ENSOLUM

April 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: First Quarter 2024 – SVE System Update
Lambe 2C
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NVF1836050592

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *First Quarter 2024 – 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 January, February, and March of 2024 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 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.

FIRST QUARTER 2024 ACTIVITIES

During the first quarter of 2024, 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 first quarter of 2024, SVE well MW01 was operated in order to induce flow in the impacted soil zone. Between December 20, 2023, and March 19, 2024, the SVE system operated for 2,089.7 hours for a runtime efficiency of 96.7 percent (%). Appendix B presents photographs of the runtime meter for calculating the first quarter runtime efficiency. Table 1 presents the SVE system operational hours and calculated percentage runtime.

A first quarter 2024 air sample was collected on March 5, 2024, 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 Eurofins Environment Testing (Formerly Hall Environmental Analysis Laboratory) 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, 466 pounds of TVPH have been removed by the system to date.

RECOMMENDATIONS

Based on the remediation timeline presented in the *Update Report and Updated Remediation Workplan,* prepared by WSP USA, Inc. and dated September 30, 2021, soil sampling activities were performed on September 22 and 23, 2023 using a sonic drill rig. Soil sampling activities and analytical results were summarized in the Ensolum report titled *Closure Request with Variance* and submitted to the NMOCD on November 22, 2023. The SVE system will continue to operate while Hilcorp and the NMOCD work towards closure of the Site.

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

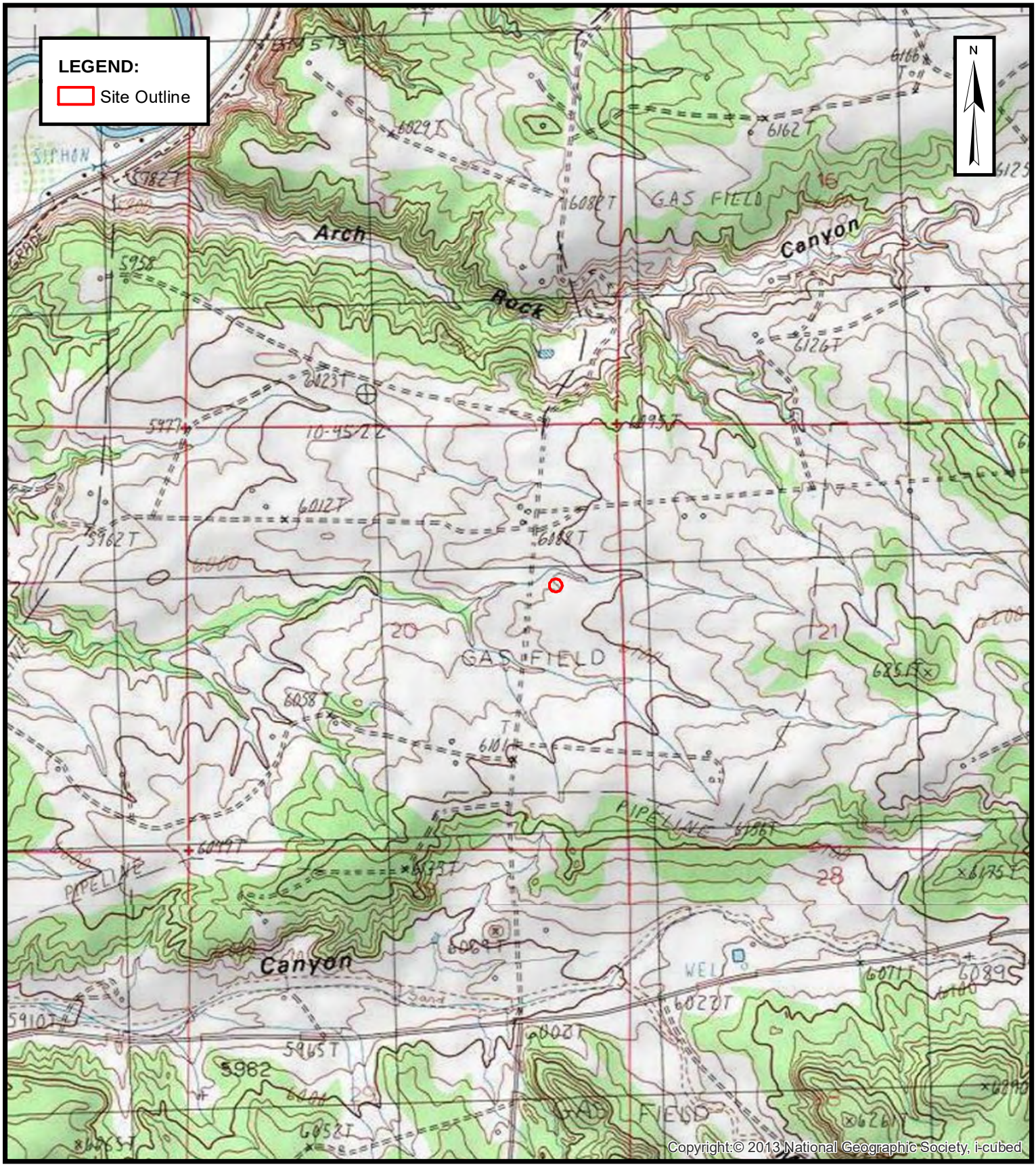
Daniel R. Moir, PG
Senior Managing Geologist
(303) 887-2946
dmoir@ensolum.com

Attachments:

Figure 1	Site Location
Figure 2	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

ENSOLUM

Figures



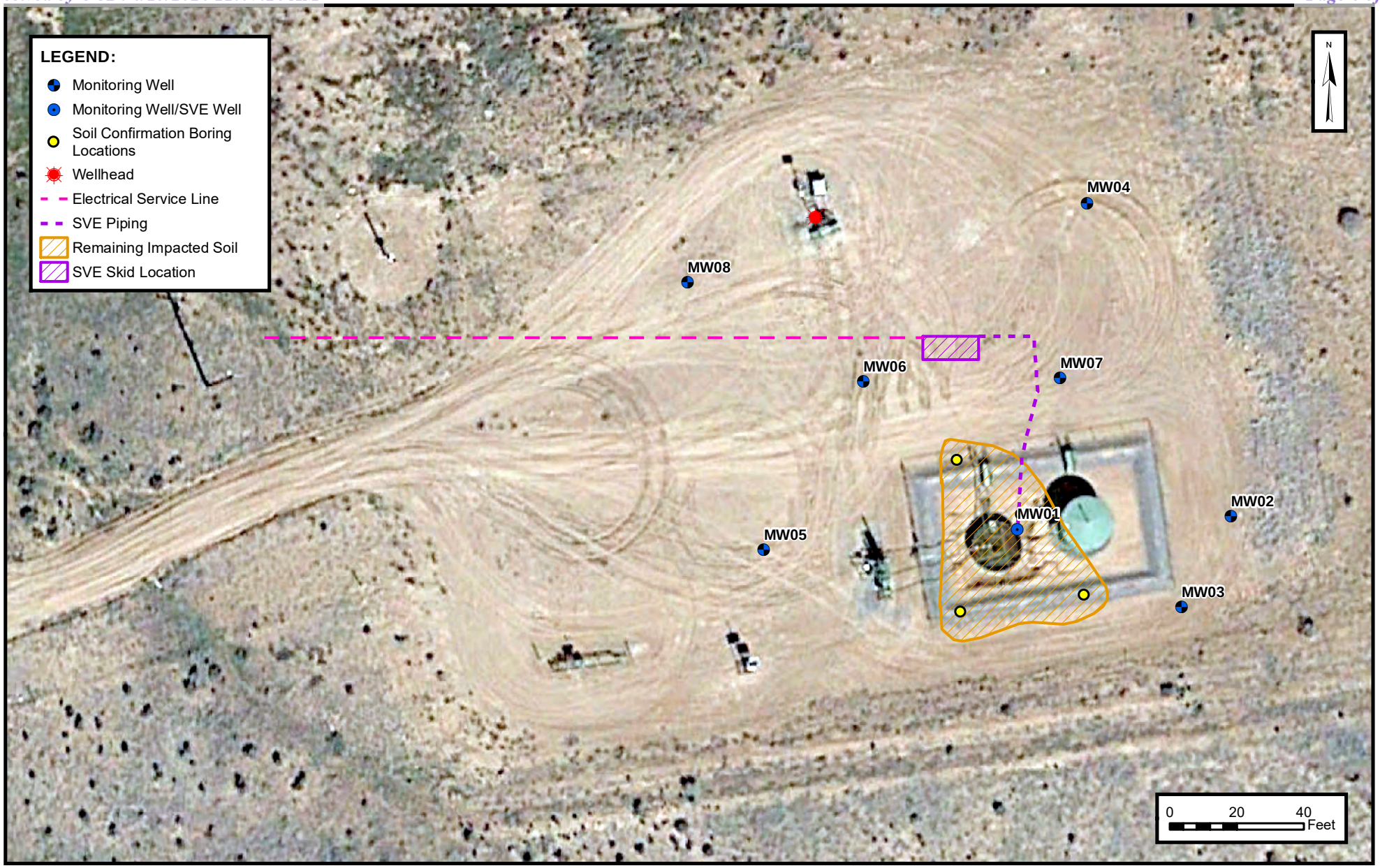
ENSOLUM
Environmental & Hydrogeologic Consultants

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

FIGURE
1



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

ENSOLUM

Tables

ENSOLUM

TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
Lambe 2C
Hilcorp Energy Company
San Juan County, New Mexico

Date	Total Operational Hours	Delta Hours	Days	Percent Runtime
12/20/2023	10,166.9	--	--	--
3/19/2024	12,256.6	2,089.7	90.0	96.7%

ENSOLUM

TABLE 2
SOIL VAPOR EXTRACTION SYSTEM EMISSIONS ANALYTICAL RESULTS
Lambe 2C
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 (%)
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	22.10	0.288
3/15/2022	42	<0.1	<0.10	<0.10	0.5	41	22.10	0.249
6/16/2022	25	<0.10	0.51	0.14	1.4	110	21.57	0.28
9/28/2022 (3)	122	<0.10	<0.10	<0.10	<0.15	43	21.47	0.41
12/12/2022 (3)	16.9	0.72	8.2	0.51	6.5	170	21.68	0.30
3/9/2023	20.8	0.21	4.1	0.47	<0.10	140	21.64	0.26
6/22/2023	48.3	0.37	4.1	0.29	5.4	120	21.10	0.30
8/23/2023	38.6	0.21	3.1	0.30	4.7	75	21.30	0.53
11/27/2023	23.8	<0.10	1.6	0.16	2.5	51	21.50	0.34
3/5/2024	40.6	0.69	9.9	0.91	11	130	22.31	0.24

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 visits on 9/21/2022 and 12/10/2022

GRO: gasoline range organics

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

--: not sampled

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

ENSOLUM

TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Lambe 2C
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)
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
12/12/2022 (2)	16.9	0.72	8.2	0.51	6.5	170
3/9/2023	20.8	0.21	4.1	0.47	*0.10*	140
6/22/2023	48.3	0.37	4.1	0.29	5.4	120
8/23/2023	38.6	0.21	3.1	0.30	4.7	75
11/27/2023	23.8	*0.10*	1.6	0.16	2.5	51
3/5/2024	40.6	0.69	9.9	0.91	11.0	130
Average	52	0.27	3.2	0.34	3.9	187

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
9/28/2022 (1)	44	20,888,106	5,989,104	0.000016	0.000050	0.000020	0.00013	0.013
12/10/2022 (2)	44	25,438,938	4,550,832	0.000067	0.00068	0.000050	0.00055	0.018
3/9/2023	43	30,543,984	5,105,046	0.000075	0.00099	0.000079	0.00053	0.025
6/22/2023	44	37,073,496	6,529,512	0.000048	0.00067	0.000063	0.00045	0.021
8/23/2023	46	40,215,535	3,142,039	0.000050	0.00062	0.000051	0.00087	0.017
11/27/2023	47	46,701,986	6,486,451	0.000027	0.00041	0.000040	0.00063	0.011
3/5/2024	45	53,835,926	7,133,940	0.000066	0.00097	0.000090	0.00114	0.015
			Average	0.000041	0.00046	0.000051	0.00060	0.038

Mass Recovery

Date	Total Operational Hours (3)	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
12/10/2022 (2)	10,089	1,724	0.12	1.2	0.087	0.94	30	0.015
3/9/2023	12,068	1,979	0.15	2.0	0.16	1.1	49	0.025
6/22/2023	14,541	2,473	0.12	1.7	0.15	1.1	53	0.026
8/23/2023	15,680	1,138	0.057	0.71	0.058	1.0	19	0.010
11/27/2023	17,980	2,300	0.063	0.95	0.093	1.5	25	0.013
3/5/2024	20,622	2,642	0.153	2.23	0.207	2.6	35	0.018
		Total Mass Recovery to Date	0.83	9.7	1.05	11.3	466	0.23

Notes:

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

(2): PID measurement, SVE system hours, and flow rates were collected during operation and maintenance visit on 12/10/2022

(3): total operational hours are a summation of runtime hours collected from several blower runtime meters

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

ENSOLUM

APPENDIX A

Field Notes

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1-3
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)	10504.29	1538
Inlet Vacuum (IWC)	19	
K/O Tank Vacuum (IWC)	18	
Inlet Flow Rotameter (scfm)	47	
Inlet PID	12.9	
Exhaust PID	2.9	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	8	
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)	ADJUSTMENTS
SVE01		18.4	

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1-31
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)	11171.88	1131
Inlet Vacuum (IWC)	18	
K/O Tank Vacuum (IWC)	16	
Inlet Flow Rotameter (scfm)	45	
Inlet PID	9.7	
Exhaust PID	1.6	
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)	ADJUSTMENTS
SVE01		10.2	

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 2-7
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)	11271.20	1329
Inlet Vacuum (IWC)	18	
K/O Tank Vacuum (IWC)	16	
Inlet Flow Rotameter (scfm)	47	
Inlet PID	11.3	
Exhaust PID	2.2	
K/O Tank Liquid Level		
K/O Liquid Drained (gallons)	2.5	
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)	ADJUSTMENTS
SVE01		12.1	

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 2-20
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)**	11584.13	1431
Inlet Vacuum (IWC)	14	
K/O Tank Vacuum (IWC)	15	
Inlet Flow Rotameter (scfm)	44	
Inlet PID	67.8	
Exhaust PID	1.7	
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)	ADJUSTMENTS
SVE01		57.9	

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3-5
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)**	11921.02	1527
Inlet Vacuum (IWC)	17	
K/O Tank Vacuum (IWC)	15	
Inlet Flow Rotameter (scfm)	45	
Inlet PID	40.6	
Exhaust PID	1.7	
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)	ADJUSTMENTS
SVE01	3.51	35.2	

COMMENTS/OTHER MAINTENANCE:

LAMBE 2C SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3-19
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)	12256.63	1607
Inlet Vacuum (IWC)	17	
K/O Tank Vacuum (IWC)	15	
Inlet Flow Rotameter (scfm)	45	
Inlet PID	93.3	
Exhaust PID	3.7	
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)	ADJUSTMENTS
SVE01		45.8	

COMMENTS/OTHER MAINTENANCE:

ENSOLUM

APPENDIX B

Project Photographs

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

Photograph 1 Runtime meter taken on December 20, 2023 at 3:39 PM Hours = 10,166.87		
Photograph 2 Runtime meter taken on March 19, 2024 at 4:07 PM Hours = 12,256.63		

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

ENSOLUM

APPENDIX C

Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 3/20/2024 5:19:00 PM

JOB DESCRIPTION

Lambe 2C

JOB NUMBER

885-711-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

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

Authorization

Generated
3/20/2024 5:19:00 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Hilcorp Energy
Project/Site: Lambe 2C

Laboratory Job ID: 885-711-1

Table of Contents

Definitions/Glossary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Glossary

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

Case Narrative

Client: Hilcorp Energy
Project: Lambe 2C

Job ID: 885-711-1

Job ID: 885-711-1 Eurofins Albuquerque

Job Narrative
885-711-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The sample was received on 3/7/2024 7:15 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice.

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

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

Client Sample Results

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Client Sample ID: SVE-1
Date Collected: 03/05/24 15:20
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-711-1
Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	**130**		5.0		ug/L			03/12/24 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*		*03/12/24 15:17*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			03/12/24 15:17	1
1,1,1-Trichloroethane	ND		0.10		ug/L			03/12/24 15:17	1
1,1,2,2-Tetrachloroethane	ND		0.20		ug/L			03/12/24 15:17	1
1,1,2-Trichloroethane	ND		0.10		ug/L			03/12/24 15:17	1
1,1-Dichloroethane	ND		0.10		ug/L			03/12/24 15:17	1
1,1-Dichloroethene	ND		0.10		ug/L			03/12/24 15:17	1
1,1-Dichloropropene	ND		0.10		ug/L			03/12/24 15:17	1
1,2,3-Trichlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
1,2,3-Trichloropropane	ND		0.20		ug/L			03/12/24 15:17	1
1,2,4-Trichlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
1,2,4-Trimethylbenzene	**0.68**		0.10		ug/L			03/12/24 15:17	1
1,2-Dibromo-3-Chloropropane	ND		0.20		ug/L			03/12/24 15:17	1
1,2-Dibromoethane (EDB)	ND		0.10		ug/L			03/12/24 15:17	1
1,2-Dichlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
1,2-Dichloroethane (EDC)	ND		0.10		ug/L			03/12/24 15:17	1
1,2-Dichloropropane	ND		0.10		ug/L			03/12/24 15:17	1
1,3,5-Trimethylbenzene	**0.70**		0.10		ug/L			03/12/24 15:17	1
1,3-Dichlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
1,3-Dichloropropane	ND		0.10		ug/L			03/12/24 15:17	1
1,4-Dichlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
1-Methylnaphthalene	ND		0.40		ug/L			03/12/24 15:17	1
2,2-Dichloropropane	ND		0.20		ug/L			03/12/24 15:17	1
2-Butanone	ND		1.0		ug/L			03/12/24 15:17	1
2-Chlorotoluene	ND		0.10		ug/L			03/12/24 15:17	1
2-Hexanone	ND		1.0		ug/L			03/12/24 15:17	1
2-Methylnaphthalene	ND		0.40		ug/L			03/12/24 15:17	1
4-Chlorotoluene	ND		0.10		ug/L			03/12/24 15:17	1
4-Isopropyltoluene	ND		0.10		ug/L			03/12/24 15:17	1
4-Methyl-2-pentanone	ND		1.0		ug/L			03/12/24 15:17	1
Acetone	ND		1.0		ug/L			03/12/24 15:17	1
Benzene	**0.69**		0.10		ug/L			03/12/24 15:17	1
Bromobenzene	ND		0.10		ug/L			03/12/24 15:17	1
Bromodichloromethane	ND		0.10		ug/L			03/12/24 15:17	1
Dibromochloromethane	ND		0.10		ug/L			03/12/24 15:17	1
Bromoform	ND		0.10		ug/L			03/12/24 15:17	1
Bromomethane	ND		0.30		ug/L			03/12/24 15:17	1
Carbon disulfide	ND		1.0		ug/L			03/12/24 15:17	1
Carbon tetrachloride	ND		0.10		ug/L			03/12/24 15:17	1
Chlorobenzene	ND		0.10		ug/L			03/12/24 15:17	1
Chloroethane	ND		0.20		ug/L			03/12/24 15:17	1
Chloroform	ND		0.10		ug/L			03/12/24 15:17	1

Client Sample Results

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Client Sample ID: SVE-1
Date Collected: 03/05/24 15:20
Date Received: 03/07/24 07:15
Sample Container: Tedlar Bag 1L

Lab Sample ID: 885-711-1
Matrix: Air

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		0.30		ug/L			03/12/24 15:17	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			03/12/24 15:17	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			03/12/24 15:17	1
Dibromomethane	ND		0.10		ug/L			03/12/24 15:17	1
Dichlorodifluoromethane	ND		0.10		ug/L			03/12/24 15:17	1
Ethylbenzene	**0.91**		0.10		ug/L			03/12/24 15:17	1
Hexachlorobutadiene	ND		0.10		ug/L			03/12/24 15:17	1
Isopropylbenzene	**0.15**		0.10		ug/L			03/12/24 15:17	1
Methyl-tert-butyl Ether (MTBE)	ND		0.10		ug/L			03/12/24 15:17	1
Methylene Chloride	ND		0.30		ug/L			03/12/24 15:17	1
n-Butylbenzene	ND		0.30		ug/L			03/12/24 15:17	1
N-Propylbenzene	**0.16**		0.10		ug/L			03/12/24 15:17	1
Naphthalene	ND		0.20		ug/L			03/12/24 15:17	1
sec-Butylbenzene	ND		0.10		ug/L			03/12/24 15:17	1
Styrene	ND		0.10		ug/L			03/12/24 15:17	1
tert-Butylbenzene	ND		0.10		ug/L			03/12/24 15:17	1
Tetrachloroethene (PCE)	ND		0.10		ug/L			03/12/24 15:17	1
Toluene	**9.9**		0.10		ug/L			03/12/24 15:17	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			03/12/24 15:17	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			03/12/24 15:17	1
Trichloroethene (TCE)	ND		0.10		ug/L			03/12/24 15:17	1
Trichlorofluoromethane	ND		0.10		ug/L			03/12/24 15:17	1
Vinyl chloride	ND		0.10		ug/L			03/12/24 15:17	1
Xylenes, Total	**11**		0.15		ug/L			03/12/24 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 130*		*03/12/24 15:17*	*1*
Toluene-d8 (Surr)	*115*		*70 - 130*		*03/12/24 15:17*	*1*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*03/12/24 15:17*	*1*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*03/12/24 15:17*	*1*

QC Sample Results

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

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

Lab Sample ID: MB 885-1848/3
Matrix: Air
Analysis Batch: 1848

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics [C6 - C10]	ND		5.0		ug/L			03/12/24 13:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*03/12/24 13:14*	*1*

Lab Sample ID: LCS 885-1848/2
Matrix: Air
Analysis Batch: 1848

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics [C6 - C10]			500	478		ug/L		96			

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

QC Association Summary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

GC/MS VOA

Analysis Batch: 1628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-711-1	SVE-1	Total/NA	Air	8260B	

Analysis Batch: 1848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-711-1	SVE-1	Total/NA	Air	8015D	
MB 885-1848/3	Method Blank	Total/NA	Air	8015D	
LCS 885-1848/2	Lab Control Sample	Total/NA	Air	8015D	

Lab Chronicle

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Client Sample ID: SVE-1
Date Collected: 03/05/24 15:20
Date Received: 03/07/24 07:15

Lab Sample ID: 885-711-1
Matrix: Air

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015D		1	1848	CM	EET ALB	03/12/24 15:17
Total/NA	Analysis	8260B		1	1628	CM	EET ALB	03/12/24 15:17

Laboratory References:

= , 1120 South 27th Street, Billings, MT 59107

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

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Laboratory: Eurofins Albuquerque

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8015D		Air	Gasoline Range Organics [C6 - C10]
8260B		Air	1,1,1,2-Tetrachloroethane
8260B		Air	1,1,1-Trichloroethane
8260B		Air	1,1,2,2-Tetrachloroethane
8260B		Air	1,1,2-Trichloroethane
8260B		Air	1,1-Dichloroethane
8260B		Air	1,1-Dichloroethene
8260B		Air	1,1-Dichloropropene
8260B		Air	1,2,3-Trichlorobenzene
8260B		Air	1,2,3-Trichloropropane
8260B		Air	1,2,4-Trichlorobenzene
8260B		Air	1,2,4-Trimethylbenzene
8260B		Air	1,2-Dibromo-3-Chloropropane
8260B		Air	1,2-Dibromoethane (EDB)
8260B		Air	1,2-Dichlorobenzene
8260B		Air	1,2-Dichloroethane (EDC)
8260B		Air	1,2-Dichloropropane
8260B		Air	1,3,5-Trimethylbenzene
8260B		Air	1,3-Dichlorobenzene
8260B		Air	1,3-Dichloropropane
8260B		Air	1,4-Dichlorobenzene
8260B		Air	1-Methylnaphthalene
8260B		Air	2,2-Dichloropropane
8260B		Air	2-Butanone
8260B		Air	2-Chlorotoluene
8260B		Air	2-Hexanone
8260B		Air	2-Methylnaphthalene
8260B		Air	4-Chlorotoluene
8260B		Air	4-Isopropyltoluene
8260B		Air	4-Methyl-2-pentanone
8260B		Air	Acetone
8260B		Air	Benzene
8260B		Air	Bromobenzene
8260B		Air	Bromodichloromethane
8260B		Air	Bromoform
8260B		Air	Bromomethane
8260B		Air	Carbon disulfide
8260B		Air	Carbon tetrachloride
8260B		Air	Chlorobenzene
8260B		Air	Chloroethane
8260B		Air	Chloroform
8260B		Air	Chloromethane
8260B		Air	cis-1,2-Dichloroethene
8260B		Air	cis-1,3-Dichloropropene
8260B		Air	Dibromochloromethane

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Laboratory: Eurofins Albuquerque (Continued)

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

Authority	Program	Identification Number	Expiration Date

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

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

Oregon	NELAP	NM100001	02-26-25

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

Analysis Method	Prep Method	Matrix	Analyte
8015D		Air	Gasoline Range Organics [C6 - C10]
8260B		Air	1,1,1,2-Tetrachloroethane
8260B		Air	1,1,1-Trichloroethane
8260B		Air	1,1,2,2-Tetrachloroethane
8260B		Air	1,1,2-Trichloroethane
8260B		Air	1,1-Dichloroethane
8260B		Air	1,1-Dichloroethene
8260B		Air	1,1-Dichloropropene
8260B		Air	1,2,3-Trichlorobenzene
8260B		Air	1,2,3-Trichloropropane
8260B		Air	1,2,4-Trichlorobenzene
8260B		Air	1,2,4-Trimethylbenzene
8260B		Air	1,2-Dibromo-3-Chloropropane
8260B		Air	1,2-Dibromoethane (EDB)
8260B		Air	1,2-Dichlorobenzene
8260B		Air	1,2-Dichloroethane (EDC)
8260B		Air	1,2-Dichloropropane
8260B		Air	1,3,5-Trimethylbenzene
8260B		Air	1,3-Dichlorobenzene
8260B		Air	1,3-Dichloropropane
8260B		Air	1,4-Dichlorobenzene

Accreditation/Certification Summary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Laboratory: Eurofins Albuquerque (Continued)

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

Authority	Program	Identification Number	Expiration Date

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

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

Method Summary

Client: Hilcorp Energy
Project/Site: Lambe 2C

Job ID: 885-711-1

Method	Method Description	Protocol	Laboratory
8015D	Nonhalogenated Organics using GC/MS -Modified (Gasoline Range Organics)	SW846	EET ALB
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET ALB
Subcontract	Fixed Gases	None	
5030C	Collection/Prep Tedlar Bag (P&T)	SW846	EET ALB

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

= , 1120 South 27th Street, Billings, MT 59107

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

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

ANALYTICAL SUMMARY REPORT

March 19, 2024

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

Work Order: B24030513 Quote ID: B15626
Project Name: Lambe 2C

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 3/8/2024 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B24030513-001	SVE-1 (885-711-1)	03/05/24 15:20	03/08/24	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond,/1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 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:

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

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Lambe 2C
Lab ID: B24030513-001
Client Sample ID: SVE-1 (885-711-1)

Report Date: 03/19/24
Collection Date: 03/05/24 15:20
DateReceived: 03/08/24
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	22.31	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Nitrogen	77.44	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Carbon Dioxide	0.24	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Methane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Ethane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Hexanes plus	0.01	Mol %		0.01		GPA 2261-95	03/12/24 12:38 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
Hexanes plus	0.004	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
GPM Total	0.004	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
GPM Pentanes plus	0.004	gpm		0.001		GPA 2261-95	03/12/24 12:38 / jrj
CALCULATED PROPERTIES							
Gross BTU per cu ft @ Std Cond. (HHV)	ND			1		GPA 2261-95	03/12/24 12:38 / jrj
Net BTU per cu ft @ std cond. (LHV)	ND			1		GPA 2261-95	03/12/24 12:38 / jrj
Pseudo-critical Pressure, psia	547			1		GPA 2261-95	03/12/24 12:38 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	03/12/24 12:38 / jrj
Specific Gravity @ 60/60F	1.00			0.001		D3588-81	03/12/24 12:38 / jrj
Air, %	101.92			0.01		GPA 2261-95	03/12/24 12:38 / jrj
- The analysis was not corrected for air.							
COMMENTS							
-						-	03/12/24 12:38 / 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)

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

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental **Work Order:** B24030513 **Report Date:** 03/19/24

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261-95**										Batch: R417974
Lab ID: **B24030510-001ADUP**	12	Sample Duplicate				Run: GCNGA-B_240312A				03/12/24 10:57
Oxygen		22.3	Mol %	0.01				0.3	20	
Nitrogen		77.4	Mol %	0.01				0.1	20	
Carbon Dioxide		0.10	Mol %	0.01				0.0	20	
Hydrogen Sulfide		<0.01	Mol %	0.01					20	
Methane		0.14	Mol %	0.01				13	20	
Ethane		0.01	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				0.0	20	
Lab ID: **LCS031224**	11	Laboratory Control Sample				Run: GCNGA-B_240312A				03/12/24 03:08
Oxygen		0.63	Mol %	0.01	126	70	130			
Nitrogen		6.14	Mol %	0.01	102	70	130			
Carbon Dioxide		0.99	Mol %	0.01	100	70	130			
Methane		74.7	Mol %	0.01	100	70	130			
Ethane		6.04	Mol %	0.01	101	70	130			
Propane		5.03	Mol %	0.01	102	70	130			
Isobutane		1.66	Mol %	0.01	83	70	130			
n-Butane		2.00	Mol %	0.01	100	70	130			
Isopentane		0.99	Mol %	0.01	99	70	130			
n-Pentane		1.00	Mol %	0.01	100	70	130			
Hexanes plus		0.78	Mol %	0.01	98	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

B24030513

Login completed by: Crystal M. Jones
Date Received: 3/8/2024

Reviewed by: gmccartney
Received by: CMJ

Reviewed Date: 3/13/2024
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:	9.8°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

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque, NM 87109
Phone: 505-345-3975 Fax: 505-345-4107

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Freeman, Andy	Carrier Tracking No(s):	COC No: 885-91.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: andy.freeman@et.eurofinsus.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Energy Laboratories, Inc.		Accreditations Required (See note): NELAP - Oregon; State - New Mexico		Job #: 885-711-1
Address: 1120 South 27th Street, ,	Due Date Requested: 3/14/2024			
City: Billings	TAT Requested (days):			
State, Zip: MT, 59107				
Phone:	PO #:			
Email:	WO #:			
Project Name: Lambe 2C	Project #: 88500415			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Fixed Gases)/ Fixed Gases	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SVE-1 (885-711-1)	3/5/24	15:20 Mountain		Air			X	1	B240305I3

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

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

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 3/7/24 14:30	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: Crystal Flores	Date/Time: 3/8/24 0930	Company ELI

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

Ver: 06/08/2021

ICOC No:
885-91

Containers

Count	Container Type	Preservative
1	Tedlar Bag 1L	None

Chain-of-Custody Record

Client: Hilcorp

Mailing Address:

Phone #:

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

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

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

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: Lambe 2C

Project #:

Project Manager: Mitch Killough

Sampler: Brandon Sinclair

On Ice: ☐ Yes ☑ No

# of Coolers: 1

Cooler Temp(including CF): NA (°C)

885-711 COC

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	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	8015 TVPH	Fixed gas TVPH
3-5	1520	air	SVE-1	2 Tedlar									✓			✓	✓

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3/6/24	1232				3/6/24	1232
3/6/24	1730			one courier	3/7/24	0715

Remarks:

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

Login Sample Receipt Checklist

Client: Hilcorp Energy Job Number: 885-711-1

Login Number: 711 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Lowman, Nick

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

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

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

CONDITIONS

Action 333284

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 333284
	Action Type: [REPORT] Alternative Remediation Report (C-141AR)

CONDITIONS

Created By	Condition	Condition Date
nvelez	1. Continue with O & M schedule. 2. Submit next quarterly report by July 15, 2024.	4/25/2024