October 31, 2021

Ms. Emily Hernandez
Bureau Chief, Environmental
New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Subject: **Third Quarter 2021 - Quarterly SVE System Update**
Hilcorp Energy Company
Lambe 2C
API #: 30-045-30747
NMOCD Incident Number: NVF1836050592
San Juan County, New Mexico

To Whom it May Concern:

WSP USA Inc. (WSP), on behalf of Hilcorp Energy Company (Hilcorp), presents the following third quarter 2021 summary report discussing the soil vapor extraction (SVE) system at the Lambe 2C natural gas production well (Site, shown on Figure 1). The layout of the SVE system and piping is shown on Figure 2. This report is being submitted as part of the proposed timeline of remediation events in the *Update Report and Updated Remediation Workplan* dated September 30, 2021 and submitted to the New Mexico Oil Conservation Division (NMOCD). This report documents air sampling and system operations to monitor SVE remediation progress.

As described in the *Update Report and Updated Remediation Workplan*, a pilot test was conducted at the Site by WSP on September 17, 2021. During the pilot test, WSP collected an air sample from the pilot test manifold, on the influent side attached to the wellhead, via high vacuum air sampler. The air sample was collected in a 1-Liter Tedlar bag and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, fixed gas analysis of oxygen and carbon dioxide, and total volatile petroleum hydrocarbons (TVPH) by EPA Method 8015. Prior to collection, the air from the influent side was field screened with a photoionization detector (PID) for organic vapor monitoring (OVM). The pilot test air sample results indicate a TVPH concentration 660 µg/L. Table 1 presents a summary of analytical data collected during the pilot test, with the full analytical laboratory report included in Enclosure A. Table 1 also includes historical data collected in 2019.

Based on the results of the pilot test, a permanent SVE system was installed at the Site. Upon startup, an air sample was collected on September 24, 2021 from the inlet side of the SVE blower and submitted to Hall for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B and TVPH by EPA Method 8015. Analytical results are also included in Table 1, with the analytical laboratory report included in Enclosure A.

During quarterly sampling events, air samples will be submitted for laboratory analysis of BTEX and TVPH to monitor the effective reduction and remediation of soil impacts. The attached Table 2 will be updated during subsequent quarters based on runtime, airflow, and contaminant concentrations measured during each quarter. Additionally, during the operation of the SVE system, regular operation and maintenance (O&M) visits will be conducted semi-monthly (twice per month) by WSP and/or Hilcorp personnel. During O&M visits, personnel will ensure that the generator and SVE system are operating within normal working temperature, pressure, and vacuum range. Any deviations from regular operations will be noted and included in the subsequent quarterly report.

WSP USA
848 EAST 2ND AVENUE
DURANGO CO 81301

Tel.: 970-385-1096
wsp.com

WSP appreciates the opportunity to provide this report to the NMOCD. If you have any questions or comments regarding this work plan, do not hesitate to contact me at (970) 385-1096 or via email at stuart.hyde@wsp.com or Mitch Killough at (713)-757-5247 or at mkillough@hilcorp.com.

Kind regards,

Stuart Hyde, L.G.
Senior Geologist

Ashley Ager, M.S., P.G.
Assistant Vice President

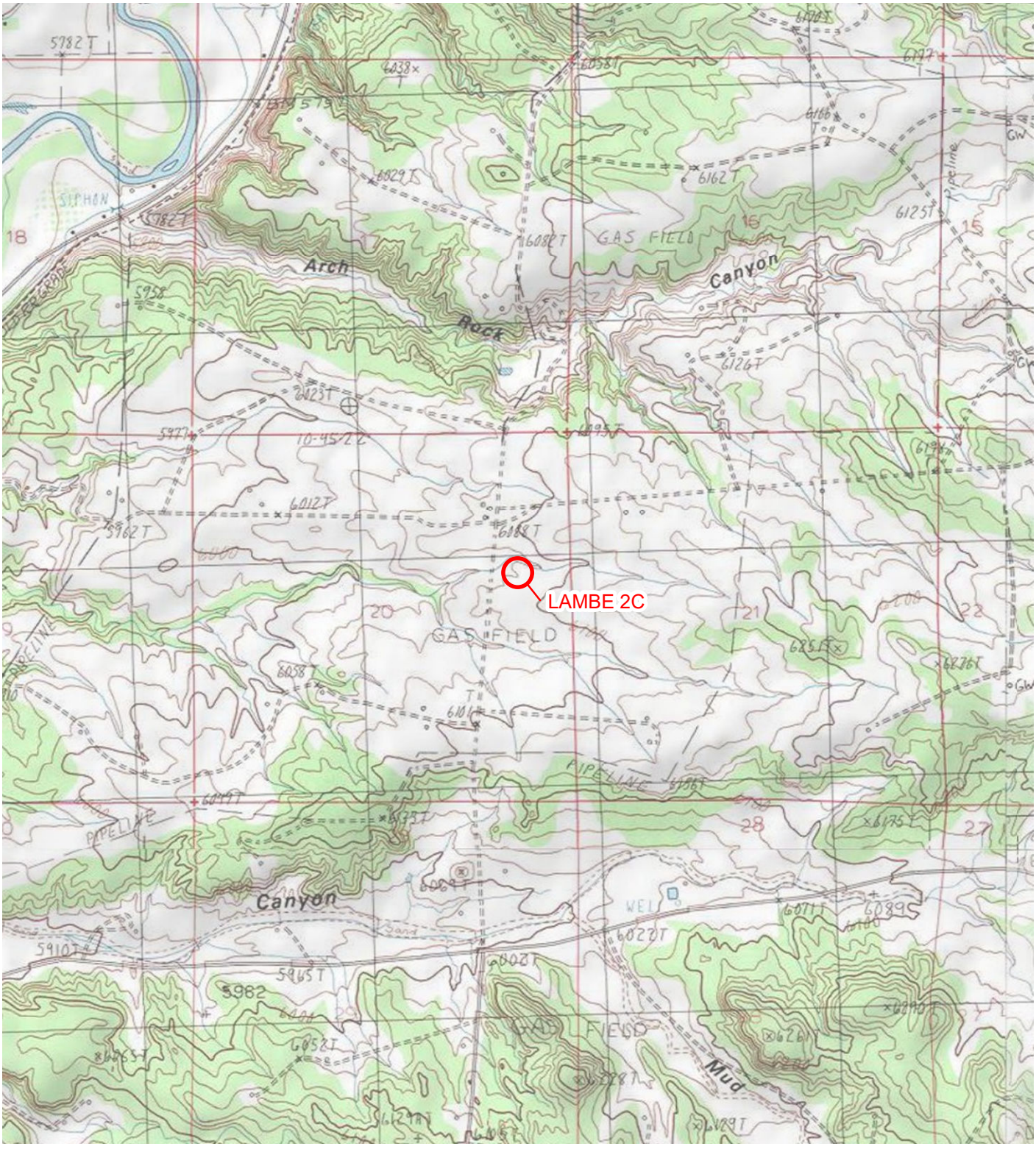
Enclosures:

Figure 1 – Site Location Map
Figure 2 – Estimated ROI and ROE

Table 1 – Air Sample Laboratory Analytical Results
Table 2 – Soil Vapor Extraction System Recovery & Emissions Summary

Enclosure A – Analytical Laboratory Reports

FIGURES



LEGEND

IMAGE COURTESY OF ESRI/USGS

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
LAMBE 2C
SENE SEC 20 T31N R10W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

C:\Users\USTJ689650\OneDrive - WSP O365\HILCORP\TE017818055_LAMBE 2C\MXD\TE017818055_FIG01_SL.mxd

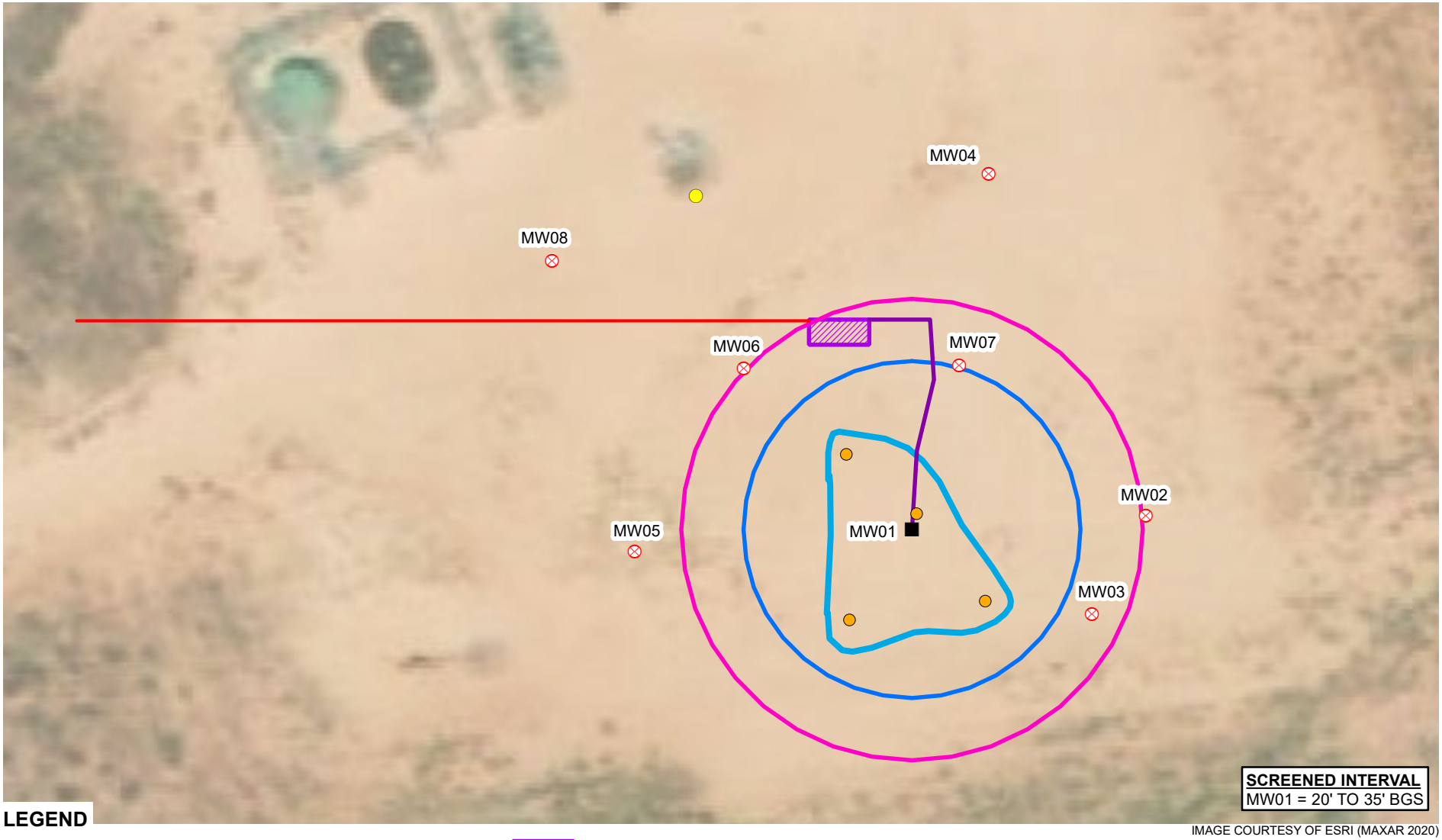


IMAGE COURTESY OF ESRI (MAXAR 2020)

LEGEND

- SVE WELL / MONITORING WELL
- MONITORING WELL
- PROPOSED SOIL CONFIRMATION BORING LOCATIONS
- WELLHEAD
- SVE PIPING
- ELECTRICAL SERVICE LINE
- SVE SKID LOCATION
- REMAINING IMPACTED SOIL
- RADIUS OF EFFECT
- RADIUS OF INFLUENCE

BGS: BELOW GROUND SURFACE
SVE: SOIL VAPOR EXTRACTION

0 40 80
Feet

N

FIGURE 2
ESTIMATED ROI AND ROE
LAMBE 2C
SENE SEC 20 T31N R10W
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

wsp

P:\Hilcorp\GIS\TE017818055_LAMBE 2C\MXD\TE017818055_FIG03_ESTIMATED_ROI_2021.mxd

TABLES

TABLE 1
AIR SAMPLE LABORATORY ANALYTICAL RESULTS

LAMBE 2C
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Sample ID	Sample Date	PID Reading (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
Influent 9/25	9/25/2019	782	6.1	42	<5.0	56	NA
Influent-MW01	10/14/2019	431	7.3	26	2.6	36	3,600
Influent - Pilot Test	9/17/2021	78	<0.10	<0.10	<0.10	1.1	660
Influent-MW01	9/24/2021	97	<0.20	0.94	<0.20	4.3	880

NOTES:
µg/L - micrograms per liter
NA - not analyzed
PID - photo-ionization detector
ppm - parts per million
TVPH- total volatile petroleum hydrocarbons

TABLE 2
SOIL VAPOR EXTRACTION SYSTEM RECOVERY & EMISSIONS SUMMARY

LAMBE 2C
SAN JUAN COUNTY, NEW MEXICO
HILCORP ENERGY COMPANY

Sample Information and Lab Analysis

Date	Total Flow (cf)	Delta Flow (cf)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	TVPH (µg/L)	PID (ppm)
9/24/2021	4,590	4,590	*0.20*	0.94	*0.20*	4.3	880	97
		Average	0.20	0.94	0.20	4.3	880	97

Vapor Extraction Calculations

Date	Flow Rate (cfm)	Benzene (lb/hr)	Toluene (lb/hr)	Ethyl-benzene (lb/hr)	Xylenes (lb/hr)	TVPH (lb/hr)
9/24/2021	51	0.00004	0.0002	0.00004	0.001	0.2
Average	51	0.00004	0.0002	0.00004	0.001	0.2

Pounds Extracted Over Operating Time

Date	Total Operational Hours	Delta Hours	Benzene (lbs)	Toluene (lbs)	Ethyl-benzene (lbs)	Xylenes (lbs)	TVPH (lbs)	TVPH (tons)
9/24/2021	Startup							
9/24/2021	1.5	1.5	0.0001	0.0003	0.0001	0.001	0.3	0.0001
	Total Extracted to Date		0.0001	0.0003	0.0001	0.001	0.3	0.0001

Notes:

cf - cubic feet
cfm - cubic feet per minute
lbs - pounds
lb/hr - pounds per hour
µg/L - micrograms per hour
NA - not analyzed
PID - photoionization detector
ppm - parts per million
TVPH - total volatile petroleum hydrocarbons
Italics and gray indicate laboratory result was less than reporting limit. Reporting limit utilized in calculations.

ENCLOSURE A – ANALYTICAL LABORATORY REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 27, 2021

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

RE: Lambe 2C OrderNo.: 2109998

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/18/2021 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 **2109998**
Date Reported: **9/27/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent Pilot Test
Project: Lambe 2C
Collection Date: 9/17/2021 2:50:00 PM
Lab ID: 2109998-001 **Matrix:** AIR
Received Date: 9/18/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	660	5.0		µg/L	1	9/21/2021 11:11:29 AM
Surr: BFB	685	37.3-213	S	%Rec	1	9/21/2021 11:11:29 AM
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Toluene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Ethylbenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Methyl tert-butyl ether (MTBE)	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2,4-Trimethylbenzene	0.30	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,3,5-Trimethylbenzene	1.2	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2-Dichloroethane (EDC)	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2-Dibromoethane (EDB)	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Naphthalene	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
1-Methylnaphthalene	ND	0.40		µg/L	1	9/21/2021 2:45:00 PM
2-Methylnaphthalene	ND	0.40		µg/L	1	9/21/2021 2:45:00 PM
Acetone	ND	1.0		µg/L	1	9/21/2021 2:45:00 PM
Bromobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Bromodichloromethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Bromoform	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Bromomethane	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
2-Butanone	ND	1.0		µg/L	1	9/21/2021 2:45:00 PM
Carbon disulfide	ND	1.0		µg/L	1	9/21/2021 2:45:00 PM
Carbon tetrachloride	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Chlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Chloroethane	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
Chloroform	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Chloromethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
2-Chlorotoluene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
4-Chlorotoluene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
cis-1,2-DCE	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
cis-1,3-Dichloropropene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2-Dibromo-3-chloropropane	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
Dibromochloromethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Dibromomethane	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
1,2-Dichlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,3-Dichlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,4-Dichlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Dichlorodifluoromethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1-Dichloroethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1-Dichloroethene	ND	0.10		µg/L	1	9/21/2021 2:45:00 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	Value above quantitation range
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		

Analytical Report
Lab Order **2109998**
Date Reported: **9/27/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent Pilot Test
Project: Lambe 2C
Collection Date: 9/17/2021 2:50:00 PM
Lab ID: 2109998-001 **Matrix:** AIR
Received Date: 9/18/2021 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,2-Dichloropropane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,3-Dichloropropane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
2,2-Dichloropropane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1-Dichloropropene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Hexachlorobutadiene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
2-Hexanone	ND	1.0		µg/L	1	9/21/2021 2:45:00 PM
Isopropylbenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
4-Isopropyltoluene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
4-Methyl-2-pentanone	ND	1.0		µg/L	1	9/21/2021 2:45:00 PM
Methylene chloride	ND	0.30		µg/L	1	9/21/2021 2:45:00 PM
n-Butylbenzene	ND	0.30		µg/L	1	9/21/2021 2:45:00 PM
n-Propylbenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
sec-Butylbenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Styrene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
tert-Butylbenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1,1,2-Tetrachloroethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1,2,2-Tetrachloroethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Tetrachloroethene (PCE)	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
trans-1,2-DCE	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
trans-1,3-Dichloropropene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2,3-Trichlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2,4-Trichlorobenzene	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1,1-Trichloroethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,1,2-Trichloroethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Trichloroethene (TCE)	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Trichlorofluoromethane	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
1,2,3-Trichloropropane	ND	0.20		µg/L	1	9/21/2021 2:45:00 PM
Vinyl chloride	ND	0.10		µg/L	1	9/21/2021 2:45:00 PM
Xylenes, Total	1.1	0.15		µg/L	1	9/21/2021 2:45:00 PM
Surr: Dibromofluoromethane	94.1	70-130		%Rec	1	9/21/2021 2:45:00 PM
Surr: 1,2-Dichloroethane-d4	87.3	70-130		%Rec	1	9/21/2021 2:45:00 PM
Surr: Toluene-d8	123	70-130		%Rec	1	9/21/2021 2:45:00 PM
Surr: 4-Bromofluorobenzene	90.3	70-130		%Rec	1	9/21/2021 2:45:00 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	Value above quantitation range
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		

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ANALYTICAL SUMMARY REPORT

September 23, 2021

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

Work Order: G21090337

Project Name: Not Indicated

Energy Laboratories Inc. Gillette WY received the following 1 sample for Hall Environmental on 9/21/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G21090337-001	2109998-001B; Influent Pilot Test	09/17/21 14:50	09/21/21	Air	Natural Gas Analysis - BTU Natural Gas Analysis - Compressibility Factor Natural Gas Analysis - GPM Natural Gas Analysis - Molecular Weight Natural Gas Analysis - Routine Natural Gas Analysis - Pressure Base Natural Gas Analysis - Psuedo-Critical Pressure Natural Gas Analysis - Psuedo-Critical Temperature Natural Gas Analysis - Specific Gravity Natural Gas Analysis - Temperature Base

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, 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 tests results, please contact your Project Manager.

Report Approved By:

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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 2109998-001B; Influent Pilot Test
Location:
Lab ID: G21090337-001

Report Date: 09/23/21
Collection Date: 09/17/21 14:50
Date Received: 09/21/21
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	12.894	Mol %		GPA 2261	09/22/21 15:50 / blb
Nitrogen	80.933	Mol %		GPA 2261	09/22/21 15:50 / blb
Carbon Dioxide	6.173	Mol %		GPA 2261	09/22/21 15:50 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Methane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Ethane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Propane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Isobutane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
n-Butane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Isopentane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
n-Pentane	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
Hexanes plus	< 0.001	Mol %		GPA 2261	09/22/21 15:50 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	< 0.0003	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Propane	< 0.0003	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Isobutane	< 0.0003	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM n-Butane	< 0.0003	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Isopentane	< 0.0004	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM n-Pentane	< 0.0004	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Hexanes plus	< 0.0004	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Pentanes plus	< 0.0004	gal/MCF		GPA 2261	09/22/21 15:50 / blb
GPM Total	< 0.0004	gal/MCF		GPA 2261	09/22/21 15:50 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	09/22/21 15:50 / blb
Calculation Temperature Base	60	°F		GPA 2261	09/22/21 15:50 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	09/22/21 15:50 / blb
Molecular Weight	29.51	unitless		GPA 2261	09/22/21 15:50 / blb
Pseudo-critical Pressure, psia	560	psia		GPA 2261	09/22/21 15:50 / blb
Pseudo-critical Temperature, deg R	254	deg R		GPA 2261	09/22/21 15:50 / blb
Specific Gravity (air=1.000)	1.022	unitless		GPA 2261	09/22/21 15:50 / blb
Gross BTU per cu ft @ std cond, dry	< 0.01	BTU/cu ft		GPA 2261	09/22/21 15:50 / blb
Gross BTU per cu ft @ std cond, wet	< 0.01	BTU/cu ft		GPA 2261	09/22/21 15:50 / blb

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

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QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental **Work Order:** G21090337 **Report Date:** 09/23/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261**									Analytical Run: R266925
Lab ID: **ICV-2109221415**	Initial Calibration Verification Standard								09/22/21 14:15
Oxygen	0.394	Mol %	0.001	98	75	110			
Nitrogen	5.131	Mol %	0.001	102	90	110			
Carbon Dioxide	4.906	Mol %	0.001	99	90	110			
Hydrogen Sulfide	0.127	Mol %	0.001	128	100	136			
Methane	73.196	Mol %	0.001	100	90	110			
Ethane	5.004	Mol %	0.001	101	90	110			
Propane	5.002	Mol %	0.001	100	90	110			
Isobutane	1.986	Mol %	0.001	99	90	110			
n-Butane	1.967	Mol %	0.001	98	90	110			
Isopentane	0.985	Mol %	0.001	98	90	110			
n-Pentane	0.995	Mol %	0.001	99	90	110			
Hexanes plus	0.307	Mol %	0.001	102	90	110			
Lab ID: **CCV-2109221435**	Continuing Calibration Verification Standard								09/22/21 14:36
Oxygen	0.615	Mol %	0.001	103	90	110			
Nitrogen	1.306	Mol %	0.001	93	85	110			
Carbon Dioxide	0.959	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.025	Mol %	0.001	100	70	130			
Methane	93.523	Mol %	0.001	100	90	110			
Ethane	1.017	Mol %	0.001	102	90	110			
Propane	1.012	Mol %	0.001	101	90	110			
Isobutane	0.495	Mol %	0.001	99	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.200	Mol %	0.001	100	90	110			
Hexanes plus	0.154	Mol %	0.001	103	90	110			
Lab ID: **CCV-2109221600**	Continuing Calibration Verification Standard								09/22/21 16:01
Oxygen	0.620	Mol %	0.001	103	90	110			
Nitrogen	1.348	Mol %	0.001	96	85	110			
Carbon Dioxide	0.962	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.024	Mol %	0.001	96	70	130			
Methane	93.484	Mol %	0.001	100	90	110			
Ethane	1.014	Mol %	0.001	101	90	110			
Propane	1.008	Mol %	0.001	101	90	110			
Isobutane	0.494	Mol %	0.001	99	90	110			
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.199	Mol %	0.001	99	90	110			
n-Pentane	0.199	Mol %	0.001	99	90	110			
Hexanes plus	0.154	Mol %	0.001	103	90	110			
Method: **GPA 2261**									Batch: R266925
Lab ID: **G21090337-001ADUP**	Sample Duplicate				Run: Varian GC_210922A				09/22/21 15:55
Oxygen	12.890	Mol %	0.001				0.0	10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental **Work Order:** G21090337 **Report Date:** 09/23/21

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261**									Batch: R266925
Lab ID: **G21090337-001ADUP**	Sample Duplicate				Run: Varian GC_210922A			09/22/21 15:55	
Nitrogen	80.927	Mol %	0.001				0.0	10	
Carbon Dioxide	6.183	Mol %	0.001				0.2	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	< 0.001	Mol %	0.001					10	
Ethane	< 0.001	Mol %	0.001					10	
Propane	< 0.001	Mol %	0.001					10	
Isobutane	< 0.001	Mol %	0.001					10	
n-Butane	< 0.001	Mol %	0.001					10	
Isopentane	< 0.001	Mol %	0.001					10	
n-Pentane	< 0.001	Mol %	0.001					10	
Hexanes plus	< 0.001	Mol %	0.001					10	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

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Work Order Receipt Checklist

Hall Environmental

G21090337

Login completed by: Chantel S. Johnson
Date Received: 9/21/2021
Reviewed by: Misty Stephens
Received by: csj
Reviewed Date: 9/23/2021
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:	°C		
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.

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: clients.hallenvironmental.com

CHAIN OF CUSTODY RECORD 1 1

SUB CONTRATOR:	**Energy Labs-Gillette**	COMPANY: **Energy Laboratories**	PHONE: **(866) 686-7175**	FAX:	
ADDRESS:	**400 W Boxelder Rd**		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	**Gillette, WY 82718**				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2109998-001B	Influent Pilot Test	TEDLAR	Air	9/17/2021 2:50:00 PM	1	Natural Gases (CO2, O2)

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: 9/20/2021	Time: 3:25 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 9/21/2021	Time: 0900
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

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

FOR LAB USE ONLY
Temp of samples ____ °C Attempt to Cool ? ____
Comments: G2109033 7

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Albuquerque, NM 87109
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Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2109998 RcptNo: 1

Received By: Sean Livingston 9/18/2021 9:00:00 AM

Completed By: Sean Livingston 9/18/2021 10:30:53 AM

Reviewed By: 9/18/21

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: SLL 9/18/21

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	5.8	Good				

Chain-of-Custody Record

Client: Hilcorp Energy Company
Attn: Mitch Killough
Mailing Address:
Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Lambe 2C
Project #:
Project Manager: WSP - Danny Burns
Sampler: DB
On Ice: ☒ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 5.8 ± 0 = 5.8 (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2109998	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) VOCs	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed gas O_2 + CO_2
9-17-21	14:50	Air	Influent Pilot Test	2-Tedlar	—	001		X						X			X

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9-17-21	1600			Walk	9/17/21	1600
9/17/21	1749			Courier	9/18/21	9:00

Remarks:
cc: danny.burns@wsp.com
devin.hencmann@wsp.com
stuart.hyde@wsp.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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September 30, 2021

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

RE: Lambe 2C OrderNo.: 2109E86

Dear Mitch Killough:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/25/2021 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 **2109E86**
Date Reported: **9/30/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent MW01
Project: Lambe 2C
Collection Date: 9/24/2021 2:20:00 PM
Lab ID: 2109E86-001 **Matrix:** AIR **Received Date:** 9/25/2021 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	880	10		µg/L	2	9/27/2021 10:38:36 AM
Surr: BFB	515	37.3-213	S	%Rec	2	9/27/2021 10:38:36 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.20		µg/L	2	9/27/2021 10:38:36 AM
Toluene	0.94	0.20		µg/L	2	9/27/2021 10:38:36 AM
Ethylbenzene	ND	0.20		µg/L	2	9/27/2021 10:38:36 AM
Xylenes, Total	4.3	0.40		µg/L	2	9/27/2021 10:38:36 AM
Surr: 4-Bromofluorobenzene	93.6	70-130		%Rec	2	9/27/2021 10:38:36 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2109E86 RcptNo: 1

Received By: **Tracy Casarrubias** 9/25/2021 8:48:00 AM

Completed By: **Juan Rojas** 9/25/2021 10:02:14 AM

Reviewed By: DAD 9/25/21

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: TME 9.25.21

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	5.3	Good				
2	8.4	Good				

Chain-of-Custody Record

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

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Lambe 2C
Project #:
Project Manager: WSP- Danny Burns
Sampler: DB
On Ice: ☐ Yes ☐ No
# of Coolers: 2
Cooler Temp(including CF): See Remarks (°C)

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2109E86	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)
9-24-21	1420	Air	Influent MW01	1-Tedlar	—	-001	X	X								

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
9-24-21	1730			courier	9.25.21	8:48
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks:
cooler 1: 5.3 -Ø = 5.3
cooler 2: 8.4 -Ø = 8.4

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

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

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

CONDITIONS

Action 61117

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 61117
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record. See App ID 124692 for most updated status.	9/27/2022