



October 10, 2023

New Mexico Oil Conservation Division

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

Re: Third Quarter 2023 – SVE System Update

Sullivan GC D #1E
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NCS1518952648

1. Follow the recommendations provided.
2. OCD will require quarterly report for 2023. Next report due no later than January 15, 2024.
3. Since the system was re-started in December 2021, OCD will accept bi-annual (twice a year) reporting initiating in 2024.

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Third Quarter 2023 – SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the Sullivan GC D #1E natural gas production well (Site), located in Unit F of Section 26, Township 29 North, Range 11 West in San Juan County, New Mexico (Figure 1). Specifically, this report summarizes Site activities performed in July, August, and September 2023 to the New Mexico Oil Conservation Division (NMOCD).

SVE SYSTEM SPECIFICATIONS

The original SVE system was installed at the Site in April 2016 by XTO Energy, the previous Site owner, in response to a release originating from a broken fiberglass line used to transfer natural gas condensate. The original SVE system was purchased from Geotech Environmental Equipment, Inc. (Geotech) and operated successfully until the summer of 2018. Due to a broken SVE blower motor, the Site's SVE system did not operate between 2018 and March of 2022; however, a rental SVE system was brought onto the Site and began operation on December 2, 2021. The blower motor from the original Geotech system was replaced on March 21, 2022, and the Geotech SVE system was put back into service.

The current Geotech SVE system is configured with vacuum applied to wells PR-1, MW-01, MW-02, MW-05, and MW-06 (shown on Figure 2). The SVE system consists of a 3 horsepower Rotron Model EN656 regenerative blower capable of producing 212 standard cubic feet per minute (scfm) of flow and 73 inches of water column (IWC) vacuum. The layout of the SVE system and piping is shown on Figure 2.

THIRD QUARTER 2023 ACTIVITIES

During the third quarter of 2023, Ensolum and Hilcorp personnel performed bi-weekly operation and maintenance (O&M) visits to verify the system was operating as designed and to perform any required maintenance. Field notes taken during O&M visits are presented in Appendix A. During the third quarter of 2023, all SVE wells (PR-1, MW-01, MW-02, MW-05, and MW-06) were operated in order to induce air flow through impacted soil within the source area. Between June 23 and September 26, 2023, the SVE system operated for 2,269 hours, with a runtime efficiency of 100 percent (%). Appendix B presents

photographs of the runtime meter for calculating the third quarter runtime efficiency. Table 1 presents the SVE system operational hours and percent runtime.

A third quarter emissions sample was collected from the SVE system on August 18, 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 photoionization detector (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 (Hall), located in Albuquerque, New Mexico, for analysis of total volatile petroleum hydrocarbons (TVPH, also referred to as total petroleum hydrocarbons – gasoline range organics (TPH-GRO)) following United States Environmental Protection Agency (EPA) Method 8015D, volatile organic compounds (VOCs) following EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide following Gas Processor Association (GPA) Method 2261. Table 2 presents a summary of analytical data collected during this sampling event and previous sampling events, with the full laboratory analytical report included in Appendix C.

Emission sample data and measured stack flow rates are used to estimate total mass recovered and total emissions generated by the SVE system (Table 3). Based on these estimates, 89,989 pounds (45 tons) of TVPH have been removed by the system to date.

RECOMMENDATIONS

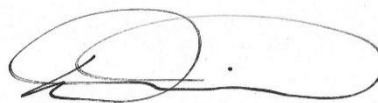
Bi-weekly O&M visits will continue to be performed by Ensolum and/or Hilcorp personnel to verify the SVE system is operating within normal working ranges (i.e., temperature, pressure, and vacuum). Deviations from regular operations will be noted on field logs and included in the following quarterly report.

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



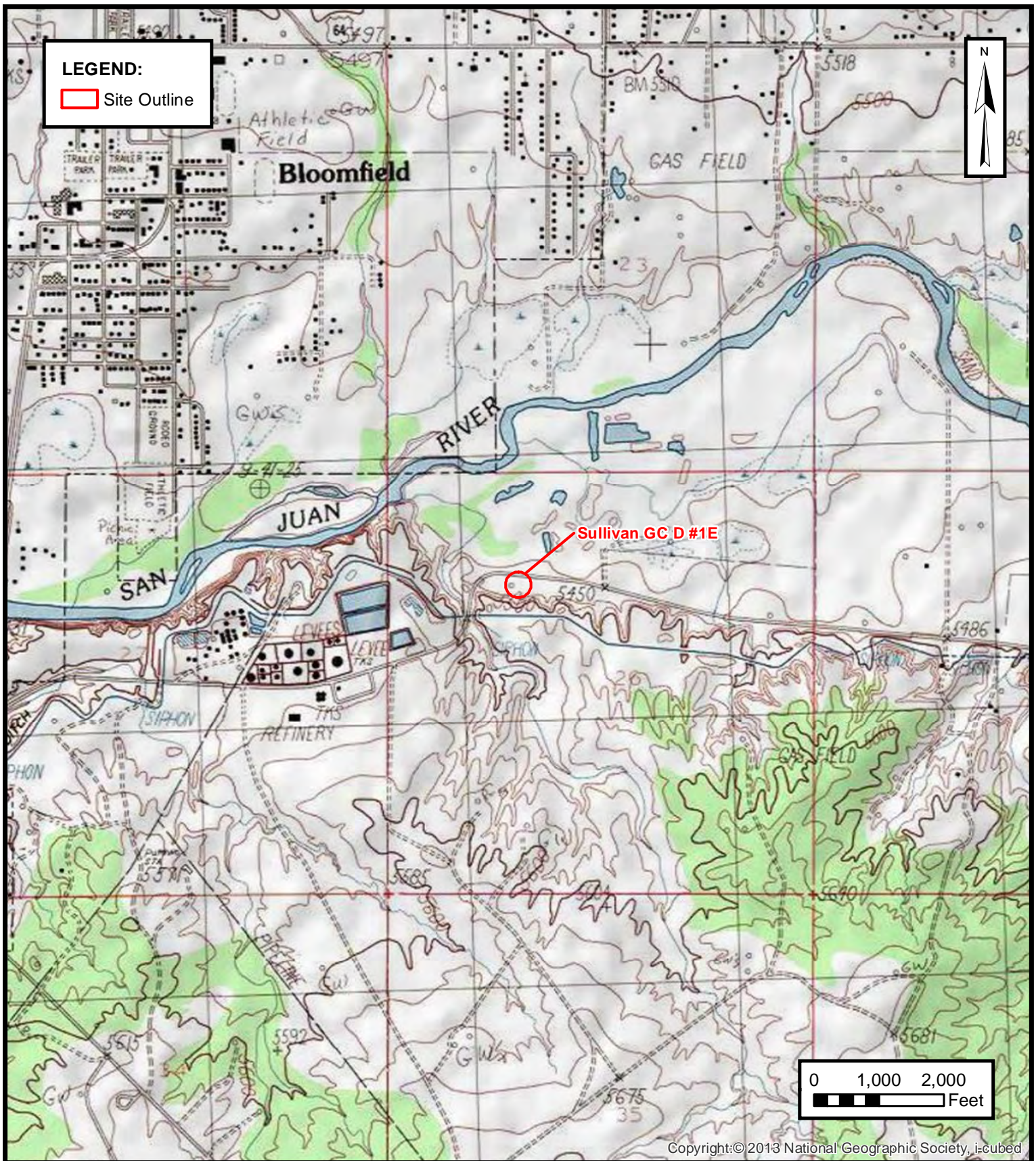
Daniel R. Moir, PG
Senior Managing Geologist
(303) 887-2946
dmoir@ensolum.com

Attachments:

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



FIGURES



ENSOLUM
 Environmental & Hydrogeologic Consultants

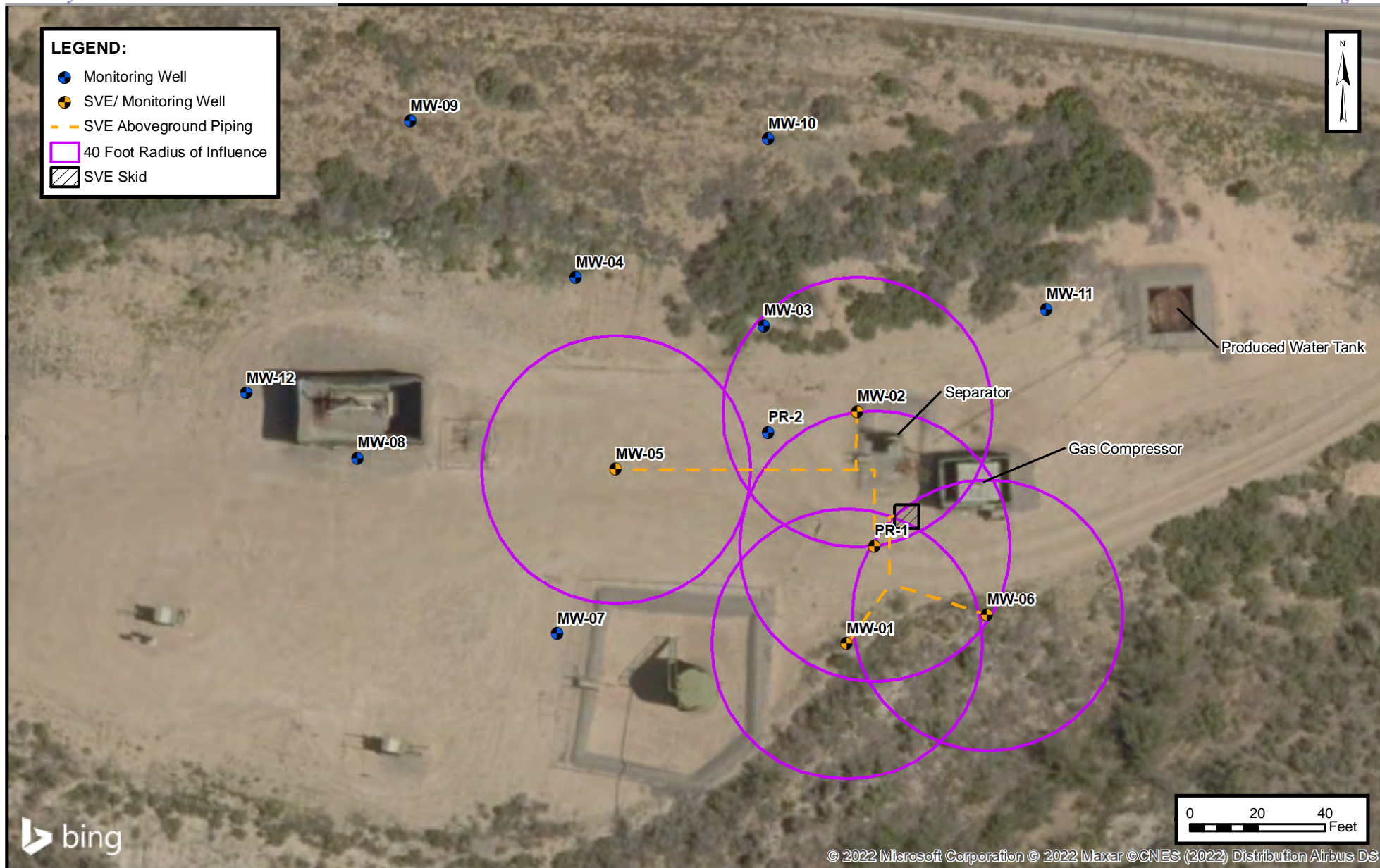
SITE LOCATION

HILLCORP ENERGY COMPANY
 SULLIVAN GC D #1E
 San Juan County, New Mexico
 36.885855° N, 107.899525° W

PROJECT NUMBER: 07A1988029

FIGURE

1



SVE SYSTEM LAYOUT

HILCORP ENERGY COMPANY
SULLIVAN GC D #1E
San Juan County, New Mexico
36.885855° N, 107.899525° W

PROJECT NUMBER:07A1988029

FIGURE

2



TABLES



TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
Sullivan GC D#1E
Hilcorp Energy Company
San Juan County, New Mexico

Permanent Geotech SVE Skid Runtime Operation

Date	Total Operational Hours	Delta Hours	Days	% Runtime
6/23/2023	10,990	--	--	--
9/26/2023	13,259	2,269	95	100%



TABLE 2
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
 Sullivan GC D#1E
 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 (%)
4/18/2016	--	840	1,900	87	840	140,000	--	--
4/20/2016	2,375	840	1,900	87	840	140,000	--	--
4/29/2017	3,520	280	1,000	64	630	65,000	--	--
8/11/2016	4,215	92	700	90	910	23,000	--	--
1/24/2018	2,837	46	140	<5.0	410	21,000	--	--
6/29/2018	3,000	63	210	<5.0	410	27,000	--	--
12/2/2021	741	15	<5.0	<5.0	99	33,000	--	--
3/16/2022	982	<0.10	<0.10	<0.10	1.1	64	19.40	1.23
6/17/2022	327	<0.10	<0.10	<0.10	0.25	10	21.54	0.29
9/22/2022	266	<0.10	<0.10	<0.10	<0.15	<5.0	20.57	1.00
12/10/2022	68	0.75	4.9	0.49	9.0	490	21.02	0.65
3/13/2023	69	0.81	4.4	0.30	5.7	300	21.15	0.51
6/23/2023	139	5.9	12	3.0	6.7	840	21.01	0.55
8/18/2023	76	2.4	2.9	<1.0	1.8	340	20.83	0.68

Notes:

GRO: gasoline range hydrocarbons

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

--: not sampled

<0.037: gray indicates result less than the stated laboratory reporting limit (RL)



TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
 Sullivan GC D#1E
 Hilcorp Energy Company
 San Juan County, New Mexico

Flow and Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
4/18/2016	--	840	1,900	87	840	140,000
4/20/2016	2,375	840	1,900	87	840	140,000
4/29/2017	3,520	280	1,000	64	630	65,000
8/11/2016	4,215	92	700	90	910	23,000
1/24/2018	2,837	46	140	5.0	410	21,000
6/29/2018	3,000	63	210	5.0	410	27,000
12/2/2021	741	15	5.0	5.0	99	33,000
3/16/2022	982	0.10	0.10	0.10	1.1	64
6/17/2022	327	0.10	0.10	0.10	0.25	10
9/22/2022	266	0.10	0.10	0.10	0.15	5.0
12/10/2022	68	0.75	4.9	0.49	9.0	490
3/13/2023	69	0.81	4.4	0.30	5.7	300
6/23/2023	139	5.9	12	3.0	6.7	840
8/18/2023	76	2.4	2.9	1.0	1.8	340
Average	1,432	156	420	25	297	32,218

Vapor Extraction Summary

Date	Flow Rate (cfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
4/18/2016	90	0	0	0.28	0.64	0.029	0.28	47
4/20/2016	109	313,920	313,920	0.34	0.77	0.035	0.34	57
4/29/2017	90	1,480,320	1,166,400	0.19	0.49	0.025	0.25	35
8/11/2016	70	6,923,520	5,443,200	0.049	0.22	0.020	0.20	12
1/24/2018	60	--	--	0.015	0.094	0.011	0.15	4.9
6/29/2018	41	53,246,160	46,322,640	0.0084	0.027	0.001	0.063	3.7
12/2/2021	Rental SVE System Startup							
12/2/2021	49	53,246,160	0	0	0	0	0	0
3/16/2022	49	60,581,754	7,335,594	0.0014	0.00047	0.00047	0.0092	3.0
6/17/2022	80	70,724,634	10,142,880	0.000030	0.000030	0.000030	0.0002	0.011
9/22/2022	68	80,221,650	9,497,016	0.000025	0.000025	0.000025	0.000051	0.0019
12/10/2022	80	89,341,170	9,119,520	0.00013	0.00075	0.000088	0.0014	0.074
3/13/2023	75	99,328,020	9,986,850	0.00022	0.0013	0.00011	0.0021	0.11
6/23/2023	76	110,408,820	11,080,800	0.00095	0.0023	0.00047	0.0018	0.16
8/18/2023	80	116,845,620	6,436,800	0.0012	0.0022	0.00060	0.0013	0.18
Average				0.064	0.16	0.0088	0.093	12

Flow and Laboratory Analysis

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
4/18/2016	0	0	0.0	0.0	0.0	0.0	0.0	0.0
4/20/2016	48	48	16	37	1.7	16	2,740	1.4
4/29/2017	264	216	41	105	5.5	53	7,452	3.7
8/11/2016	1,560	1,296	63	288	26	261	14,929	7.5
1/24/2018	--	--	--	--	--	--	--	--
6/29/2018	16,848	15,288	128	410	12	961	56,264	28
12/2/2021	Rental SVE System Startup							
12/2/2021	968	0	0.0	0.0	0.0	0.0	0.0	0.0
3/16/2022	3,463	2,495	3.5	1.2	1.2	23	7,559	3.8
3/21/2022	Permanent SVE System Startup							
3/21/2022	0	0	0.0	0.0	0.0	0.0	0.0	0.0
6/17/2022	2,113	2,113	0.063	0.063	0.063	0.43	23	0.012
9/22/2022	4,441	2,328	0.059	0.059	0.059	0.12	4.4	0.0022
12/10/2022	6,341	1,900	0.24	1.4	0.17	2.6	141	0.070
3/13/2023	8,560	2,219	0.49	2.9	0.25	4.6	246	0.12
6/23/2023	10,990	2,430	2.3	5.7	1.1	4.3	394	0.20
8/18/2023	12,331	1,341	1.7	3.0	0.80	1.7	237	0.12
Total Mass Recovery to Date			256	856	49	1,329	89,989	45

Notes:

cf: cubic feet

cfm: cubic feet per minute

µg/L: micrograms per liter

lb/hr: pounds per hour

--: not sampled

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

gray: laboratory reporting limit used for calculating emissions



APPENDIX A


Field Notes

O&M PERSONNEL: B Sinclair
TIME OFFSITE: _____

HOUSEKEEPING		Check
Inline Filter Clean		
Clean tank level alarm on skimmer		

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

Zone 1/ Leg A		PID HEADSPACE (PPM)	ADJUSTMENTS
LOCATION	VACUUM (IWC)		
MW-01		52.4	
MW-02		44.1	
MW-05		40.9	
MW-06		79.3	
PR-1		64.8	

[illegible]

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

HOUSEKEEPING		Check
Inline Filter Clean		
Clean tank level alarm on skimmer		

SAMPLE TIME:

Zone 1/ Leg A

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
MW-01		19.8	
MW-02			
MW-05		101.5	
MW-06		27.8	
PR-1		57.9	

Well

[illegible]

COMMENTS/OTHER MAINTENANCE:

DATE: 3-12
TIME ONSITE:

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE ALARMS: (check if applicable)		HIGH/LOW VACUUM
		KO TANK HIGH LEVEL
		HIGH EXHAUST TEMPERATURE

Product Skimmer
 Hours (take photo) _____
 Volume in bbl _____
 Volume removed _____
 Volume removed to date _____

SVE SYSTEM
Blower Hours (take photo)
Pre K/O Vacuum (IWC)
Post K/O Vacuum (IWC)
Total Flow (cfm)
Zone 1/ Leg A Flow (scfm)
Inlet PID
Exhaust Post GAC PID
Liquid in K/O Sight Tube (Y/N)
K/O Liquid Drained (gallons)

READING	TIME
12331	1238
39	
31	
80	
76.6	
122.6	

HOUSEKEEPING		Check
Inline Filter Clean		
Clean tank level alarm on skimmer		

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

OPERATING WELLS

Change in Well Operation:

Zone 1/ Leg A

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	ADJUSTMENTS
MW-01		16.6	
MW-02		19.8	
MW-05		143.8	
MW-06		36.4	
PR-1		59.6	

Well

[illegible]

COMMENTS/OTHER MAINTENANCE:

DATE: 9-7
TIME ONSITE: _____

O&M PERSONNEL: B Sinclair
TIME OFFSITE:

SVE ALARMS:
(check if applicable)

HIGH/LOW VACUUM
KO TANK HIGH LEVEL
HIGH EXHAUST TEMPERATURE

Volume removed to date

K/O Liquid Drained (gallons)

TIME.

1201

• Clean tank level alarm on skimmer

SAMPLE TIME:

OPERATING WELLS

Change in Well Operation:

Zone 1/ Leg A

Zone 1/ Leg A		PID HEADSPACE (PPM)	ADJUSTMENTS
LOCATION	VACUUM (IWC)		
MW-01		64	
MW-02		45.9	
MW-05		126	
MW-06		102.3	
PR-1		70.2	

Well

[illegible]

COMMENTS/OTHER MAINTENANCE:

DATE: 9-26
TIME ONSITE: _____

O&M PERSONNEL:
TIME OFFSITE:

B Sindair

SVE ALARMS:
(check if applicable)

HIGH/LOW VACUUM
KO TANK HIGH LEVEL
HIGH EXHAUST TEMPERATURE

Product Skimmer
 Hours (take photo) _____
 Volume in bbl _____
 Volume removed _____
 Volume removed to date _____

SYSTEM
Blower Hours (take photo)
Pre K/O Vacuum (IWC)
Post K/O Vacuum (IWC)
Total Flow (cfm)
Zone 1/ Leg A Flow (scfm)
Inlet PID
Exhaust Post GAC PID
Liquid in K/O Sight Tube (Y/N)
K/O Liquid Drained (gallons)

READING

TIME

1532

HOUSEKEEPING Check ☐

Inline Filter Clean
Clean tank level alarm on skimmer

SAMPLE TIME:

SAMPLE ID:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
Analytes:	
OPERATING WELLS	PR-1 MW-01 MW-02

ZONES

Change in Well Operation:

Zone 1/ Leg A

Change in Well Operation:		PID HEADSPACE (PPM)		FLOW (CFM)		ADJUSTMENTS	
Zone 1/ Leg A	LOCATION	VACUUM (IWC)					
	MW-01		69.1				
	MW-02		58.5				
	MW-05		103.8				
	MW-06		123.5				
	PR-1		73.3				

Product Recovery

[illegible]

COMMENTS/OTHER MAINTENANCE:


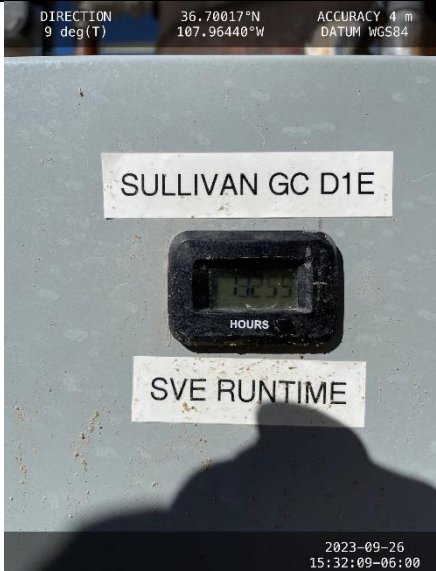
COMMENTS/OTHER MAINTENANCE



APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Sullivan GC D #1E
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on June 23, 2023 at 1:33 PM Hours = 10,990	
Photograph 2 Runtime meter taken on September 26, 2023 at 3:32 PM Hours = 13,259	



APPENDIX C

Laboratory Analytical Reports



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

September 07, 2023

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

RE: Sullivan GC D 1E

OrderNo.: 2308A91

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/19/2023 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2308A91

Date Reported: 9/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: Sullivan GC D 1E

Collection Date: 8/18/2023 12:30:00 PM

Lab ID: 2308A91-001

Matrix: AIR

Received Date: 8/19/2023 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: CCM
Benzene	2.4	1.0		µg/L	10	8/29/2023 3:29:00 PM
Toluene	2.9	1.0		µg/L	10	8/29/2023 3:29:00 PM
Ethylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Naphthalene	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
1-Methylnaphthalene	ND	4.0		µg/L	10	8/29/2023 3:29:00 PM
2-Methylnaphthalene	ND	4.0		µg/L	10	8/29/2023 3:29:00 PM
Acetone	ND	10		µg/L	10	8/29/2023 3:29:00 PM
Bromobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Bromodichloromethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Bromoform	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Bromomethane	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
2-Butanone	ND	10		µg/L	10	8/29/2023 3:29:00 PM
Carbon disulfide	ND	10		µg/L	10	8/29/2023 3:29:00 PM
Carbon tetrachloride	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Chlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Chloroethane	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
Chloroform	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Chloromethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
2-Chlorotoluene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
4-Chlorotoluene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
cis-1,2-DCE	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
Dibromochloromethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Dibromomethane	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Dichlorodifluoromethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2-Dichloropropane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
2,2-Dichloropropane	ND	1.0		µg/L	10	8/29/2023 3:29:00 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 Quantitative 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

Page 1 of 5

Analytical Report

Lab Order 2308A91

Date Reported: 9/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: Sullivan GC D 1E

Collection Date: 8/18/2023 12:30:00 PM

Lab ID: 2308A91-001

Matrix: AIR

Received Date: 8/19/2023 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: CCM
1,1-Dichloropropene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Hexachlorobutadiene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
2-Hexanone	ND	10		µg/L	10	8/29/2023 3:29:00 PM
Isopropylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
4-Isopropyltoluene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	10	8/29/2023 3:29:00 PM
Methylene chloride	ND	3.0		µg/L	10	8/29/2023 3:29:00 PM
n-Butylbenzene	ND	3.0		µg/L	10	8/29/2023 3:29:00 PM
n-Propylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
sec-Butylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Styrene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
tert-Butylbenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1,2,2-Tetrachloroethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
trans-1,2-DCE	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Trichloroethene (TCE)	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Trichlorofluoromethane	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	10	8/29/2023 3:29:00 PM
Vinyl chloride	ND	1.0		µg/L	10	8/29/2023 3:29:00 PM
Xylenes, Total	1.8	1.5		µg/L	10	8/29/2023 3:29:00 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	10	8/29/2023 3:29:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	10	8/29/2023 3:29:00 PM
Surr: Toluene-d8	106	70-130		%Rec	10	8/29/2023 3:29:00 PM
Surr: 4-Bromofluorobenzene	120	70-130		%Rec	10	8/29/2023 3:29:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: CCM
Gasoline Range Organics (GRO)	340	50		µg/L	10	8/29/2023 3:29:00 PM
Surr: BFB	96.5	70-130		%Rec	10	8/29/2023 3:29:00 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 Quantitative 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

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ANALYTICAL SUMMARY REPORT

September 06, 2023

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

Work Order: B23082121 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 8/22/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23082121-001	2308A91-001B, SVE-1	08/18/23 12:30	08/22/23	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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www.energylab.com

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

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23082121-001
Client Sample ID: 2308A91-001B, SVE-1

Report Date: 09/06/23
Collection Date: 08/18/23 12:30
Date Received: 08/22/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	20.83	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Nitrogen	78.21	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Carbon Dioxide	0.68	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Methane	0.25	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Ethane	0.03	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Hexanes plus	<0.01	Mol %		0.01		GPA 2261-95	08/23/23 09:12 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
Hexanes plus	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
GPM Total	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj
GPM Pentanes plus	< 0.001	gpm		0.001		GPA 2261-95	08/23/23 09:12 / jrj

CALCULATED PROPERTIES

Gross BTU per cu ft @ Std Cond. (HHV)	3		1	GPA 2261-95	08/23/23 09:12 / jrj
Net BTU per cu ft @ std cond. (LHV)	3		1	GPA 2261-95	08/23/23 09:12 / jrj
Pseudo-critical Pressure, psia	547		1	GPA 2261-95	08/23/23 09:12 / jrj
Pseudo-critical Temperature, deg R	241		1	GPA 2261-95	08/23/23 09:12 / jrj
Specific Gravity @ 60/60F	0.999		0.001	D3588-81	08/23/23 09:12 / jrj
Air, %	95.16		0.01	GPA 2261-95	08/23/23 09:12 / jrj

- The analysis was not corrected for air.

COMMENTS

-	-	08/23/23 09:12 / 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: B23082121

Report Date: 09/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: GPA 2261-95									Batch: R407555	
Lab ID: B23082121-001ADUP 12 Sample Duplicate									Run: GCNGA-B_230823A 08/23/23 09:39	
Oxygen		20.8	Mol %	0.01				0.1	20	
Nitrogen		78.2	Mol %	0.01				0	20	
Carbon Dioxide		0.69	Mol %	0.01				1.5	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		0.24	Mol %	0.01				4.1	20	
Ethane		0.03	Mol %	0.01				0.0	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	
Lab ID: LCS082323 11 Laboratory Control Sample									Run: GCNGA-B_230823A 08/23/23 11:19	
Oxygen		0.64	Mol %	0.01	128	70	130			
Nitrogen		6.10	Mol %	0.01	102	70	130			
Carbon Dioxide		1.00	Mol %	0.01	101	70	130			
Methane		74.3	Mol %	0.01	99	70	130			
Ethane		6.03	Mol %	0.01	100	70	130			
Propane		5.10	Mol %	0.01	103	70	130			
Isobutane		2.01	Mol %	0.01	100	70	130			
n-Butane		2.04	Mol %	0.01	102	70	130			
Isopentane		1.00	Mol %	0.01	100	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.80	Mol %	0.01	100	70	130			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Gillette, WY 307.686.7175 • Helena, MT 406.442.0711

Work Order Receipt Checklist

Hall Environmental

B23082121

Login completed by: Yvonna E. Smith

Date Received: 8/22/2023

Reviewed by: cindy

Received by: lel

Reviewed Date: 8/25/2023

Carrier name: UPS

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	22.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input checked="" type="checkbox"/>

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



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 CONTRACTOR: 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
1	2308A91-001B	SVE-1	TEDLAR	Air	8/18/2023 12:30:00 PM
					# CONTAINERS
					1 Natural Gas Analysis - O2 + CO2
					ANALYTICAL COMMENTS
					B23082121

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: 8/21/2023	Time: 8:13 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: <i>Hydri LeRone</i>	Date: 8/21/23	Time: 09:26
TAT: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH			Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/>		
			FOR LAB USE ONLY		
			REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARD COPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE		
			Temp of samples _____ °C Attempt to Cool? _____		
			Comments: _____		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A91

07-Sep-23

Client: HILCORP ENERGY

Project: Sullivan GC D 1E

Sample ID: 2308A91-001adup	SampType: DUP	TestCode: EPA Method 8260B: Volatiles								
Client ID: SVE-1	Batch ID: R99331	RunNo: 99331								
Prep Date:	Analysis Date: 8/29/2023	SeqNo: 3624292 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.3	1.0						1.44	20	
Toluene	2.9	1.0						0.341	20	
Ethylbenzene	ND	1.0						0	20	
Methyl tert-butyl ether (MTBE)	ND	1.0						0	20	
1,2,4-Trimethylbenzene	ND	1.0						0	20	
1,3,5-Trimethylbenzene	ND	1.0						0	20	
1,2-Dichloroethane (EDC)	ND	1.0						0	20	
1,2-Dibromoethane (EDB)	ND	1.0						0	20	
Naphthalene	ND	2.0						0	20	
1-Methylnaphthalene	ND	4.0						0	20	
2-Methylnaphthalene	ND	4.0						0	20	
Acetone	ND	10						0	20	
Bromobenzene	ND	1.0						0	20	
Bromodichloromethane	ND	1.0						0	20	
Bromoform	ND	1.0						0	20	
Bromomethane	ND	2.0						0	20	
2-Butanone	ND	10						0	20	
Carbon disulfide	ND	10						0	20	
Carbon tetrachloride	ND	1.0						0	20	
Chlorobenzene	ND	1.0						0	20	
Chloroethane	ND	2.0						0	20	
Chloroform	ND	1.0						0	20	
Chloromethane	ND	1.0						0	20	
2-Chlorotoluene	ND	1.0						0	20	
4-Chlorotoluene	ND	1.0						0	20	
cis-1,2-DCE	ND	1.0						0	20	
cis-1,3-Dichloropropene	ND	1.0						0	20	
1,2-Dibromo-3-chloropropane	ND	2.0						0	20	
Dibromochloromethane	ND	1.0						0	20	
Dibromomethane	ND	2.0						0	20	
1,2-Dichlorobenzene	ND	1.0						0	20	
1,3-Dichlorobenzene	ND	1.0						0	20	
1,4-Dichlorobenzene	ND	1.0						0	20	
Dichlorodifluoromethane	ND	1.0						0	20	
1,1-Dichloroethane	ND	1.0						0	20	
1,1-Dichloroethene	ND	1.0						0	20	
1,2-Dichloropropane	ND	1.0						0	20	
1,3-Dichloropropane	ND	1.0						0	20	
2,2-Dichloropropane	ND	1.0						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 Quantitative 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

Page 3 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2308A91

07-Sep-23

Client: HILCORP ENERGY

Project: Sullivan GC D 1E

Sample ID: 2308A91-001adup	SampType: DUP	TestCode: EPA Method 8260B: Volatiles								
Client ID: SVE-1	Batch ID: R99331	RunNo: 99331								
Prep Date:	Analysis Date: 8/29/2023	SeqNo: 3624292 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0						0	20	
Hexachlorobutadiene	ND	1.0						0	20	
2-Hexanone	ND	10						0	20	
Isopropylbenzene	ND	1.0						0	20	
4-Isopropyltoluene	ND	1.0						0	20	
4-Methyl-2-pentanone	ND	10						0	20	
Methylene chloride	ND	3.0						0	20	
n-Butylbenzene	ND	3.0						0	20	
n-Propylbenzene	ND	1.0						0	20	
sec-Butylbenzene	ND	1.0						0	20	
Styrene	ND	1.0						0	20	
tert-Butylbenzene	ND	1.0						0	20	
1,1,1,2-Tetrachloroethane	ND	1.0						0	20	
1,1,2,2-Tetrachloroethane	ND	1.0						0	20	
Tetrachloroethene (PCE)	ND	1.0						0	20	
trans-1,2-DCE	ND	1.0						0	20	
trans-1,3-Dichloropropene	ND	1.0						0	20	
1,2,3-Trichlorobenzene	ND	1.0						0	20	
1,2,4-Trichlorobenzene	ND	1.0						0	20	
1,1,1-Trichloroethane	ND	1.0						0	20	
1,1,2-Trichloroethane	ND	1.0						0	20	
Trichloroethene (TCE)	ND	1.0						0	20	
Trichlorofluoromethane	ND	1.0						0	20	
1,2,3-Trichloropropane	ND	2.0						0	20	
Vinyl chloride	ND	1.0						0	20	
Xylenes, Total	1.9	1.5						1.41	20	
Surr: Dibromofluoromethane	10		10.00		105	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.8	70	130	0	0	
Surr: Toluene-d8	11		10.00		110	70	130	0	0	
Surr: 4-Bromofluorobenzene	12		10.00		119	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 Quantitative 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#: 2308A91
07-Sep-23

Client: HILCORP ENERGY
Project: Sullivan GC D 1E

Sample ID: 2308A91-001adup		SampType: DUP			TestCode: EPA Method 8015D: Gasoline Range					
Client ID: SVE-1		Batch ID: G99331			RunNo: 99331					
Prep Date:		Analysis Date: 8/29/2023			SeqNo: 3624378		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	350	50						5.22	20	
Surr: BFB	9600		10000		96.4	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 Quantitative 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
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: 2308A91

RcptNo: 1

Received By: Tracy Casarrubias 8/19/2023 10:15:00 AM

Completed By: Tracy Casarrubias 8/19/2023 12:13:11 PM

Reviewed By: *[Signature]* 8-19-23 8-21-23

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? Yes ☒ No ☐

(Note discrepancies on chain of custody)

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? Yes ☒ No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: *SCM 8/21/23*

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

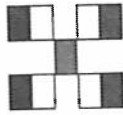
Regarding: _____

Client Instructions: Mailing address and phone number are missing on COC- TMC 8/19/23

16. Additional remarks:

17. Cooler Information

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



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Sullivan GC D I E

Project #:

Phone #:

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

QA/QC Package:

☐ Standard

☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Project Manager:

Kate Kayfman

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☒ No

of Coolers: 1

Cooler Temp (including OF): N/A (°C)

Container Type and #

2 Tedlar

Preservative Type

001

HEAL No.

2308991

Sample Name

SVE-1

Matrix

air

Date

8-18

Time

1230

Date:

8-18

Time:

1654

Relinquished by:

Brandon Sinclair

Date

8/18/23

Time

1654

Via:

Carls

Received by:

Carls

Date

8/18/23

Time

1654

Date

8/18/23

Relinquished by:

Brandon Sinclair

Date:

8/18

Time:

1800

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, NO₃, NO₂, PO₄, SO₄

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

8015 TVPH

Fixed gas O₂ & CO₂

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 275067

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID:
	372171
	Action Number: 275067
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Follow the recommendations provided. 2. OCD will require quarterly report for 2023. Next report due no later than January 15, 2024. 3. Since the system was re-started in December 2021, OCD will accept bi-annual (twice a year) reporting initiating in 2024.	10/27/2023