlorotoluene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
cis-1,2-DCE	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
cis-1,3-Dichloropropene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2-Dibromo-3-chloropropane	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
Dibromochloromethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Dibromomethane	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
1,2-Dichlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,3-Dichlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,4-Dichlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Dichlorodifluoromethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1-Dichloroethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1-Dichloroethene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2311D07**
Date Reported: **12/12/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Sunray B1B Influent
Project: Sunray B1B
Collection Date: 11/28/2023 2:20:00 PM
Lab ID: 2311D07-001 **Matrix:** AIR
Received Date: 11/29/2023 6:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,2-Dichloropropane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,3-Dichloropropane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
2,2-Dichloropropane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1-Dichloropropene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Hexachlorobutadiene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
2-Hexanone	ND	5.0		µg/L	5	12/6/2023 3:21:00 PM
Isopropylbenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
4-Isopropyltoluene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
4-Methyl-2-pentanone	ND	5.0		µg/L	5	12/6/2023 3:21:00 PM
Methylene chloride	ND	1.5		µg/L	5	12/6/2023 3:21:00 PM
n-Butylbenzene	ND	1.5		µg/L	5	12/6/2023 3:21:00 PM
n-Propylbenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
sec-Butylbenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Styrene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
tert-Butylbenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Tetrachloroethene (PCE)	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
trans-1,2-DCE	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
trans-1,3-Dichloropropene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2,3-Trichlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2,4-Trichlorobenzene	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1,1-Trichloroethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,1,2-Trichloroethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Trichloroethene (TCE)	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Trichlorofluoromethane	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
1,2,3-Trichloropropane	ND	1.0		µg/L	5	12/6/2023 3:21:00 PM
Vinyl chloride	ND	0.50		µg/L	5	12/6/2023 3:21:00 PM
Xylenes, Total	22	0.75		µg/L	5	12/6/2023 3:21:00 PM
Surr: Dibromofluoromethane	100	70-130		%Rec	5	12/6/2023 3:21:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	5	12/6/2023 3:21:00 PM
Surr: Toluene-d8	116	70-130		%Rec	5	12/6/2023 3:21:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	5	12/6/2023 3:21:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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ANALYTICAL SUMMARY REPORT

December 08, 2023

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

Work Order: B23112063 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 11/30/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23112063-001	2311D07-001B, Sunray B1B Influent	11/28/23 14:20	11/30/23	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 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

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

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

Report Approved By:

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23112063-001
Client Sample ID: 2311D07-001B, Sunray B1B Influent

Report Date: 12/08/23
Collection Date: 11/28/23 14:20
DateReceived: 11/30/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.64	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Nitrogen	78.25	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Carbon Dioxide	0.10	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Methane	0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Hexanes plus	<0.01	Mol %		0.01		GPA 2261-95	12/06/23 12:33 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
Hexanes plus	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
GPM Total	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
GPM Pentanes plus	< 0.001	gpm		0.001		GPA 2261-95	12/06/23 12:33 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	ND			1		GPA 2261-95	12/06/23 12:33 / jrj
Net BTU per cu ft @ std cond. (LHV)	ND			1		GPA 2261-95	12/06/23 12:33 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	12/06/23 12:33 / jrj
Pseudo-critical Temperature, deg R	239			1		GPA 2261-95	12/06/23 12:33 / jrj
Specific Gravity @ 60/60F	0.998			0.001		D3588-81	12/06/23 12:33 / jrj
Air, %	98.87			0.01		GPA 2261-95	12/06/23 12:33 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	12/06/23 12:33 / 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:** B23112063 **Report Date:** 12/08/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95										Batch: R413302
Lab ID: B23120241-001ADUP	12	Sample Duplicate				Run: GCNGA-B_231206A				12/06/23 04:07
Oxygen		21.4	Mol %	0.01				0	20	
Nitrogen		78.0	Mol %	0.01				0.0	20	
Carbon Dioxide		0.42	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		0.11	Mol %	0.01				9.5	20	
Lab ID: LCS120623	11	Laboratory Control Sample				Run: GCNGA-B_231206A				12/06/23 03:15
Oxygen		0.52	Mol %	0.01	104	70	130			
Nitrogen		6.39	Mol %	0.01	106	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.6	Mol %	0.01	100	70	130			
Ethane		6.03	Mol %	0.01	100	70	130			
Propane		5.07	Mol %	0.01	103	70	130			
Isobutane		1.76	Mol %	0.01	88	70	130			
n-Butane		1.97	Mol %	0.01	98	70	130			
Isopentane		0.98	Mol %	0.01	98	70	130			
n-Pentane		0.96	Mol %	0.01	96	70	130			
Hexanes plus		0.74	Mol %	0.01	93	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

B23112063

Login completed by: Yvonna E. Smith
Date Received: 11/30/2023
Reviewed by: lcadreau
Received by: dnh
Reviewed Date: 12/5/2023
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	11.6°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

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

Contact and Corrective Action Comments:

None

eurofins | Environment Testing

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	Energy Labs -Billings	COMPANY:	Energy Laboratories	PHONE:	(406) 869-6253	FAX:	(406) 252-6069
ADDRESS:	1120 South 27th Street			ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP	Billings, MT 59107						

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2311D07-001B	Sunray B1B Influent	TEDLAR	Air	11/28/2023 2:20:00 PM	1	Natural gas analysis. CO2+O2

B23112063

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 11/29/2023	Time: 7:22 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 11/30/23	Time: 0920

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples ____ °C Attempt to Cool ? ____
Comments: ____

eurofins | Environment Testing

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2311D07 RcptNo: 1

Received By: Tracy Casarrubias 11/29/2023 6:30:00 AM

Completed By: Tracy Casarrubias 11/29/2023 7:19:09 AM

Reviewed By: JN 11/29/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☐	No ☑	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☐	No ☐	NA ☑
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by SCM 11/29/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number and Email/Fax are missing on COC- TMC 11/29/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	NA	Good	Yes			

Chain-of-Custody Record

Client: Hilcorp attn: Mitch Killough
mkillough@hilcorp.com

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name:
Sunray B1B

Project #:

Project Manager: Stuart Hyde
shyde@ensolum.com

Sampler: Zach Myers
On Ice: ☐ Yes ☑ No
# of Coolers: 1
Cooler Temp(Including CF): N/A (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2311D07	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) Full list	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed gas CO_2, O_2
11/28/23	1420	gas	Sunray B1B Influent	2x tedlar	—	001		X						X			X

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
11/28/23	1510				11/28/23	1510
11/28/23	1740			courier	11/29/23	6:30

Remarks:
cc: zmyers@ensolum.com

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.

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 303718

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 303718
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the Fourth Quarter 2023--SVE System Update for Sunray B 1B: Content Satisfactory 1. Continue to perform O&M as scheduled and install pitot tubes as necessary. Please include field and installation notes when completed for next report to OCD. 2. Operate system as normal. 3. Submit next system update report to OCD as Hilcorp has scheduled.	4/9/2024