NV

ENSOLUM

April 11, 2022

New Mexico Oil Conservation Division
New Mexico Energy, Minerals, and Natural Resources Department
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: First Quarter 2022 – Solar SVE System Update
Scott #4M
San Juan County, New Mexico
Hilcorp Energy Company
NMOCD Incident Number: NCE2003650476
Ensolum Project No. 07A1988016

To Whom it May Concern:

Ensolum, LLC (Ensolum), on behalf of Hilcorp Energy Company (Hilcorp), presents this *First Quarter 2022 – Solar SVE System Update* report summarizing the solar soil vapor extraction (SVE) system performance at the Scott #4M natural gas production well (Site, shown on Figure 1). The solar soil vapor extraction (SVE) system has operated since January 2021 to remediate subsurface soil impacts of approximately 42 barrels (bbls) of natural gas condensate released from an aboveground storage tank. This report summarizes Site activities performed in January, February, and March of 2022.

SVE SYSTEM SPECIFICATIONS

Currently, a solar SVE system is operating at the Site consisting of a 1/3 horsepower Atlantic Blower AB-91 blower capable of producing a flow of 22 standard cubic feet per minute (scfm) and a vacuum of 29 inches of water column. Three solar panels, with a total of 915 watts of maximum power output, charge four 12-volt deep cycle batteries that subsequently power the SVE blower. The system operation is controlled by a timer adjusted throughout the year run based on available nominal daylight hours (generally 9 hours per day during the winter and 14 hours per day during the summer).

Seven SVE wells are currently present at the Site (SVE01 through SVE07 shown on Figure 2). SVE wells SVE01 through SVE03 are screened at depth intervals ranging from 25 to 45 feet below ground surface (bgs) in order to remediate deep soil impacts located at the Site. SVE wells SVE04 through SVE 07 are screened at depth intervals ranging from 5 to 25 feet bgs in order to remediate shallow soil impacts at the Site.

FIRST QUARTER 2022 ACTIVITIES

During the first quarter of 2022, WSP USA Inc. (WSP, third-party environmental consultant for the Site) 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. During Site visits, the system timer and the angle of the solar panels were adjusted to account for seasonal variations and maximize system efficiency. Field notes taken during O&M visits are presented in Appendix A.

During the first quarter of 2022, SVE wells SVE01 (deep well) and SVE05 (shallow well) were operated in order to induce flow in both the shallow and deep impacts zones. Between January 7 and March 15, 2022, there were an estimated 551 total hours of available nominal daylight during which time the solar SVE system could operate. Site specific nominal daylight hours were presented in the approved *Update Report and Updated Remediation Workplan* prepared by WSP (dated October 6, 2021) and were based on the Site locations and estimates by the National Oceanic and Atmospheric Administration's National Weather Service. Between these dates, the actual runtime for the system was 604 hours, equating to a first quarter 2022 runtime efficiency of 109.6 percent (%). For solar SVE systems, runtime efficiency can be greater than 100 % when the solar panels charge the system's batteries during daylight hours and continue to run the SVE blower for a longer amount of time than the nominal daylight hours available at the Site. Appendix B presents photographs of the runtime meter taken during the first and last field visits of the quarter. Attached Table 1 presents the SVE system runtime compared to nominal available daylight hours per month.

A first quarter air sample was collected on March 15, 2022 from the inlet side of the SVE blower using a high vacuum air sampler. The air sample was collected directly into a 1-Liter Tedlar® bag and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis of total volatile petroleum hydrocarbons (TVPH) by United States Environmental Protection Agency (EPA) Method 8015D, volatile organic compounds (VOCs) by EPA Method 8260B, and fixed gas analysis of oxygen and carbon dioxide. Prior to collection, the air from the influent side was field screened with a photoionization detector (PID) for organic vapor monitoring (OVM). Table 2 presents a summary of analytical data collected during this sampling event, with the full laboratory analytical report included in Appendix C. Table 2 also includes historical data collected during past sampling events.

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, 4,762 pounds (2.4 tons) of TVPH have been removed by the system to date.

RECOMMENDATIONS

Bi-weekly operation and maintenance (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.

In addition, Hilcorp is currently working to upgrade the SVE system at the Site, as specified in *Updated Pilot Testing Report*, submitted by WSP to the New Mexico Oil Conservation Division (NMOCD) on December 15, 2021. Specifically, Hilcorp is working with the local electrical utility in order to install a permanent power drop at the Site capable of powering a larger vacuum blower. Concurrently, Hilcorp is currently sourcing a new SVE system that is capable of approximately 50 standard cubic feet per minute of flow at 77 inches of water column. Hilcorp will include details of the new system in the forthcoming second quarter 2022 report.

We appreciate the opportunity to provide this report to the NMOCD. If you should have any questions or comments regarding this proposal, please contact the undersigned.

Sincerely,
Ensolum, LLC

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

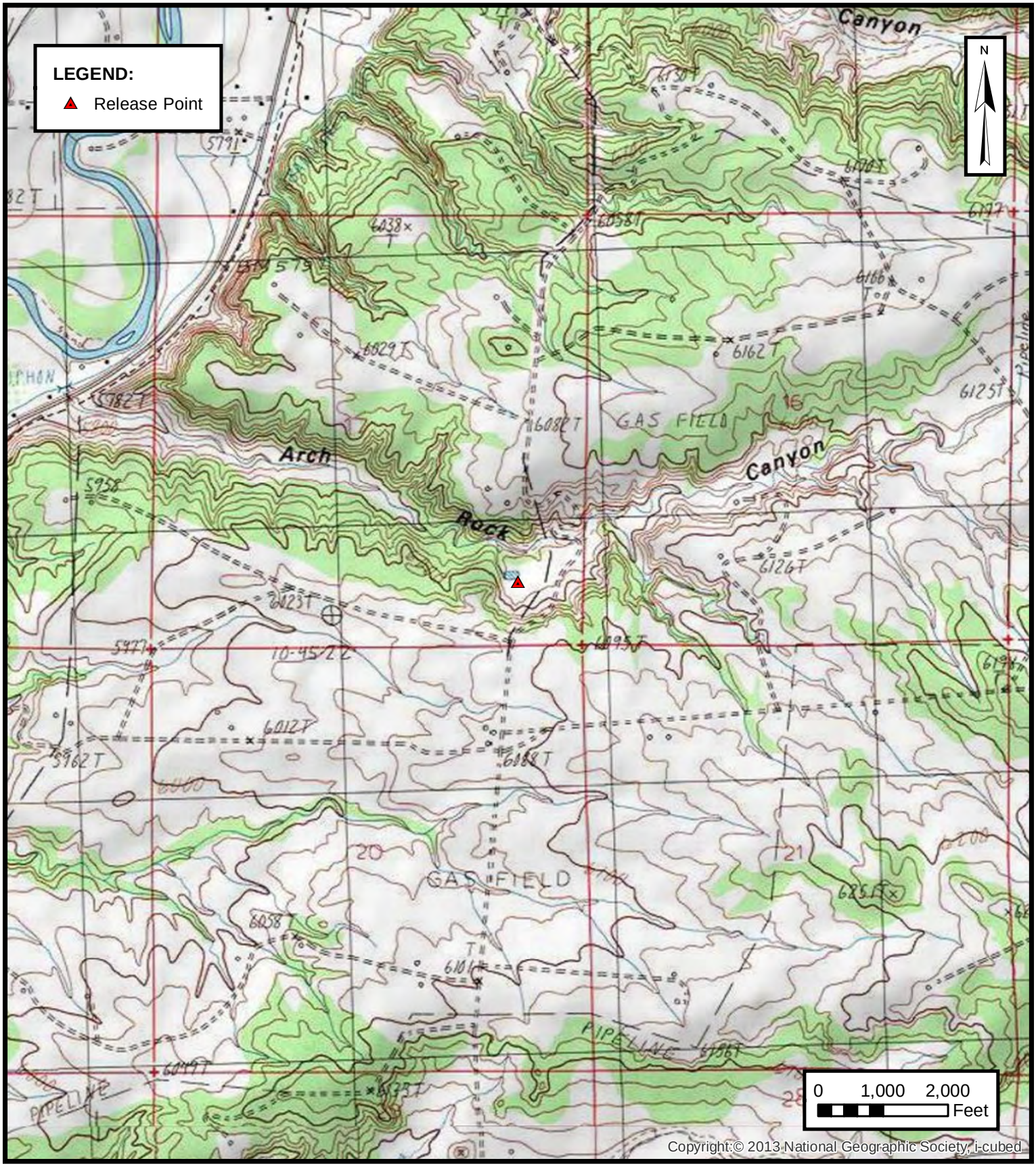
Ashley Ager, MS, PG
Development Manager, Geologist
(970) 946-1093
aager@ensolum.com

Attachments:

Figure 1	Site Location
Figure 2	SVE System Configuration
Table 1	Soil Vapor Extraction System Runtime Calculations
Table 2	Soil Vapor Extraction System Air 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



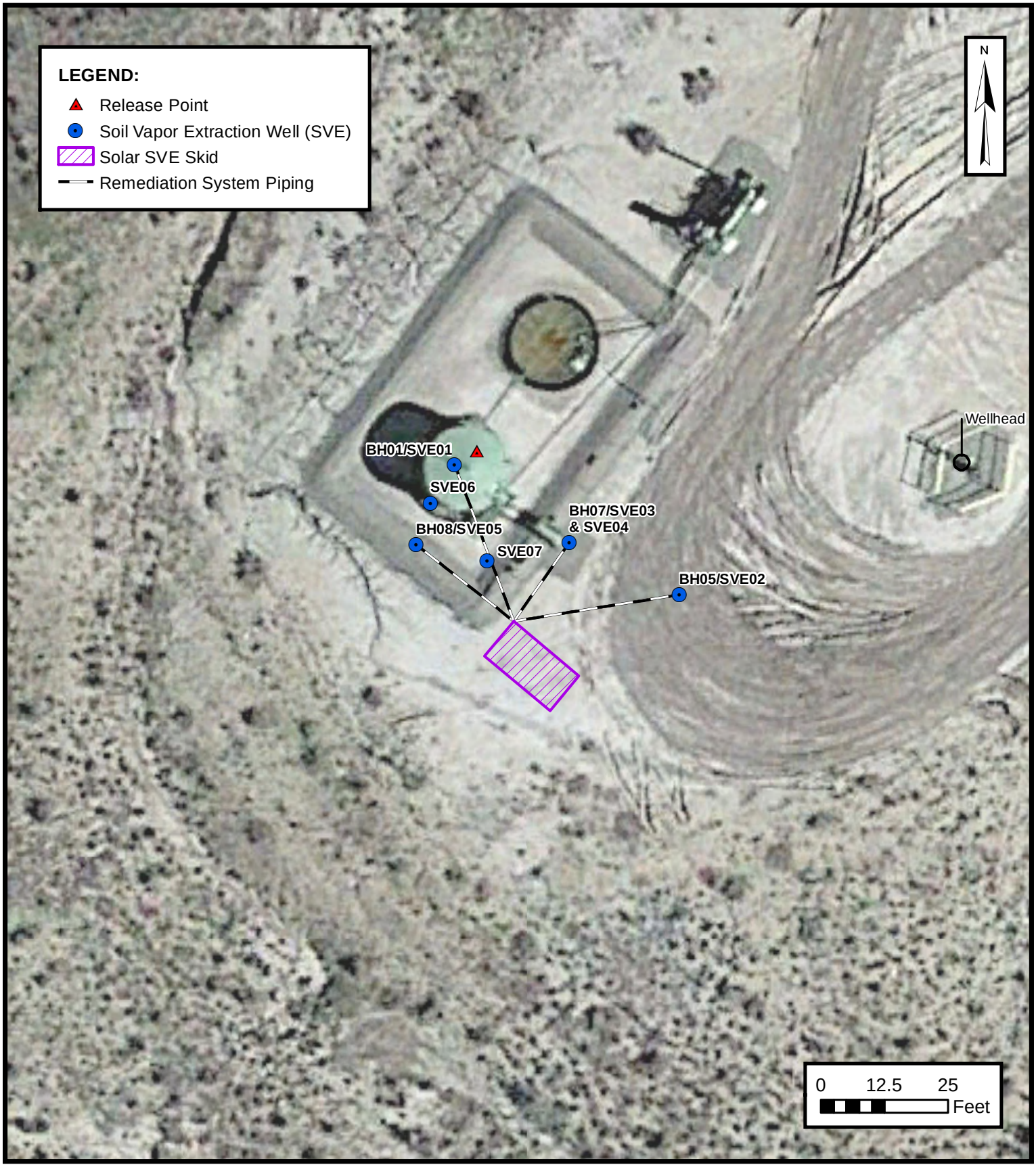
ENSOLUM
Environmental & Hydrogeologic Consultants

SITE LOCATION

HILLCORP ENERGY COMPANY
SCOTT 4M
SESE SEC 17 T31N R1OW, San Juan County, New Mexico
36.893345° N, 107.899185° W

PROJECT NUMBER: 07A1988016

FIGURE
1



ENSOLUM
Environmental & Hydrogeologic Consultants

SVE SYSTEM CONFIGURATION

HILLCORP ENERGY COMPANY
SCOTT 4M
SESE SEC 17 T31N R1OW, San Juan County, New Mexico
36.893345° N, 107.899185° W

PROJECT NUMBER: 07A1988016

FIGURE
2

ENSOLUM

TABLES

TABLE 1
SOIL VAPOR EXTRACTION SYSTEM RUNTIME CALCULATIONS
Hilcorp Energy Company - Scott #4M
San Juan County, New Mexico

Ensolum Project No. 07A1988016

Date	Total Operational Hours	Delta Hours
1/7/2022	3,243.0	---
3/15/2022	3,847.1	604.1

Time Period	January 7 to January 31, 2022	February 1 to February 28, 2022	March 1 to March 15, 2022
Days	24	28	15
Avg. Nominal Daylight Hours	8	8	9
Available Runtime Hours	192	224	135

Quarterly Available Daylight Runtime Hours	**551**
Quarterly Runtime Hours	**604.1**
Quarterly % Runtime	**109.6%**

Month	Days	Nominal Daylight Hours	Total Month Hours
January	31	8	248
February	28	8	224
March	31	9	279
April	30	10	300
May	31	11	341
June	30	12	360
July	31	12	372
August	31	11	341
September	30	10	300
October	31	10	310
November	30	9	270
December	31	8	248

ENSOLUM

TABLE 2
SOIL VAPOR EXTRACTION SYSTEM AIR ANALYTICAL RESULTS
Hilcorp Energy Company - Scott #4M
San Juan County, New Mexico

Ensolum Project No. 07A1988016

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)	Oxygen (%)	Carbon Dioxide (%)
2/1/2021	118	85	240	10	64	18,000	--	--
9/7/2021	53	40	280	24	240	15,000	--	--
9/29/2021	316	210	1,800	240	2,200	85,000	--	--
12/2/2021	232	48	320	32	310	50,000	16.6	1.03
3/15/2022	402	38	430	63	660	18,000	20.8	0.473

Notes:

µg/L: microgram per liter

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

%: percent

--: not sampled

ENSOLUM

TABLE 3
SOIL VAPOR EXTRACTION SYSTEM MASS REMOVAL AND EMISSIONS
Hilcorp Energy Company - Scott #4M
San Juan County, New Mexico

Ensolum Project No. 07A1988016

Flow and Laboratory Analysis

Date	PID (ppm)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	TVPH (µg/L)
2/1/2021	118	85	240	10	64	18,000
9/7/2021	53	40	280	24	240	15,000
9/29/2021	316	210	1,800	240	2,200	85,000
12/2/2021	232	48	320	32	310	50,000
3/15/2022	402	38	430	63	660	18,000
Average	224	84	614	74	695	37,200

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)
2/1/2021	22	1,980	1,980	0.0070	0.020	0.00079	0.0053	1.5
9/7/2021	22	2,841,168	2,839,188	0.0051	0.021	0.0014	0.013	1.4
9/29/2021	10	2,979,528	138,360	0.0047	0.039	0.0049	0.046	1.9
12/2/2021	3.5	3,106,158	126,630	0.0017	0.014	0.0018	0.016	0.88
3/15/2022	8.0	3,519,438	413,280	0.0013	0.011	0.0014	0.015	1.0
			Average	0.004	0.021	0.002	0.019	1.322

Flow and Laboratory Analysis

Date	Total SVE System Hours	Delta Hours	Benzene (pounds)	Toluene (pounds)	Ethylbenzene (pounds)	Total Xylenes (pounds)	TVPH (pounds)	TVPH (tons)
2/1/2021	2	2	0.010	0.030	0.0012	0.0079	2.2	0.0011
9/7/2021	2,152	2,151	11	46	3.0	27	2,920	1.5
9/29/2021	2,383	231	1.1	9.0	1.1	11	431	0.22
12/2/2021	2,986	603	1.0	8.4	1.1	9.9	533	0.27
3/15/2022	3,847	861	1.1	9.7	1.2	12	876	0.44
		Total Mass Recovery to Date	14	73	6.4	60	4,762	2.4

Notes:

cf: cubic feet

cfm: cubic feet per minute

µg/L: micrograms per liter

lb/hr: pounds per hour

--: not sampled

PID: photoionization detector

ppm: parts per million

TVPH: total volatile petroleum hydrocarbons

gray: laboratory reporting limit used for calculating emissions

ENSOLUM

APPENDIX A

Field Notes

SCOTT

SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1/7/22 O&M PERSONNEL: E. Carroll

TIME ONSITE: 13:30 TIME OFFSITE: 14:15

SVE SYSTEM

SVE STATUS: ON Running SVE BLOWER HOURS: 3243 @ 1342

GENERATOR HOURS: NA

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

MANIFOLD INLET VACUUM: 24 IWC KO TANK DRAIN: N

AFTER FILTER VACUUM: NA BYPASS STATUS: 0%

EXHAUST TEMPERATURE: BLOWER GREASE: N

EXHAUST PRESSURE: GENERATOR GREASE: N

~~INLET~~ ~~EXHAUST~~ FLOW: 230 FPM Thermoanemometer INLINE FILTER CLEAN: N

SVE SYSTEM

EXHAUST PID: 395 AIR SAMPLE COLLECTION: N

MANIFOLD	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
INLET	24	441	9	-

COMMENTS/OTHER MAINTENANCE:

SCOTT 4M SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 1/20/22 | O&M PERSONNEL: Reece Hanson
TIME ONSITE: 1305 | TIME OFFSITE: 1400

SVE SYSTEM - MONTHLY O&M

SVE ALARMS:		KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	3363.3	1308
Voltage In	44.3	1310
Amperage In	9.6	
Voltage Out	27.2	
Amperage Out	15.1	
KiloWatts	0.41	
KiloWatt-Hours	2.5	
Solar Controller Status	Floating	
Pre K/O Vacuum (IWC)	8 23	
Inlet Rotameter Flow (scfm)	8	
Inlet PID	249.2	1322
Exhaust PID	271.7	1325
Solar Panel Angle	-	-
K/O Tank Drum Level	1"	1345
K/O Liquid Drained (gallons)	-	-
Timer Setting	7:30 AM to 5 PM	

TIMER SETTINGS	
Month	Timer Setting
January	8 AM to 7 PM
February	8 AM to 7 PM
March	8 AM to 8 PM
April	8 AM to 9 PM
May	7 AM to 9 PM
June	6 AM to 9 PM
July	6 AM to 9 PM
August	7 AM to 9 PM
September	8 AM to 9 PM
October	8 AM to 8 PM
November	9 AM to 8 PM
December	8 AM to 6 PM

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	16.3	40.7		
SVE02				
SVE03				
SVE04				
SVE05	20.5	228.6		
SVE06 (OBSERVATION WELL)				
SVE07 (OBSERVATION WELL)				

COMMENTS/OTHER MAINTENANCE:

SVE-05 - gasket on cap starting to crack

SCOTT 4M SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 2/3/22 O&M PERSONNEL: Reece Henson
TIME ONSITE: 1445 TIME OFFSITE: 1520

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: – KO TANK HIGH LEVEL: –

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	3489.3	1446
Voltage In	9.0 45.2	1448
Amperage In	9.0	
Voltage Out	27.2	
Amperage Out	14.7	
KiloWatts	0.400	
KiloWatt-Hours	3.3	
Solar Controller Status	Floating	
Pre K/O Vacuum (IWC)	24	
Inlet Rotameter Flow (scfm)	7.5	
Inlet PID	345.7	1457
Exhaust PID	398.1	
Solar Panel Angle	–	
K/O Tank Drum Level	–	
K/O Liquid Drained (gallons)	–	
Timer Setting	7:30 AM to 5 PM	see comments

Current time on timer - 4:30

TIMER SETTINGS	
Month	Timer Setting
January	8 AM to 7 PM
February	8 AM to 7 PM
March	8 AM to 8 PM
April	8 AM to 9 PM
May	7 AM to 9 PM
June	6 AM to 9 PM
July	6 AM to 9 PM
August	7 AM to 9 PM
September	8 AM to 9 PM
October	8 AM to 8 PM
November	9 AM to 8 PM
December	8 AM to 6 PM

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID:	SAMPLE TIME:
Analytes:	TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS	SVE 05 + 01

Change in Well Operation:

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01		98.8		
SVE02				
SVE03				
SVE04				
SVE05		339.6		
SVE06 (OBSERVATION WELL)				
SVE07 (OBSERVATION WELL)				

COMMENTS/OTHER MAINTENANCE:

Fix current time on timer, set to 8AM to 7PM

Location Scott 4M Date 2/22/22

Project / Client HEC

125,

11:30 EC Onsite for O&M

Outback Power

IN: 49.2V

OUT: 27.2V

0.860 KW 0.3 KWH

AUX: OFF Floating

Batt 1: 13.2 Batt 3: 13.0

Batt 2: 13.0 Batt 4: 13.0

GFCI tripped on inverter reset

~~reset~~ System running

Outback

In: ~~38~~40.4 6.9 A

Out: 25.7 10.3 A

0.260 KW 0.0 KWH

Aux: off MPPT Bulk

Hours: 3645.9

Vac: 23 inwc

Flow: 9 SCFM

SCOTT 4M SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3/1/22 O&M PERSONNEL: E. Carroll
TIME ONSITE: 11:30 TIME OFFSITE: 12:30

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: none KO TANK HIGH LEVEL none

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	3713.8	11:30
Voltage In	43.1	
Amperage In	12.4	
Voltage Out	28.8	
Amperage Out	18.0	
KiloWatts	0.510	
KiloWatt-Hours	2.1	
Solar Controller Status	Absorbing	
Pre K/O Vacuum (IWC)	24	
Inlet Rotameter Flow (scfm)	8	
Inlet PID	346	
Exhaust PID	392	
Solar Panel Angle	30°	
K/O Tank Drum Level	Empty	
K/O Liquid Drained (gallons)	none	
Timer Setting	8AM - 7PM	

TIMER SETTINGS	
Month	Timer Setting
January	8 AM to 7 PM
February	8 AM to 7 PM
March	8 AM to 8 PM
April	8 AM to 9 PM
May	7 AM to 9 PM
June	6 AM to 9 PM
July	6 AM to 9 PM
August	7 AM to 9 PM
September	8 AM to 9 PM
October	8 AM to 8 PM
November	9 AM to 8 PM
December	8 AM to 6 PM

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		169		
SVE02		38.3		
SVE03		42.2		
SVE04		24.7		
SVE05		445		
SVE06 (OBSERVATION WELL)				
SVE07 (OBSERVATION WELL)				

COMMENTS/OTHER MAINTENANCE:

Blow down SVE01 & SVE05

SCOTT 4M SVE SYSTEM
BIWEEKLY O&M FORM

DATE: 3/15/22 O&M PERSONNEL: E. Carroll
TIME ONSITE: 11:00 TIME OFFSITE: 11:50

SVE SYSTEM - MONTHLY O&M

SVE ALARMS: | KO TANK HIGH LEVEL

SVE SYSTEM	READING	TIME
Blower Hours (take photo)	3847.1	11:15
Voltage In	41.6	~~48.2~~
Amperage In	18.1	
Voltage Out	27.0	
Amperage Out	26.9	
KiloWatts	0.740	
KiloWatt-Hours	1.3	
Solar Controller Status	MPPT Bulk	
Pre K/O Vacuum (IWC)	24	
Inlet Rotameter Flow (scfm)	8	
Inlet PID	402	
Exhaust PID	385	
Solar Panel Angle	3	
K/O Tank Drum Level	Empty	
K/O Liquid Drained (gallons)	NA	
Timer Setting	7:30 - 19:30	

TIMER SETTINGS	
Month	Timer Setting
January	8 AM to 7 PM
February	8 AM to 7 PM
March	8 AM to 8 PM
April	8 AM to 9 PM
May	7 AM to 9 PM
June	6 AM to 9 PM
July	6 AM to 9 PM
August	7 AM to 9 PM
September	8 AM to 9 PM
October	8 AM to 8 PM
November	9 AM to 8 PM
December	8 AM to 6 PM

Timer Set 7:30 - 19:30
Sunrise 7:20 Sunset 19:29

SVE SYSTEM - QUARTERLY SAMPLING

SAMPLE ID: SAMPLE TIME: 11:30
Analytes: TVPH (8015), VOCs (8260), Fixed Gas (CO/CO2/O2)
OPERATING WELLS: SVE01 & SVE05

Change in Well Operation:

LOCATION	VACUUM (IWC)	PID HEADSPACE (PPM)	FLOW (CFM)	ADJUSTMENTS
SVE01				
SVE02	0.0	51.2		
SVE03	0.1	346		
SVE04	0.0	25.1		
SVE05				
SVE06 (OBSERVATION WELL)				
SVE07 (OBSERVATION WELL)				

COMMENTS/OTHER MAINTENANCE:

ENSOLUM

APPENDIX B

Project Photographs

PROJECT PHOTOGRAPHS
Scott #4M
San Juan County, New Mexico
Hilcorp Energy Company

Photograph 1 Runtime meter taken on January 7, 2022	
Photograph 2 Runtime meter taken on March 15, 2022	

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

ENSOLUM

APPENDIX C

Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

March 23, 2022

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

RE: Scott 4M OrderNo.: 2203826

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 1 sample(s) on 3/16/2022 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 **2203826**
Date Reported: **3/23/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 3-15-22
Project: Scott 4M
Collection Date: 3/15/2022 11:30:00 AM
Lab ID: 2203826-001 **Matrix:** AIR
Received Date: 3/16/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	18000	500		µg/L	100	3/16/2022 8:56:40 AM
Surr: BFB	365	37.3-213	S	%Rec	100	3/16/2022 8:56:40 AM
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
Benzene	38	5.0		µg/L	50	3/17/2022 6:27:00 PM
Toluene	430	5.0		µg/L	50	3/17/2022 6:27:00 PM
Ethylbenzene	63	5.0		µg/L	50	3/17/2022 6:27:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2,4-Trimethylbenzene	43	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,3,5-Trimethylbenzene	37	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Naphthalene	ND	10		µg/L	50	3/17/2022 6:27:00 PM
1-Methylnaphthalene	ND	20		µg/L	50	3/17/2022 6:27:00 PM
2-Methylnaphthalene	ND	20		µg/L	50	3/17/2022 6:27:00 PM
Acetone	ND	50		µg/L	50	3/17/2022 6:27:00 PM
Bromobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Bromodichloromethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Bromoform	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Bromomethane	ND	10		µg/L	50	3/17/2022 6:27:00 PM
2-Butanone	ND	50		µg/L	50	3/17/2022 6:27:00 PM
Carbon disulfide	ND	50		µg/L	50	3/17/2022 6:27:00 PM
Carbon tetrachloride	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Chlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Chloroethane	ND	10		µg/L	50	3/17/2022 6:27:00 PM
Chloroform	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Chloromethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
2-Chlorotoluene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
4-Chlorotoluene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
cis-1,2-DCE	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	3/17/2022 6:27:00 PM
Dibromochloromethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Dibromomethane	ND	10		µg/L	50	3/17/2022 6:27:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Dichlorodifluoromethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	50	3/17/2022 6:27:00 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
S	% Recovery outside of range due to dilution or matrix interference		

Analytical Report
Lab Order **2203826**
Date Reported: **3/23/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY
Client Sample ID: Influent 3-15-22
Project: Scott 4M
Collection Date: 3/15/2022 11:30:00 AM
Lab ID: 2203826-001 **Matrix:** AIR **Received Date:** 3/16/2022 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **CCM**
1,2-Dichloropropane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,3-Dichloropropane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
2,2-Dichloropropane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1-Dichloropropene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
2-Hexanone	ND	50		µg/L	50	3/17/2022 6:27:00 PM
Isopropylbenzene	12	5.0		µg/L	50	3/17/2022 6:27:00 PM
4-Isopropyltoluene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
4-Methyl-2-pentanone	ND	50		µg/L	50	3/17/2022 6:27:00 PM
Methylene chloride	ND	15		µg/L	50	3/17/2022 6:27:00 PM
n-Butylbenzene	ND	15		µg/L	50	3/17/2022 6:27:00 PM
n-Propylbenzene	12	5.0		µg/L	50	3/17/2022 6:27:00 PM
sec-Butylbenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Styrene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
tert-Butylbenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
trans-1,2-DCE	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Trichloroethene (TCE)	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Trichlorofluoromethane	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
1,2,3-Trichloropropane	ND	10		µg/L	50	3/17/2022 6:27:00 PM
Vinyl chloride	ND	5.0		µg/L	50	3/17/2022 6:27:00 PM
Xylenes, Total	660	7.5		µg/L	50	3/17/2022 6:27:00 PM
Surr: Dibromofluoromethane	95.6	70-130		%Rec	50	3/17/2022 6:27:00 PM
Surr: 1,2-Dichloroethane-d4	97.8	70-130		%Rec	50	3/17/2022 6:27:00 PM
Surr: Toluene-d8	111	70-130		%Rec	50	3/17/2022 6:27:00 PM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	50	3/17/2022 6:27:00 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
S	% Recovery outside of range due to dilution or matrix interference		

ENERGY LABORATORIES
Trust our People. Trust our Data.
www.energylab.com
Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

ANALYTICAL SUMMARY REPORT

March 22, 2022

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

Work Order: G22030305

Project Name: Not Indicated

Energy Laboratories Inc. Gillette WY received the following 1 sample for Hall Environmental on 3/17/2022 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G22030305-001	2203826-001B: Influent 3-15-22	03/15/22 11:30	03/17/22	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:

ENERGY LABORATORIES
Trust our People. Trust our Data.
www.energylab.com
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 Gillette, WY Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 2203826-001B: Influent 3-15-22
Location:
Lab ID: G22030305-001

Report Date: 03/22/22
Collection Date: 03/15/22 11:30
Date Received: 03/17/22
Sampled By: Not Indicated

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
NATURAL GAS CHROMATOGRAPHIC ANALYSIS REPORT					
Oxygen	20.801	Mol %		GPA 2261	03/18/22 15:54 / blb
Nitrogen	75.646	Mol %		GPA 2261	03/18/22 15:54 / blb
Carbon Monoxide	< 0.001	Mol %		GPA 2261	03/18/22 15:54 / blb
Carbon Dioxide	0.473	Mol %		GPA 2261	03/18/22 15:54 / blb
Hydrogen Sulfide	< 0.001	Mol %		GPA 2261	03/18/22 15:54 / blb
Methane	2.804	Mol %		GPA 2261	03/18/22 15:54 / blb
Ethane	0.155	Mol %		GPA 2261	03/18/22 15:54 / blb
Propane	0.057	Mol %		GPA 2261	03/18/22 15:54 / blb
Isobutane	0.012	Mol %		GPA 2261	03/18/22 15:54 / blb
n-Butane	0.017	Mol %		GPA 2261	03/18/22 15:54 / blb
Isopentane	0.006	Mol %		GPA 2261	03/18/22 15:54 / blb
n-Pentane	0.004	Mol %		GPA 2261	03/18/22 15:54 / blb
Hexanes plus	0.025	Mol %		GPA 2261	03/18/22 15:54 / blb
GPM @ STD COND/1000 CU.FT., MOISTURE FREE GAS					
GPM Ethane	0.0410	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Propane	0.0160	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Isobutane	0.0040	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM n-Butane	0.0050	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Isopentane	0.0020	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM n-Pentane	0.0010	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Hexanes plus	0.0110	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Pentanes plus	0.0150	gal/MCF		GPA 2261	03/18/22 15:54 / blb
GPM Total	0.0810	gal/MCF		GPA 2261	03/18/22 15:54 / blb
CALCULATED PROPERTIES					
Calculation Pressure Base	14.730	psia		GPA 2261	03/18/22 15:54 / blb
Calculation Temperature Base	60	°F		GPA 2261	03/18/22 15:54 / blb
Compressibility Factor, Z	1.0000	unitless		GPA 2261	03/18/22 15:54 / blb
Molecular Weight	28.62	unitless		GPA 2261	03/18/22 15:54 / blb
Pseudo-critical Pressure, psia	551	psia		GPA 2261	03/18/22 15:54 / blb
Pseudo-critical Temperature, deg R	244	deg R		GPA 2261	03/18/22 15:54 / blb
Specific Gravity (air=1.000)	0.9910	unitless		GPA 2261	03/18/22 15:54 / blb
Gross BTU per cu ft @ std cond, dry	35.22	BTU/cu ft		GPA 2261	03/18/22 15:54 / blb
Gross BTU per cu ft @ std cond, wet	34.61	BTU/cu ft		GPA 2261	03/18/22 15:54 / blb

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 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental **Work Order:** G22030305 **Report Date:** 03/22/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261**								Analytical Run: R269910	
Lab ID: **CCV-2203181521**	Continuing Calibration Verification Standard							03/18/22 15:22	
Oxygen	0.625	Mol %	0.001	104	90	110			
Nitrogen	1.370	Mol %	0.001	98	85	110			
Carbon Dioxide	0.959	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.021	Mol %	0.001	84	70	130			
Methane	93.456	Mol %	0.001	100	90	110			
Ethane	1.015	Mol %	0.001	101	90	110			
Propane	1.008	Mol %	0.001	101	90	110			
Isobutane	0.496	Mol %	0.001	99	90	110			
n-Butane	0.495	Mol %	0.001	99	90	110			
Isopentane	0.200	Mol %	0.001	100	90	110			
n-Pentane	0.201	Mol %	0.001	100	90	110			
Hexanes plus	0.154	Mol %	0.001	103	90	110			
Lab ID: **ICV-2203181526**	Initial Calibration Verification Standard							03/18/22 15:26	
Oxygen	0.393	Mol %	0.001	98	75	110			
Nitrogen	5.157	Mol %	0.001	103	90	110			
Carbon Dioxide	4.895	Mol %	0.001	98	90	110			
Hydrogen Sulfide	0.126	Mol %	0.001	127	100	136			
Methane	73.202	Mol %	0.001	100	90	110			
Ethane	5.001	Mol %	0.001	101	90	110			
Propane	4.998	Mol %	0.001	100	90	110			
Isobutane	1.984	Mol %	0.001	99	90	110			
n-Butane	1.964	Mol %	0.001	98	90	110			
Isopentane	0.983	Mol %	0.001	98	90	110			
n-Pentane	0.993	Mol %	0.001	99	90	110			
Hexanes plus	0.304	Mol %	0.001	101	90	110			
Lab ID: **ICV1-2203181542**	Initial Calibration Verification Standard							03/18/22 15:42	
Nitrogen	98.950	Mol %	0.001	100	90	110			
Carbon Monoxide	1.050	Mol %	0.001	103	90	110			
Lab ID: **CCV1-2203181547**	Continuing Calibration Verification Standard							03/18/22 15:48	
Nitrogen	99.904	Mol %	0.001	100	85	110			
Carbon Monoxide	0.096	Mol %	0.001	95	90	110			
Carbon Dioxide	< 0.001	Mol %	0.001		0	0			
Lab ID: **CCV-2203181615**	Continuing Calibration Verification Standard							03/18/22 16:15	
Oxygen	0.622	Mol %	0.001	104	90	110			
Nitrogen	1.358	Mol %	0.001	97	85	110			
Carbon Dioxide	0.957	Mol %	0.001	96	90	110			
Hydrogen Sulfide	0.022	Mol %	0.001	88	70	130			
Methane	93.480	Mol %	0.001	100	90	110			
Ethane	1.014	Mol %	0.001	101	90	110			
Propane	1.007	Mol %	0.001	101	90	110			
Isobutane	0.494	Mol %	0.001	99	90	110			

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 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Gillette, WY Branch

Client: Hall Environmental **Work Order:** G22030305 **Report Date:** 03/22/22

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **GPA 2261**									Analytical Run: R269910
Lab ID: **CCV-2203181615**	Continuing Calibration Verification Standard								03/18/22 16:15
n-Butane	0.494	Mol %	0.001	99	90	110			
Isopentane	0.199	Mol %	0.001	99	90	110			
n-Pentane	0.200	Mol %	0.001	100	90	110			
Hexanes plus	0.153	Mol %	0.001	102	90	110			
Method: **GPA 2261**									Batch: R269910
Lab ID: **G22030305-001ADUP**	Sample Duplicate				Run: Varian GC_220318A				03/18/22 15:58
Oxygen	20.796	Mol %	0.001				0.0	10	
Nitrogen	75.635	Mol %	0.001				0.0	10	
Carbon Monoxide	< 0.001	Mol %	0.001					10	
Carbon Dioxide	0.476	Mol %	0.001				0.6	10	
Hydrogen Sulfide	< 0.001	Mol %	0.001					10	
Methane	2.817	Mol %	0.001				0.5	10	
Ethane	0.156	Mol %	0.001				0.6	10	
Propane	0.057	Mol %	0.001				0.0	10	
Isobutane	0.012	Mol %	0.001				0.0	10	
n-Butane	0.017	Mol %	0.001				0.0	10	
Isopentane	0.006	Mol %	0.001				0.0	10	
n-Pentane	0.004	Mol %	0.001				0.0	10	
Hexanes plus	0.024	Mol %	0.001				4.1	10	

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 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Work Order Receipt Checklist

Hall Environmental

G22030305

Login completed by: Jill S. Jeffress
Date Received: 3/17/2022
Reviewed by: Misty Stephens
Received by: jsj
Reviewed Date: 3/22/2022
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	20.4°C No Ice		
Containers requiring zero headspace have no headspace or bubble that is <6mm (1/4").	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

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

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

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

Contact and Corrective Action Comments:

None

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

PAGE 1 OF 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	2203826-001B	Influent 3-15-22	TEDLAR	Air	3/15/2022 11:30:00 AM	1	FIXED GASES O2, CO2, CO *RUSH 7 DAY TAT*

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: Sa	Date: 3/16/2022	Time: 8:35 AM	Received By: Jill Jeffress 3/17/22	Date:	Time: 1202
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

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

FOR LAB USE ONLY
Temp of samples: 20.4 °C Attempt to Cool ? no
Comments: FED EX IR

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: 2203826 RcptNo: 1

Received By: Tracy Casarrubias 3/16/2022 8:00:00 AM

Completed By: Sean Livingston 3/16/2022 8:27:22 AM Sean Livingston

Reviewed By: CMC 3/16/22

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)? Not frozen 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: JR 3/16/22

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	-0.9	Good				

Chain-of-Custody Record

Client: Hilcorp

Mitch Killough

Mailing Address:

Phone #:

email or Fax#: MKillough@hilcorp.com

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: Results by 3/31/22

☒ Standard ☐ Rush

Project Name: Scott #4M

Project #:

Project Manager: Devin Hencmann

Sampler: E. Carroll

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): -1.1 +0.2 = -0.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2203826	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Fixed Gas (CO_2, CO_2, LO)
3-15	11:30	Air	Influent 3-15-22	2 Tedlar		001		X						X			X

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3-15	1255	Eric Carroll				
3/15/22	1740	Christian Walker		Courier	3/16/22	8:00

Remarks: samples not frozen sw 3/16/22

cc: eric.carroll@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.

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 97369

CONDITIONS

Operator:	OGRID:
HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	372171
	Action Number: 97369
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
nvelez	Accepted for the record. See App ID 124691 for most updated status.	10/3/2022