ENSOLUM

October 7, 2022

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

Re: Third Quarter 2022 – SVE System Update
        Lambe 2C
        San Juan County, New Mexico
        Hilcorp Energy Company
        NMOCD Incident Number: NVF1836050592
        Ensolum Project No. 07A1988008

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *Third Quarter 2022 – SVE System Update* report summarizing the soil vapor extraction (SVE) system performance at the Lambe 2C natural gas production well (Site), located in Unit H, Section 20, Township 31 North, and Range 10 West in San Juan County (Figure 1). Specifically, this report summarizes Site activities performed in July, August, and September of 2022 to the New Mexico Oil Conservation Division (NMOCD).

SVE SYSTEM SPECIFICATIONS

The current SVE system was installed at the Site in September 2021, with operation beginning on September 24, 2021. The SVE system is configured so vacuum is being applied to well MW01 (shown on Figure 2). SVE well MW01 is screened across the impacted soil interval from approximately 20 feet to 35 feet below ground surface (bgs). The SVE system consists of a 1 horsepower Atlantic Blower model AB-202/1 regenerative blower capable of producing 50 standard cubic feet per minute (scfm) flow and 30 inches of water column (IWC) vacuum. The layout of the SVE system and piping is shown on Figure 2.

THIRD QUARTER 2022 ACTIVITIES

During the third quarter of 2022, Ensolum and Hilcorp personnel performed bi-weekly operation and maintenance (O&M) visits to ensure the system was operating as designed and to perform any required maintenance. Field notes taken during O&M visits are presented in Appendix A. During the third quarter of 2022, SVE well MW01 was operated in order to induce flow in impacted soil zone. Between June 16 and September 21, 2022, the SVE system operated for 2,268 hours for a runtime efficiency of 97.5 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 calculated percent runtime.

A third quarter 2022 air sample was collected on September 28, 2022 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) in Albuquerque, New Mexico for analysis of total volatile petroleum hydrocarbons (TVPH – also known as total petroleum hydrocarbons – gasoline range organics (TPH-GRO)) following United States Environmental Protection Agency (EPA) Method 8015D, volatile organic compounds (VOCs) following EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide following Gas Processors Association (GPA) Method 2261. Table 2 presents a summary of analytical data collected during this sampling event and historical sampling events, with the full laboratory analytical report included in Appendix C.

Air 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, 254 pounds 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 ensure that 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 New Mexico Oil Conservation Division. 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	As Built Diagram
Table 1	Soil Vapor Extraction System Runtime Calculations
Table 2	Soil Vapor Extraction System Emissions Analytical Results
Table 3	Soil Vapor Extraction System Mass Removal and Emissions
Appendix A	Field Notes
Appendix B	Project Photographs
Appendix C	Laboratory Analytical Reports

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FIGURES

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LEGEND:
Site Outline
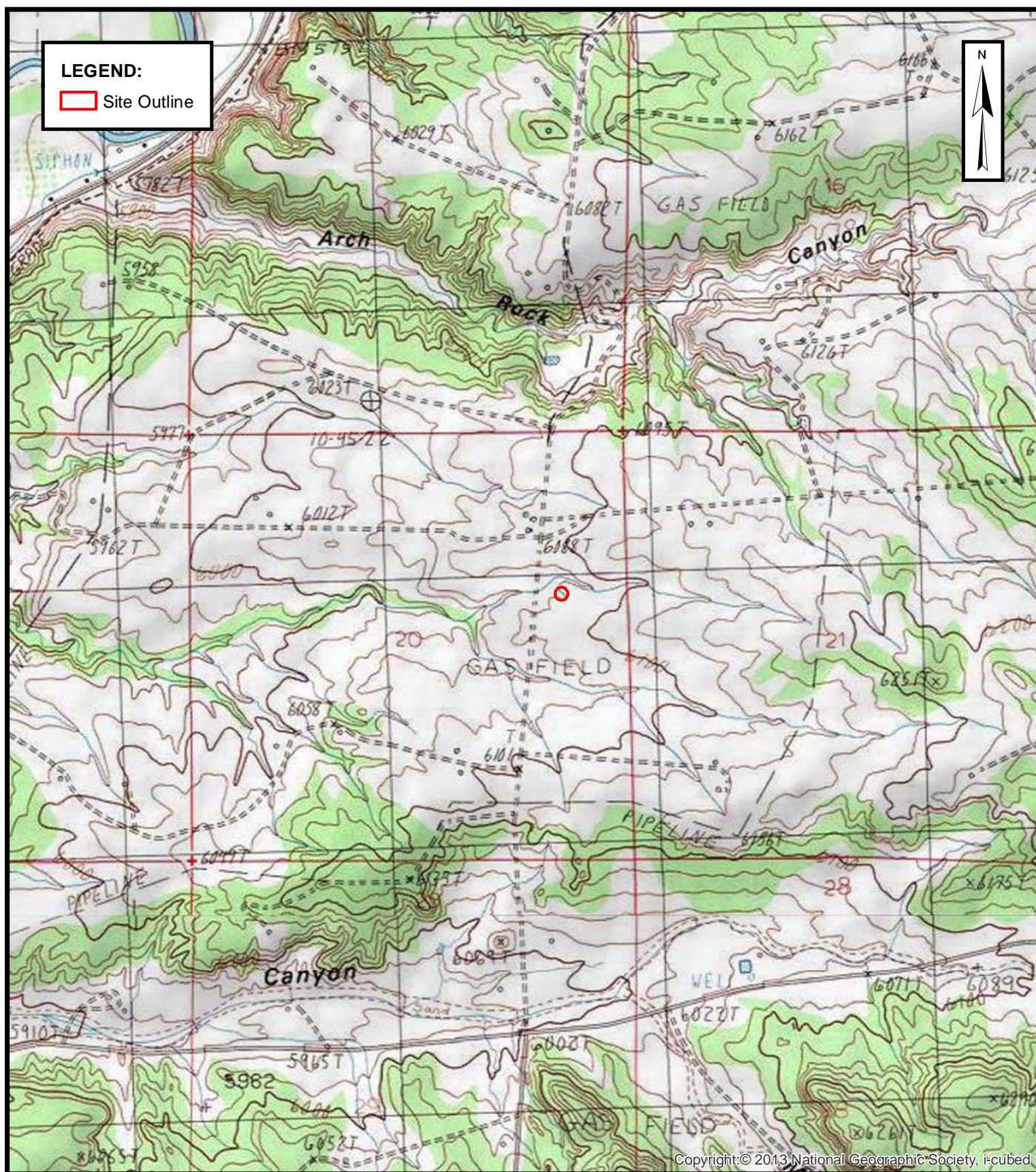
SITE LOCATION MAP

HILLCORP ENERGY COMPANY
LAMBE 2C
SENE SEC 20 T31N R10W, San Juan County, New Mexico
36.885735° N, 107.899592° W

PROJECT NUMBER: 07A1988008

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FIGURE

1

LEGEND:
- Monitoring Well
- Monitoring Well/SVE Well
- Proposed Soil Confirmation Boring Locations
- Wellhead
- Electrical Service Line
- SVE Piping
- Remaining Impacted Soil
- SVE Skid Location

MW04, MW08, MW06, MW07, MW05, MW01, MW02, MW03

N

0   20   40 Feet

ENSOLUM
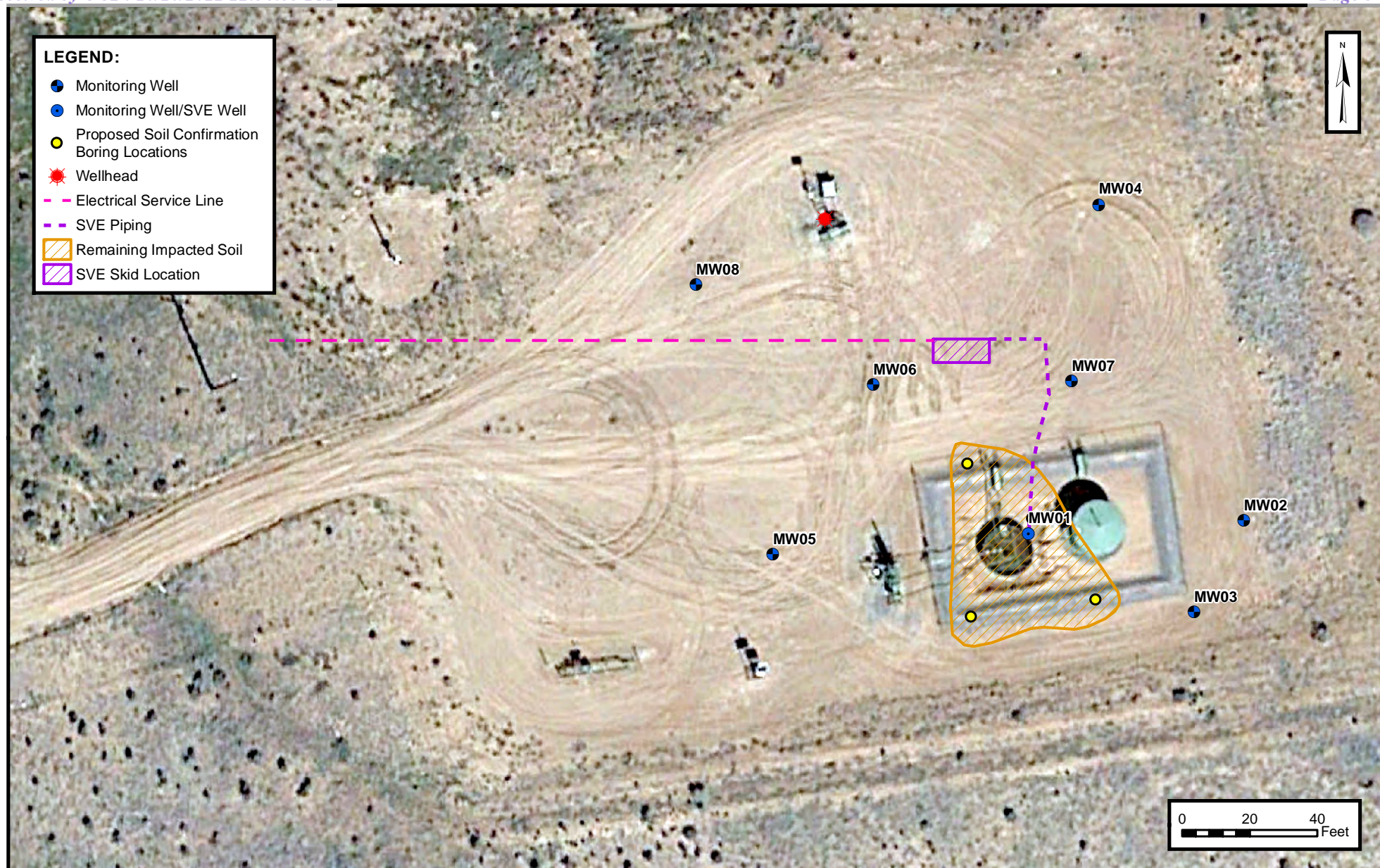Environmental & Hydrogeologic Consultants

AS BUILT DIAGRAM

HILCORP ENERGY COMPANY
LAMBE 2C
SENE SEC 20 T31N R10W, San Juan County, New Mexico
36.885855° N, 107.899525° W

PROJECT NUMBER: 07A1988008

FIGURE

2

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TABLES

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TABLE 1 **SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS** **Hilcorp Energy Company - Lambe 2C** **San Juan County, New Mexico** **Ensolum Project No. 07A1988008**

Date	Total Operational Hours	Delta Hours	Days	Percent Runtime
6/16/2022	6,096.8	--	--	--
9/21/2022	8,365.6	2,268.8	97.0	97.5%

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TABLE 2
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
Hilcorp Energy Company - Lambe 2C
San Juan County, New Mexico
Ensolum Project No. 07A1988008

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH/GRO (µg/L)	Oxygen (%)	Carbon Dioxide (%)
9/25/2019 (1)	782	6.1	42	<5.0	56	--	--	--
10/14/2019 (1)	431	7.3	26	2.6	36	3,600	--	--
9/17/2021 (2)	78	<0.10	<0.10	<0.10	1.1	660	--	--
9/24/2021	97	<0.20	0.9	<0.20	4.3	880	--	--
12/2/2021	92	<0.20	2.3	0.6	6.5	300	22.1	0.288
3/15/2022	42	<0.1	<0.10	<0.10	0.5	41	22.1	0.249
6/16/2022	25	<0.10	0.51	0.14	1.4	110	21.6	0.28
9/28/2022 (3)	122	<0.10	<0.10	<0.10	<0.15	43	21.5	0.41

Notes:

(1): sample collected during a Venturi event

(2): sample collected during pilot testing of the SVE system

(3): PID measurement collected during operation and maintenance visit on 9/21/2022

GRO: gasoline range organics

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 (PQL)

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TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Hilcorp Energy Company - Lambe 2C
San Juan County, New Mexico

Ensolum Project No. 07A1988008

Flow and Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
9/24/2021	97	*0.20*	0.94	*0.20*	4.3	880
12/2/2021	92	*0.20*	2.3	0.59	6.5	300
3/15/2022	42	*0.10*	*0.10*	*0.10*	0.48	41
6/16/2022	25	*0.10*	0.51	0.14	1.4	110
9/28/2022 (1)	122	*0.10*	*0.10*	*0.10*	*0.15*	43
Average	76	0.14	0.79	0.23	2.6	275

Vapor Extraction Summary

Date	Flow Rate (cfm)	Total System Flow (cf)	Delta Flow (cf)	Benzene (lb/hr)	Toluene (lb/hr)	Ethylbenzene (lb/hr)	Total Xylenes (lb/hr)	TVPH (lb/hr)
9/24/2021	51	4,590	4,590	0.000038	0.00018	0.000038	0.00082	0.17
12/2/2021	40	3,811,470	3,806,880	0.000030	0.00024	0.000059	0.00081	0.088
3/15/2022	40	9,329,550	5,518,080	0.000022	0.00018	0.000052	0.00052	0.026
6/16/2022	42	14,899,002	5,569,452	0.000016	0.000048	0.000019	0.00015	0.012
9/21/2022 (1)	44	20,888,106	5,989,104	0.000016	0.000050	0.000020	0.00013	0.013
Average				0.000027	0.00016	0.000042	0.00057	0.073

Flow and Laboratory Analysis

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
9/24/2021	1.5	1.5	0.000057	0.00027	0.000057	0.0012	0.25	0.00013
12/2/2021	1,588	1,586	0.047	0.38	0.094	1.3	140	0.070
3/15/2022	3,887	2,299	0.052	0.41	0.12	1.2	59	0.029
6/16/2022	6,097	2,210	0.035	0.11	0.042	0.33	26	0.013
9/21/2022 (1)	8,366	2,269	0.037	0.11	0.045	0.29	29	0.014
Total Mass Recovery to Date			0.17	1.02	0.30	3.1	254	0.13

Notes:

(1): PID measurement, SVE system hours, and flow rates were collected during operation and maintenance visit on 9/21/2022

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

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APPENDIX A

Field Notes

Location **Lambe**

Date **7-1-22**

Project / Client **Hilcorp**

14:00	EC on Site for O&M
	System on & Running
	Hours : 64571
	Vac : 13 IWC
	Flow : 42 SCFM
	No water in KO bank or
	filter housing
	PID: 11.3

Rite in the Rain

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 7-22

TIME ONSITE:

O&M PERSONNEL: B Sinclair

TIME OFFSITE:

SVE SYSTEM - MONTHLY O&M		
SVE ALARMS:	KO TANK HIGH LEVEL	

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	6941.3	1159
Inlet Vacuum (IWC)	13	
K/O Tank Vacuum (IWC)	12	
Inlet Flow Rotameter (scfm)	41	
Inlet PID	23.51	
Exhaust PID	26.14	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		
Clean/Dry Air Filter (check)	✓	

SVE SYSTEM - QUARTERLY SAMPLING	
SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	

Change in Well Operation:	

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01		21.48		

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 8-3-22

TIME ONSITE:

O&M PERSONNEL: B Sinclair

TIME OFFSITE:

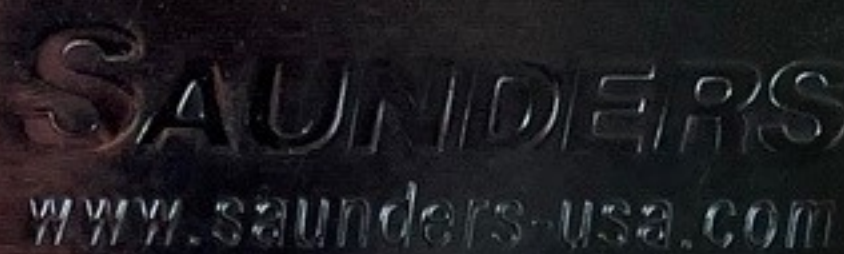### SVE SYSTEM - MONTHLY O&M

SVE ALARMS: KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	7214.4	
Inlet Vacuum (IWC)	13	
K/O Tank Vacuum (IWC)	13	
Inlet Flow Rotameter (scfm)	42	
Inlet PID	20.7	
Exhaust PID	13.6	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		
Clean/Dry Air Filter (check)		

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: SAMPLE TIME:

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

OPERATING WELLS

Change in Well Operation:

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01	17.6			

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: _8-17_   O&M PERSONNEL: _B Sinclair_

TIME ONSITE: _____   TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M		
SVE ALARMS:	KO TANK HIGH LEVEL	

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	7532.6	1220
Inlet Vacuum (IWC)	13	
K/O Tank Vacuum (IWC)	13	
Inlet Flow Rotameter (scfm)	42	
Inlet PID	26.2	
Exhaust PID	13.4	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		
Clean/Dry Air Filter (check)		

SVE SYSTEM - QUARTERLY SAMPLING	
SAMPLE ID:	SAMPLE TIME:
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)	
OPERATING WELLS	

Change in Well Operation:	

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01		16.9		

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: __9-9-22__   O&M PERSONNEL: __B Sinclair__
TIME ONSITE: _____   TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	8080.6	1234
Inlet Vacuum (IWC)	13	
K/O Tank Vacuum (IWC)	13	
Inlet Flow Rotameter (scfm)	41	
Inlet PID	62	
Exhaust PID	51.9	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		
Clean/Dry Air Filter (check)		

SVE SYSTEM - QUARTERLY SAMPLING

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

Change in Well Operation: _____

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01		51.1		

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 9-21-22   O&M PERSONNEL: B Sinclair
TIME ONSITE: _____   TIME OFFSITE: _____

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:	KO TANK HIGH LEVEL	

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	8365.6	1200
Inlet Vacuum (IWC)	15	
K/O Tank Vacuum (IWC)	13	
Inlet Flow Rotameter (scfm)	44	
Inlet PID	122	
Exhaust PID	30.5	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)		
Clean/Dry Air Filter (check)		

SVE SYSTEM - QUARTERLY SAMPLING

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

Change in Well Operation:	

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01		27.8		

COMMENTS/OTHER MAINTENANCE:

E N S O L U M

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Lambe 2C
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on June 16, 2022 at 10:05 AM Hours = 6,096.8	
Photograph 2 Runtime meter taken on September 21, 2022 at 12:00 PM Hours = 8365.6	
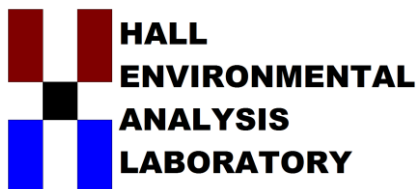
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Ensolum, LLC | Environmental & Hydrogeologic Consultants
Durango, Colorado | info@ensolum.com

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APPENDIX C

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

October 06, 2022

Stuart Hyde

HILCORP ENERGY

PO Box 4700

Farmington, NM 87499

TEL: (505) 564-0733

FAX:

RE: Lambe 2C   OrderNo.: 2209H03

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/30/2022 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 **2209H03**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **10/6/2022**

CLIENT: HILCORP ENERGY   **Client Sample ID:** Influent 092822

Project: Lambe 2C   **Collection Date:** 9/28/2022 2:00:00 PM

Lab ID: 2209H03-001   **Matrix:** AIR   **Received Date:** 9/30/2022 6:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Toluene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Ethylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2,4-Trimethylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,3,5-Trimethylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Naphthalene	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
1-Methylnaphthalene	ND	0.40		µg/L	1	9/30/2022 12:38:00 PM
2-Methylnaphthalene	ND	0.40		µg/L	1	9/30/2022 12:38:00 PM
Acetone	ND	1.0		µg/L	1	9/30/2022 12:38:00 PM
Bromobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Bromodichloromethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Bromoform	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Bromomethane	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
2-Butanone	ND	1.0		µg/L	1	9/30/2022 12:38:00 PM
Carbon disulfide	ND	1.0		µg/L	1	9/30/2022 12:38:00 PM
Carbon tetrachloride	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Chlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Chloroethane	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
Chloroform	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Chloromethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
2-Chlorotoluene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
4-Chlorotoluene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
cis-1,2-DCE	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
Dibromochloromethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Dibromomethane	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
1,2-Dichlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,3-Dichlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,4-Dichlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Dichlorodifluoromethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1-Dichloroethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1-Dichloroethene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2-Dichloropropane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,3-Dichloropropane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
2,2-Dichloropropane	ND	0.10		µg/L	1	9/30/2022 12:38:00 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	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	Page 1 of 5
	S	% Recovery outside of range due to dilution or matrix interference			

Analytical Report

Lab Order **2209H03**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: **10/6/2022**

CLIENT: HILCORP ENERGY		**Client Sample ID:** Influent 092822
Project: Lambe 2C		**Collection Date:** 9/28/2022 2:00:00 PM
Lab ID: 2209H03-001	**Matrix: AIR**	**Received Date:** 9/30/2022 6:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,1-Dichloropropene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Hexachlorobutadiene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
2-Hexanone	ND	1.0		µg/L	1	9/30/2022 12:38:00 PM
Isopropylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
4-Isopropyltoluene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
4-Methyl-2-pentanone	ND	1.0		µg/L	1	9/30/2022 12:38:00 PM
Methylene chloride	ND	0.30		µg/L	1	9/30/2022 12:38:00 PM
n-Butylbenzene	ND	0.30		µg/L	1	9/30/2022 12:38:00 PM
n-Propylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
sec-Butylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Styrene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
tert-Butylbenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Tetrachloroethene (PCE)	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
trans-1,2-DCE	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1,1-Trichloroethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,1,2-Trichloroethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Trichloroethene (TCE)	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Trichlorofluoromethane	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
1,2,3-Trichloropropane	ND	0.20		µg/L	1	9/30/2022 12:38:00 PM
Vinyl chloride	ND	0.10		µg/L	1	9/30/2022 12:38:00 PM
Xylenes, Total	ND	0.15		µg/L	1	9/30/2022 12:38:00 PM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	9/30/2022 12:38:00 PM
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	9/30/2022 12:38:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	9/30/2022 12:38:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	9/30/2022 12:38:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	43	5.0		µg/L	1	9/30/2022 12:38:00 PM
Surr: BFB	94.0	70-130		%Rec	1	9/30/2022 12:38:00 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	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	Page 2 of 5
	PQL	Practical Quanitative Limit	RL	Reporting Limit	
	S	% Recovery outside of range due to dilution or matrix interference			

ANALYTICAL SUMMARY REPORT

October 06, 2022

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

Work Order: B22100210   Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 10/4/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B22100210-001	2209H03-001B, Influent 092822	09/28/22 14:00	10/04/22	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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Billings, MT **800.735.4489** • Casper, WY **888.235.0515**
Gillette, WY **866.686.7175** • Helena, MT **877.472.0711**

LABORATORY ANALYTICAL REPORT
Prepared by Billings, MT Branch

Client:	Hall Environmental	**Report Date:**	10/06/22
Project:	Not Indicated	**Collection Date:**	09/28/22 14:00
Lab ID:	B22100210-001	**DateReceived:**	10/04/22
Client Sample ID:	2209H03-001B, Influent 092822	**Matrix:**	Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.47	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Nitrogen	78.12	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Carbon Dioxide	0.41	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Hexanes plus	<0.01	Mol %		0.01		GPA 2261-95	10/05/22 12:03 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
Hexanes plus	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
GPM Total	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
GPM Pentanes plus	< 0.001	gpm		0.001		GPA 2261-95	10/05/22 12:03 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	ND			1		GPA 2261-95	10/05/22 12:03 / jrj
Net BTU per cu ft @ std cond. (LHV)	ND			1		GPA 2261-95	10/05/22 12:03 / jrj
Pseudo-critical Pressure, psia	546			1		GPA 2261-95	10/05/22 12:03 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	10/05/22 12:03 / jrj
Specific Gravity @ 60/60F	0.999			0.001		D3588-81	10/05/22 12:03 / jrj
Air, %	98.11			0.01		GPA 2261-95	10/05/22 12:03 / jrj

- The analysis was not corrected for air.

COMMENTS
- - 10/05/22 12:03 / 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	MCL - Maximum Contaminant Level
	QCL - Quality Control Limit	ND - Not detected at the Reporting Limit (RL)

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Gillette, WY **866.686.7175** • Helena, MT **877.472.0711**

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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental   **Work Order:** B22100210   **Report Date:** 10/06/22

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	**GPA 2261-95**								Batch: R389175	
Lab ID:	**B22100100-001ADUP**	11 Sample Duplicate				Run: GCNGA-B_221005A			10/05/22 10:16	
Nitrogen		4.92	Mol %	0.01				4.6	20	
Carbon Dioxide		0.16	Mol %	0.01				6.5	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		94.6	Mol %	0.01				0.2	20	
Ethane		0.26	Mol %	0.01				0.0	20	
Propane		0.03	Mol %	0.01				0.0	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:	**LCS100522**	11 Laboratory Control Sample				Run: GCNGA-B_221005A			10/05/22 15:20	
Oxygen		0.58	Mol %	0.01	116	70	130			
Nitrogen		6.01	Mol %	0.01	100	70	130			
Carbon Dioxide		1.00	Mol %	0.01	101	70	130			
Methane		74.5	Mol %	0.01	100	70	130			
Ethane		6.06	Mol %	0.01	101	70	130			
Propane		5.07	Mol %	0.01	103	70	130			
Isobutane		2.00	Mol %	0.01	100	70	130			
n-Butane		1.99	Mol %	0.01	99	70	130			
Isopentane		1.01	Mol %	0.01	101	70	130			
n-Pentane		1.01	Mol %	0.01	101	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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Gillette, WY **866.686.7175** • Helena, MT **877.472.0711**

Work Order Receipt Checklist

Hall Environmental

B22100210

Login completed by: Leslie S. Cadreau
Reviewed by: darcy
Reviewed Date: 10/4/2022

Date Received: 10/4/2022
Received by: jdr
Carrier name: FedEx

	Yes	No	
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:	16.7°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

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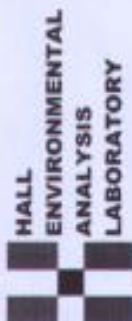
CHAIN OF CUSTODY RECORD

PAGE: 1   OF: 1

SUB CONTRACTOR: Energy Labs – Billings   COMPANY: Energy Laboratories

ADDRESS: 1120 South 27th Street

CITY, STATE, ZIP: Billings, MT 59107

PHONE: (406) 869-6253   FAX: (406) 252-6069

ACCOUNT #:   EMAIL:

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS
1	2209H03-001B	Influent 092822	TEDLAR	Air	9/26/2022 2:00:00 PM	1

ANALYTICAL COMMENTS

Fixed Gases CO2 + O2 *RUSH 5 DAY TAT*

(handwritten) 5206020

	Date	Time		Date	Time
Relinquished By:	9/30/2022	9:31 AM	Received By:	7/1/22	0930
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By: (RUSH)	Date	Time

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

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

FOR LAB USE ONLY

Temp of sample _____ °C   Attempt to Cool ?

Comments:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209H03**

06-Oct-22

Client: HILCORP ENERGY
Project: Lambe 2C

Sample ID: **2209H03-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **Influent 092822**	Batch ID: **R91440**	RunNo: **91440**	
Prep Date:	Analysis Date: **9/30/2022**	SeqNo: **3276058**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.10						0	20	
Toluene	ND	0.10						0	20	
Ethylbenzene	ND	0.10						0	20	
Methyl tert-butyl ether (MTBE)	ND	0.10						0	20	
1,2,4-Trimethylbenzene	ND	0.10						0	20	
1,3,5-Trimethylbenzene	ND	0.10						0	20	
1,2-Dichloroethane (EDC)	ND	0.10						0	20	
1,2-Dibromoethane (EDB)	ND	0.10						0	20	
Naphthalene	ND	0.20						0	20	
1-Methylnaphthalene	ND	0.40						0	20	
2-Methylnaphthalene	ND	0.40						0	20	
Acetone	ND	1.0						0	20	
Bromobenzene	ND	0.10						0	20	
Bromodichloromethane	ND	0.10						0	20	
Bromoform	ND	0.10						0	20	
Bromomethane	ND	0.20						0	20	
2-Butanone	ND	1.0						0	20	
Carbon disulfide	ND	1.0						0	20	
Carbon tetrachloride	ND	0.10						0	20	
Chlorobenzene	ND	0.10						0	20	
Chloroethane	ND	0.20						0	20	
Chloroform	ND	0.10						0	20	
Chloromethane	ND	0.10						0	20	
2-Chlorotoluene	ND	0.10						0	20	
4-Chlorotoluene	ND	0.10						0	20	
cis-1,2-DCE	ND	0.10						0	20	
cis-1,3-Dichloropropene	ND	0.10						0	20	
1,2-Dibromo-3-chloropropane	ND	0.20						0	20	
Dibromochloromethane	ND	0.10						0	20	
Dibromomethane	ND	0.20						0	20	
1,2-Dichlorobenzene	ND	0.10						0	20	
1,3-Dichlorobenzene	ND	0.10						0	20	
1,4-Dichlorobenzene	ND	0.10						0	20	
Dichlorodifluoromethane	ND	0.10						0	20	
1,1-Dichloroethane	ND	0.10						0	20	
1,1-Dichloroethene	ND	0.10						0	20	
1,2-Dichloropropane	ND	0.10						0	20	
1,3-Dichloropropane	ND	0.10						0	20	
2,2-Dichloropropane	ND	0.10						0	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	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 range due to dilution or matrix interference		

Page 3 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209H03**

06-Oct-22

Client: HILCORP ENERGY
Project: Lambe 2C

Sample ID: **2209H03-001adup**	SampType: **DUP**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **Influent 092822**	Batch ID: **R91440**	RunNo: **91440**	
Prep Date:	Analysis Date: **9/30/2022**	SeqNo: **3276058**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10						0	20	
Hexachlorobutadiene	ND	0.10						0	20	
2-Hexanone	ND	1.0						0	20	
Isopropylbenzene	ND	0.10						0	20	
4-Isopropyltoluene	ND	0.10						0	20	
4-Methyl-2-pentanone	ND	1.0						0	20	
Methylene chloride	ND	0.30						0	20	
n-Butylbenzene	ND	0.30						0	20	
n-Propylbenzene	ND	0.10						0	20	
sec-Butylbenzene	ND	0.10						0	20	
Styrene	ND	0.10						0	20	
tert-Butylbenzene	ND	0.10						0	20	
1,1,1,2-Tetrachloroethane	ND	0.10						0	20	
1,1,2,2-Tetrachloroethane	ND	0.10						0	20	
Tetrachloroethene (PCE)	ND	0.10						0	20	
trans-1,2-DCE	ND	0.10						0	20	
trans-1,3-Dichloropropene	ND	0.10						0	20	
1,2,3-Trichlorobenzene	ND	0.10						0	20	
1,2,4-Trichlorobenzene	ND	0.10						0	20	
1,1,1-Trichloroethane	ND	0.10						0	20	
1,1,2-Trichloroethane	ND	0.10						0	20	
Trichloroethene (TCE)	ND	0.10						0	20	
Trichlorofluoromethane	ND	0.10						0	20	
1,2,3-Trichloropropane	ND	0.20						0	20	
Vinyl chloride	ND	0.10						0	20	
Xylenes, Total	ND	0.15						0	20	
Surr: Dibromofluoromethane	1.0		1.000		105	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	1.1		1.000		110	70	130	0	0	
Surr: Toluene-d8	1.0		1.000		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.0		1.000		101	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	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 range due to dilution or matrix interference		

Page 4 of 5

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2209H03**

06-Oct-22

Client: HILCORP ENERGY

Project: Lambe 2C

Sample ID: **2209H03-001adup**	SampType: **DUP**		TestCode: **EPA Method 8015D: Gasoline Range**		
Client ID: **Influent 092822**	Batch ID: **G91440**		RunNo: **91440**		
Prep Date:	Analysis Date: **9/30/2022**		SeqNo: **3276238**	Units: **µg/L**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	42	5.0						1.42	20	
Surr: BFB	910		1000		90.8	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	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 range due to dilution or matrix interference			

Page 5 of 5

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: 2209H03	RcptNo: 1

Received By: **Juan Rojas** 9/30/2022 6:55:00 AM

Completed By: **Sean Livingston** 9/30/2022 8:09:08 AM

Reviewed By: KPG 9.30.22

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: _____

TO 9/30/22

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	0.5	Good				

Page 1 of 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE - Albuquerque, NM 87109

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

www.hallenvironmental.com

Chain-of-Custody Record

Client: Hilcorp Energy Company

Mailing Address:

Attn: Mitch Killough

Phone #:

email or Fax#:

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

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

Turn-Around Time:
- ☒ Standard   5 Day
- ☐ Rush

Project Name: Lambe 2 C

Project #:

Project Manager: Stuart Hyde

Sampler: D. Burns

On Ice: ☐ Yes   ☐ No

# of Coolers: 1

Cooler Temp (including CF): 0.50=0.5 (°C)

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, NO₃, NO₂, PO₄, SO₄	8260 (VOA) Full List	8270 (Semi-VOA)	Total Coliform (Present/Absent) Fixed Gas CO₂+tu
9-28-22	1400	Air	Influent 092822*	2-Tedlar	NA	2209H03 001		X						X		X

Remarks: cc: dhencmann @ ensolum.com
shyde @ ensolum.com
dburns

	Date	Time	Via:
Relinquished by:	9/28/22	1545	Wang Poelun
Relinquished by: Deang Poelun	9/28/22	1617	

	Date	Time	Via:
Received by: Deang Poelun	9/29	1545	
Received by:	9/29/22	1617	courier 9/30/22 6:55

9/29/22 1740

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.

CONDITIONS

Action 149896

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

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 149896
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record. See app ID 175949 for most updated status.	2/28/2023