



1115 Welsh Ave., Suite B
College Station, Texas 77840
979.324.2139
www.teamtimberwolf.com

REVIEWED
By Mike Buchanan at 11:06 am, Apr 08, 2024

January 8, 2024

Mr. Nelson Velez, Environmental Specialist – Advanced
New Mexico Oil Conservation Division – District 3
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: Status Report – 4th Quarter 2023
Fifield 5 No. 1 (SE ¼, SW ¼, Sec. 5, T29N, R11W)
Hilcorp Energy Company
San Juan County, New Mexico
OCD Incident No. NVF1718155324

Review of the 4th Quarter Status Report for Hilcorp Energy Company Fifield 5 No. 1: Content Satisfactory
1. Conduct weekly site O&M to ensure proper system function, and continue operating system.
2. Collect soil gas sample for analysis.
3. Submit next quarterly submission to NMOCD as scheduled.

Dear Mr. Velez:

On behalf of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this report to document activities conducted during the 4th quarter of 2023 (4Q23) at the Fifield 5 No. 1 (Site). The Site is a plugged well site in northeast San Juan County, New Mexico (Figures 1 through 3).

Environmental Setting and Site Geology

The area immediately surrounding the Site consists of sparse vegetative cover comprised primarily of scrub brush. Area topography consists of ridges divided by shallow valleys with intermittent streams that flow south into the San Juan River. The Site is situated east of an unnamed mesa, with an average Site elevation of approximately 5,786 feet (ft). The nearest waterway is an unnamed intermittent stream located approximately 1,350 ft west of the Site. The intermittent stream empties into the San Juan River, approximately 3.4 miles south of the Site.

According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of the Gypsiorthids-Badland-Stumble complex, with 5 to 30 percent slopes. The surface layer consists of sandy loam, underlain by lithic bedrock encountered between 16 to 20 inches below ground surface (bgs). Native salinity of the soil is very slightly saline to slightly saline (2.0 to 4.0 millimhos per centimeter (mmhos/cm)).

Site History

Release Event

The Fifield 5 No. 1 well has been plugged and all surface equipment removed from the Site; however, Hilcorp’s Hali Meador #005R is located immediately west of the Site and remains active. Historically, the Site has consisted of a wellhead, line heater, and separator with the associated below-grade tank (BGT) for produced water, sales meter, and tank battery comprised of one above-ground storage tank (AST) and one BGT. On approximately 06/01/17, removal and closure of the BGT revealed historical

Timberwolf Project No. HEC-190009



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contamination beneath the BGT. All surface equipment was removed, and the well was plugged and abandoned.

Investigation and Site Characterization

Initial assessment efforts were conducted by Rule Engineering, LLC (Rule), a subcontractor of ConocoPhillips Company (ConocoPhillips). Hilcorp acquired the property in 2017 and Rule conducted additional assessments in 2018. All findings by Rule Engineering are documented in Timberwolf's *Site Characterization and Remedial Action Plan*, dated February 28, 2019. The initial assessment identified the following constituents of concern (COCs): benzene, toluene, ethylbenzene, and xylene (BTEX) and total petroleum hydrocarbons (TPH).

On March 20, 2019, additional borings were installed at the Site to delineate petroleum hydrocarbon impacts vertically and horizontally in soil. All findings are documented in Timberwolf's *Site Characterization Report and Remedial Action Plan*, dated June 14, 2019.

Remediation – SVE System

In 2019, Hilcorp installed a soil vapor extraction (SVE) system to treat impacted soil related to historical pit tank releases. The SVE system is comprised of 18 SVE wells, 6 vent wells, and an SVE trailer (housing: control valves, flow and vacuum gauges, manifolds, fluid-air separator, automated controls, and a vacuum pump). The system remained inoperative while awaiting a power source.

In September 2021, Hilcorp installed a power source for the SVE system. The power source is a skid-mounted gas-fired motor with a pulley and belt drive apparatus to transfer power to a vacuum pump. The new vacuum pump was plumbed into the existing SVE trailer; the automation system was by-passed so that all legs remained open.

Work conducted at this Site is documented in the following reports:

- *Site Characterization and Remedial Action Plan*, dated 02/28/19
- *Site Characterization and Remedial Action Plan*, dated 07/14/19
- *Status Report – 1st Quarter 2020*, dated 09/20/21
- *Status Report – 2nd Quarter 2020*, dated 09/27/21
- *Status Report – 3rd Quarter 2020*, dated 09/27/21
- *Status Report – 4th Quarter 2020*, dated 09/27/21
- *Status Report – 1st Quarter 2021*, dated 09/27/21
- *Status Report – 2nd Quarter 2021*, dated 09/27/21
- *Status Report – 3rd Quarter 2021*, dated 11/01/21
- *Status Report – 4th Quarter 2021*, dated 01/29/22
- *Status Report – 1st Quarter 2022*, dated 04/15/22
- *Status Report – 2nd Quarter 2022*, dated 07/14/22
- *Status Report – 3rd Quarter 2022*, dated 10/14/22
- *Status Report – 4th Quarter 2022*, dated 01/13/23
- *Status Report – 1st Quarter 2023*, dated 04/14/23
- *Status Report – 2nd Quarter 2023*, dated 07/13/23
- *Status Report – 3rd Quarter 2023*, dated 10/11/23.

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SVE System Operations

The SVE system is equipped with four independent legs (i.e., Leg 1, Leg 2, Leg 3, and Leg 4). Leg 1 provides vacuum to the shallow wells and Legs 2, 3, and 4 provide vacuum extraction to the deep SVE wells. The automation panel is currently bypassed; the valves are changed biweekly, operating two legs at a time.

Water and condensate are recovered with a moisture separator, which is fitted with a 1-inch PVC pipe to transfer fluids to an open-top tank fitted with bird netting. No water or condensate was recovered during 4Q23; although some water accumulated in vacuum hoses and a manifold which resulted in a freeze rupture at Leg 1 on 12/29/23. [Leg 1 of the system was scheduled for priority repair and was repaired and returned to service on 01/01/24.] SVE system runtime for 4Q23 is documented in Table 1 below.

Table 1. System Runtime – 4Q23

Date	Hour Meter
09/26/23	6,230
10/11/23	6,588
10/24/23	6,900
11/08/23	7,259
11/21/23	7,573
12/07/23	NC*
12/21/23	304
Total Runtime	2,177.6

NC – not collected due to hour meter malfunction

* Hour meter replaced on 12/08/23

Due to an hour meter malfunction, an hour meter reading was not recorded during the 12/07/23 operations and maintenance (O&M) event. The hour meter was replaced on 12/08/23; Cygnet backup data confirms that the SVE system operated throughout the quarter. Hour meter readings were used to calculate system runtime from 10/01/23 to 11/21/23; Cygnet data was used to calculate system runtime between 11/21/23 to 12/31/23. Cygnet data recorded off alarms on 12/02/23, 12/03/23, and 12/05/23, totaling approximately six (6) hours of the SVE system downtime. System runtime for the quarter was 2,177.6 hours. The available hours during this period were 2,209; therefore, yielding a runtime percentage (%) of 98.6 for 4Q23. Photographs of relevant meter readings are documented in the attached Photographic Log.

During 4Q23, Hilcorp personnel conducted six (6) operational checks and one (1) maintenance event; seven (7) O&M events in total. A field log of O&M events and maintenance performed is provided in the attached Table A-1.

Collection and Analysis of Quarterly Soil-Gas Sample

On 11/21/23, a composite soil-gas sample was collected from the SVE system's four Legs using Tedlar[®] bags. The Tedlar[®] bags were connected to the SVE trailer sampling port, which is situated downstream of the 4-leg manifold and upstream of the air-water separator. The sampling port valve

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was opened to purge air within the tubing between the sampling port and Tedlar® bag. After purging, the Tedlar® bag valve was opened to collect the air sample.

The soil-gas sample (i.e., SVE-1) was transported to Hall Environmental and Analytical Laboratory (HEAL) in Albuquerque, New Mexico. HEAL analyzed the sample for volatile organic compounds (VOCs) and subcontracted other gas analyses to Energy Laboratories in Billings, Montana. All sample transfers were conducted under proper chain-of-custody protocol.

The sample was analyzed for VOCs using EPA Method 8260B, Organic Compounds (GC) by GPA 2261-95, and Gasoline Range Organics by EPA Method 8015D. The laboratory report and chain-of-custody documents are attached.

Laboratory results of constituents that exceeded laboratory detection limits are presented in Table 2; analytical results of all constituents are presented in the attached Table A-2.

Table 2. Quarterly Soil-Gas Analysis – 11/21/23

Constituents	SVE-1
Volatile Organic Compounds (mg/m³)	
Carbon disulfide	160
Toluene	32
Total Xylenes	23
Gasoline Range (mg/m³)	
TPH (GC-MS) Low Fraction (i.e., GRO)	1,100
Gases (Mol %)	
Oxygen	21.46
Carbon Dioxide	0.09
Methane	0.61

mg/m³ – milligrams per cubic meter
TPH – total petroleum hydrocarbons
GC-MS – gas chromatography-mass spectrometry
GRO – gasoline range organics
Mol % – mole percent

Mass Removal

Timberwolf used the laboratory results from the soil-gas analysis (as reported in Table 2), flow rates, and runtimes to calculate constituent mass removal. Mass removal of GRO, BTEX, and associated recovered volumes for 4Q23 are presented in Table 3 below.

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Table 3. Mass Removal and Associated Volume – 4Q23

Constituent	Mass Removal (kg) ¹	Total Mass Removed (lbs) ²	Recovered Volume (bbl)
GRO	138	304	1.13
Benzene	0	0	0
Toluene	4.03	8.86	0.03
Ethylbenzene	0	0	0
Xylenes	2.89	6.37	0.02

¹ Calculation = minutes ran * CFM * Concentration (mg/m³) * 1 M³/35.3147 ft³*1g/1000 mg * 1 kg/1000 g

² Calculation = [Mass Removal] * 2.2 lbs/kg

GRO = from TPH (GC/MS) Low Fraction (i.e., gasoline range organics)

kg – kilograms

lbs – pounds

bbl – barrel

Assumptions:

- API Gravity = 52
- Concentrations of VOCs in soil-gas vapors have remained static throughout the quarter
- Runtime calculations based on hour meter readings from 10/01/23 and 11/21/23 and Cygnet data from 11/21/23 to 12/31/23.

Summary

System runtime during 4Q23 was 98.6% based on hour meter readings between 10/01/23 and 11/21/23 and Cygnet data from 11/21/23 to 12/31/23.

During 4Q23, no water and/or condensate were recovered. Additionally, mass removal calculations indicated the following recovery during the quarter:

- 1.13 bbl of GRO
- 0 lbs of benzene
- 8.86 lbs of toluene
- 0 lbs of ethylbenzene
- 6.37 lbs of xylene.

Further Actions – 1st Quarter 2024

During 1Q24, the following activities are planned for the Site:

- Conduct bi-weekly Site O&M to ensure proper system function and drain any water/condensate accumulation in the moisture separator as needed
- Collect a quarterly soil-gas sample for laboratory analysis
- Prepare a 1Q24 status report.

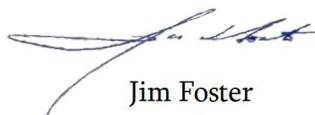
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If you have any questions regarding this report, please call us at (979) 324-2139.

Sincerely,
Timberwolf Environmental, LLC



Berenice Marquez
Staff Scientist



Jim Foster
President

Attachments: Figures
Attached Tables
Photographic Log
Laboratory Report and Chain-of-Custody Documents

cc: Mitch Killough, Hilcorp Energy Company

Figures

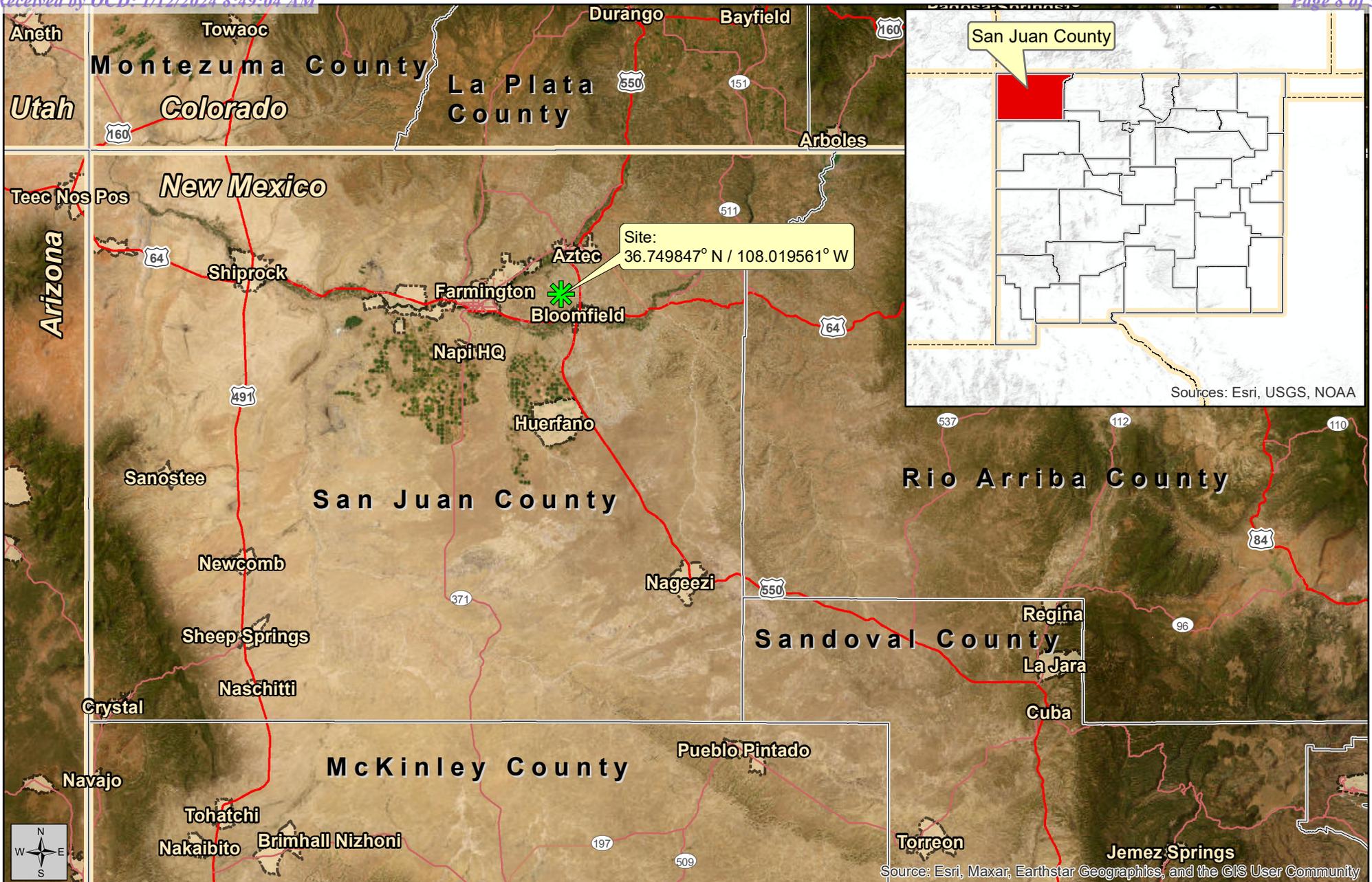


Figure 1
Site Location Map

Status Report - 4th Quarter 2023

December 20, 2023



Created By:
Brett Berno
TE Project No.: HEC-190009

Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: ESRI
Vector Source: ESRI and TE



Site

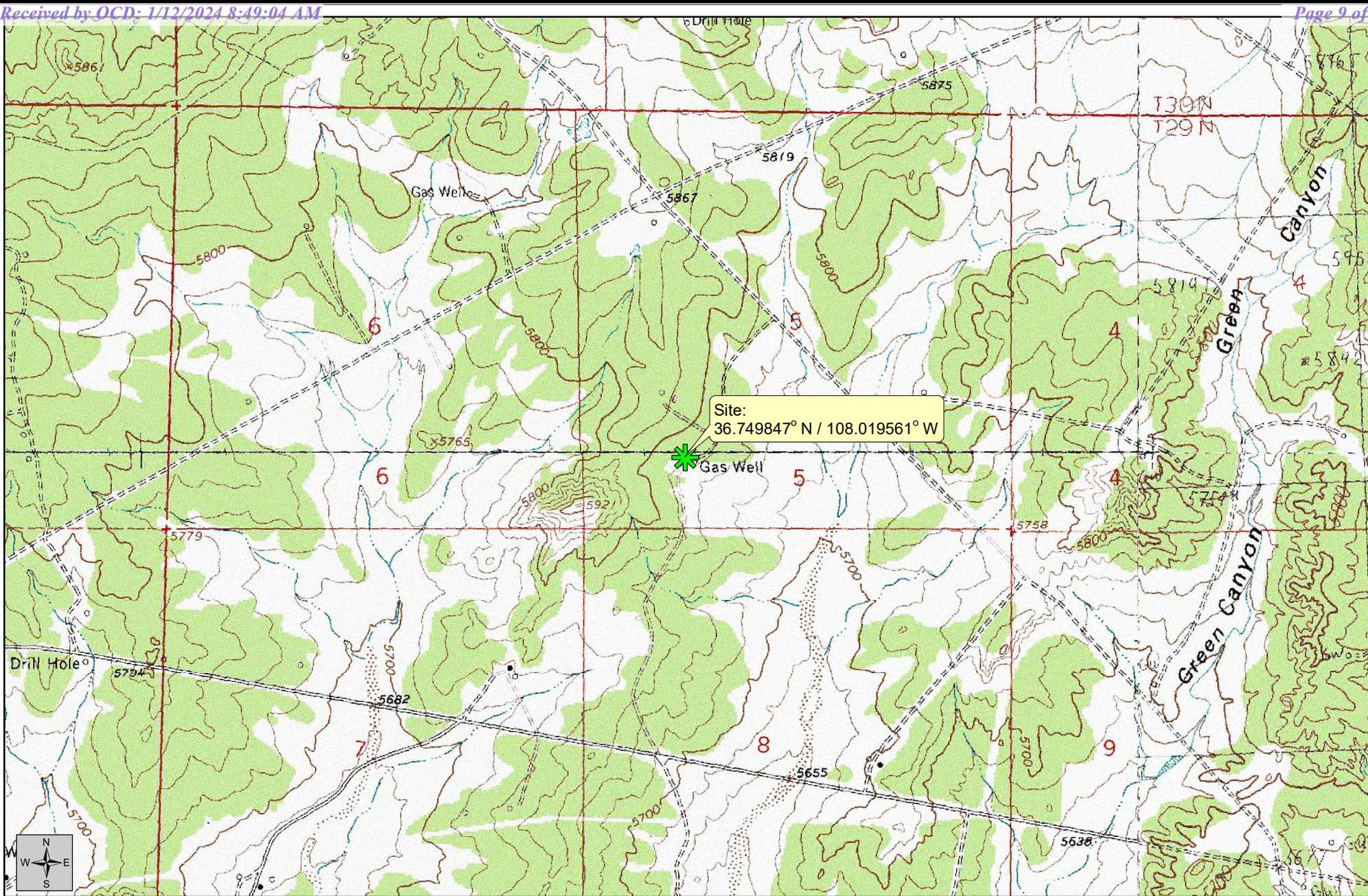


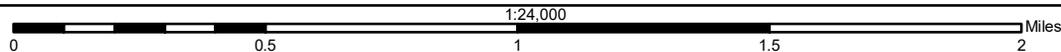
Figure 2
Topographic Map

Status Report - 4th Quarter 2023

December 20, 2023



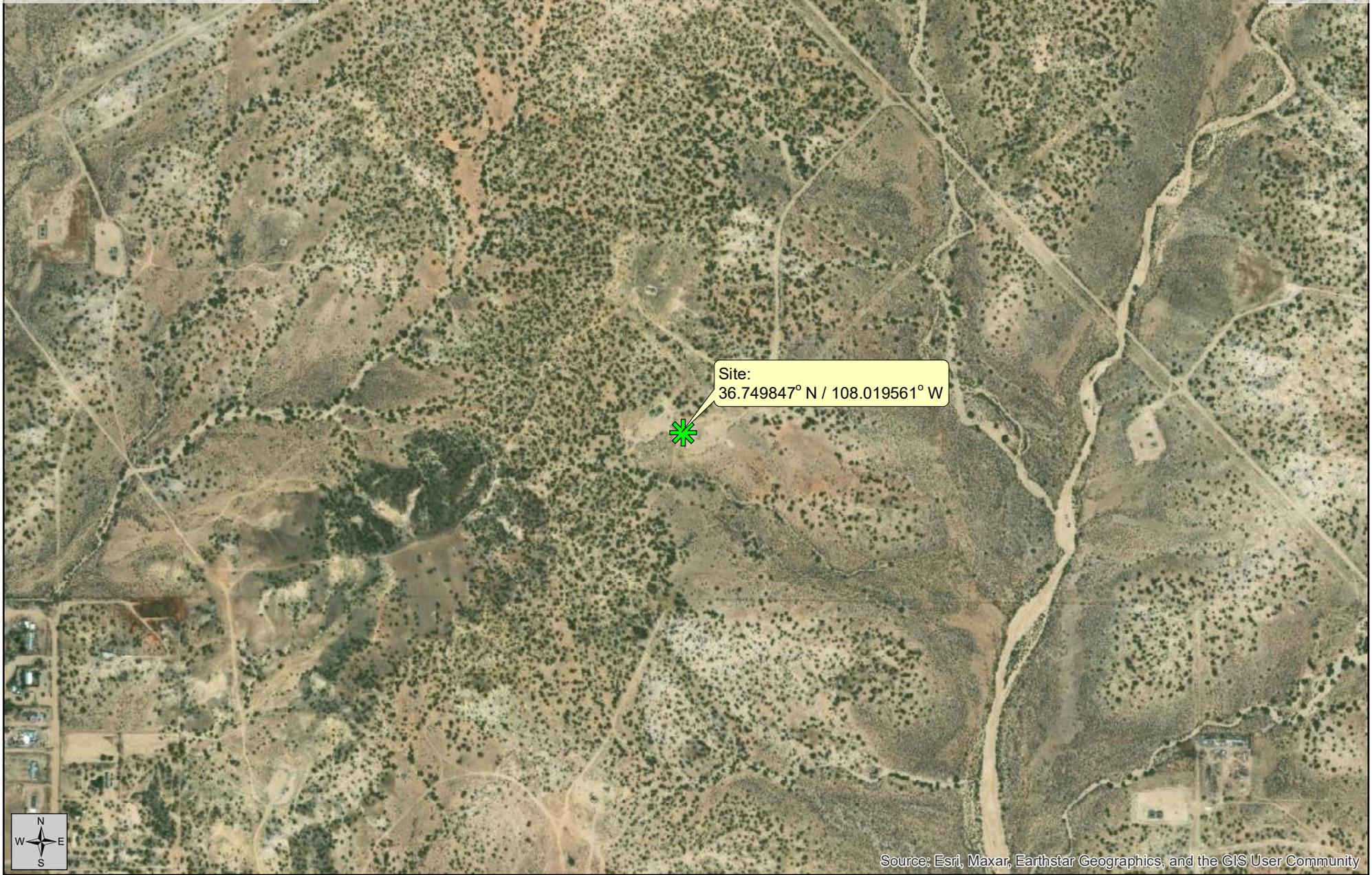
Created By:
Brett Berno
TE Project No.: HEC-190009



Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
 Imagery Source: USGS
 Quads: Aztec, Bloomfield,
 Flora Vista, Horn Canyon
 Vector Source: TE

 Site



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

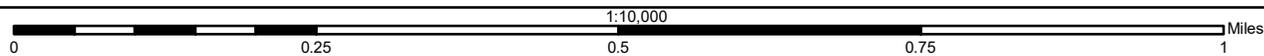
Figure 3
Aerial Map

Status Report - 4th Quarter 2023

December 20, 2023



Created By:
Brett Berno
TE Project No.: HEC-190009



Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
Hilcorp Energy Company
San Juan County, New Mexico

Datum: NAD83
Imagery Source: ESRI
Vector Source: TE

 Site

Attached Tables

**Table A-1. Operation and Maintenance Events
 Status Report - 4th Quarter 2023
 Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
 San Juan County, New Mexico**

Date	Hour Meter (hrs)	Water/Condensate Recovered (gal)	Maintenance Performed
10/11/23	6,588	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
10/24/23	6,900	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
11/08/23	7,259	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
11/21/23	7,573	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.
12/07/23	--	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks. • Hilcorp personnel observed that the hour meter display was not functional.
12/08/23	0	0	• Hilcorp personnel replaced the hour meter on 12/08/23.
12/21/23	304	0	• Brandon Sinclair with Hilcorp performed SVE system O&M checks.

gal – gallons
 hrs – hours
 -- – not collected

**Table A-2. Soil-Gas Analysis - 11/21/23
Status Report - 4th Quarter 2023
Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
San Juan County, New Mexico**

Constituents	SVE-1
Volatiles ($\mu\text{g}/\text{m}^3$)	
Acetone	< 50,000
Benzene	< 2,500
Bromodichloromethane	< 5,000
Bromoform	< 5,000
Bromomethane	< 10,000
Carbon disulfide	160,000
Carbon tetrachloride	< 5,000
Chlorobenzene	< 5,000
Chloroethane	< 10,000
Chloroform	< 5,000
Chloromethane	< 5,000
2-Chlorotoluene	< 5,000
Dibromochloromethane	< 5,000
1,2-Dibromoethane	< 5,000
1,2-Dichlorobenzene	< 5,000
1,3-Dichlorobenzene	< 5,000
1,4-Dichlorobenzene	< 5,000
1,2-Dichloroethane	< 5,000
1,1-Dichloroethane	< 5,000
1,1-Dichloroethene	< 5,000
cis-1,2-Dichloroethene (cis-1,2-DCE)	< 5,000
trans-1,2-Dichloroethene (trans-1,2-DCE)	< 5,000
1,2-Dichloropropane	< 5,000
cis-1,3-Dichloropropene	< 5,000
trans-1,3-Dichloropropene	< 5,000
Ethylbenzene	< 5,000
Trichlorofluoromethane	< 5,000
Dichlorodifluoromethane	< 5,000
Hexachloro-1,3-butadiene	< 5,000
Isopropylbenzene	< 5,000
Methylene Chloride	< 15,000
n-Propylbenzene	< 5,000
2-Butanone (MEK)	< 50,000
4-Methyl-2-pentanone (MIBK)	< 50,000
MTBE	< 5,000
Naphthalene	< 10,000

**Table A-2. Soil-Gas Analysis - 11/21/23
 Status Report - 4th Quarter 2023
 Fifield 5 No. 1 (OCD Incident No. NVF1718155324)
 San Juan County, New Mexico**

Constituents	SVE-1
Styrene	< 5,000
1,1,2,2-Tetrachloroethane	< 5,000
Toluene	32,000
1,2,4-Trichlorobenzene	< 5,000
1,1,1-Trichloroethane	< 5,000
1,1,2-Trichloroethane	< 5,000
1,2,4-Trimethylbenzene	< 5,000
1,3,5-Trimethylbenzene	< 5,000
Vinyl chloride	< 5,000
Total Xylenes	23,000
Gasoline Range ($\mu\text{g}/\text{m}^3$)	
Gasoline Range Organics (GRO)	1,100,000
Gases (Mol %)	
Oxygen	21.46
Carbon Dioxide	0.09
Methane	0.61

$\mu\text{g}/\text{m}^3$ – micrograms per cubic meter

Mol % – mole percent

Photographic Log



1115 Welsh Ave., Suite B
 College Station, TX 77840
 979.324.2139
 www.teamtimberwolf.com

PHOTOGRAPHIC LOG

Project No.:	HEC-190009	Client:	Hilcorp Energy Company
Project Name:	Fifield 5 No. 1	Site Location:	San Juan County, New Mexico
Task Description:	Status Report – 4 th Quarter 2023	Date:	October – December, 2023
Photo No.: 1			
Direction: N/A			
Comments: View of hour meter on 09/26/23.			
Photo No.: 2			
Direction: N/A			
Comments: View of hour meter on 11/21/23.			



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 979.324.2139
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PHOTOGRAPHIC LOG

Project No.:	HEC-190009	Client:	Hilcorp Energy Company
Project Name:	Fifield 5 No. 1	Site Location:	San Juan County, New Mexico
Task Description:	Status Report – 4 th Quarter 2023	Date:	October – December, 2023
Photo No.: 3			
Direction: N/A			
Comments: View of hour meter display malfunction on 12/07/23.			
Photo No.: 4			
Direction: N/A			
Comments: View of new hour meter on 12/21/23, which was installed on 12/08/23.			



1115 Welsh Ave., Suite B
College Station, TX 77840
979.324.2139
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PHOTOGRAPHIC LOG

Project No.:	HEC-190009	Client:	Hilcorp Energy Company
Project Name:	Fifield 5 No. 1	Site Location:	San Juan County, New Mexico
Task Description:	Status Report – 4 th Quarter 2023	Date:	October – December, 2023
Photo No.: 5			
Direction: N/A			
Comments: View of Leg 1 freeze-ruptured pipe observed on 12/29/23.			

Laboratory Report and Chain-of-Custody Documents



Eurofins Environment Testing South
Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

December 08, 2023

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

RE: Fifield 5 1

OrderNo.: 2311B46

Dear Kate Kaufman:

Eurofins Environment Testing South Central, LLC received 1 sample(s) on 11/22/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please do not hesitate to contact Eurofins Albuquerque for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2311B46**

Date Reported: **12/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: Fifield 5 1

Collection Date: 11/21/2023 3:15:00 PM

Lab ID: 2311B46-001

Matrix: AIR

Received Date: 11/22/2023 6:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	1100	250		µg/L	50	11/29/2023 3:38:55 PM
Surr: BFB	106	15-412		%Rec	50	11/29/2023 3:38:55 PM
EPA METHOD 8260B: VOLATILES						Analyst: CCM
Benzene	ND	2.5		µg/L	50	12/4/2023 3:16:00 PM
Toluene	32	5.0		µg/L	50	12/4/2023 3:16:00 PM
Ethylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Naphthalene	ND	10		µg/L	50	12/4/2023 3:16:00 PM
1-Methylnaphthalene	ND	20		µg/L	50	12/4/2023 3:16:00 PM
2-Methylnaphthalene	ND	20		µg/L	50	12/4/2023 3:16:00 PM
Acetone	ND	50		µg/L	50	12/4/2023 3:16:00 PM
Bromobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Bromodichloromethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Bromoform	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Bromomethane	ND	10		µg/L	50	12/4/2023 3:16:00 PM
2-Butanone	ND	50		µg/L	50	12/4/2023 3:16:00 PM
Carbon disulfide	160	50		µg/L	50	12/4/2023 3:16:00 PM
Carbon tetrachloride	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Chlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Chloroethane	ND	10		µg/L	50	12/4/2023 3:16:00 PM
Chloroform	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Chloromethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
2-Chlorotoluene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
4-Chlorotoluene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
cis-1,2-DCE	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	50	12/4/2023 3:16:00 PM
Dibromochloromethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Dibromomethane	ND	10		µg/L	50	12/4/2023 3:16:00 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Dichlorodifluoromethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1-Dichloroethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1-Dichloroethene	ND	5.0		µg/L	50	12/4/2023 3:16:00 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 Above Quantitation Range/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 Quantitative Limit	RL Reporting Limit
	S % Recovery outside of standard limits. If undiluted results may be estimated.	

Analytical Report

Lab Order **2311B46**

Date Reported: **12/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: Fifield 5 1

Collection Date: 11/21/2023 3:15:00 PM

Lab ID: 2311B46-001

Matrix: AIR

Received Date: 11/22/2023 6:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: CCM
1,2-Dichloropropane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,3-Dichloropropane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
2,2-Dichloropropane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1-Dichloropropene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Hexachlorobutadiene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
2-Hexanone	ND	50		µg/L	50	12/4/2023 3:16:00 PM
Isopropylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
4-Isopropyltoluene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
4-Methyl-2-pentanone	ND	50		µg/L	50	12/4/2023 3:16:00 PM
Methylene chloride	ND	15		µg/L	50	12/4/2023 3:16:00 PM
n-Butylbenzene	ND	15		µg/L	50	12/4/2023 3:16:00 PM
n-Propylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
sec-Butylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Styrene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
tert-Butylbenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1,1,2,2-Tetrachloroethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Tetrachloroethene (PCE)	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
trans-1,2-DCE	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1,1-Trichloroethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Trichloroethene (TCE)	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Trichlorofluoromethane	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
1,2,3-Trichloropropane	ND	10		µg/L	50	12/4/2023 3:16:00 PM
Vinyl chloride	ND	5.0		µg/L	50	12/4/2023 3:16:00 PM
Xylenes, Total	23	7.5		µg/L	50	12/4/2023 3:16:00 PM
Surr: Dibromofluoromethane	96.6	70-130		%Rec	50	12/4/2023 3:16:00 PM
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%Rec	50	12/4/2023 3:16:00 PM
Surr: Toluene-d8	101	70-130		%Rec	50	12/4/2023 3:16:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	50	12/4/2023 3:16:00 PM

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of standard limits. If undiluted results may be estimated.
- B Analyte detected in the associated Method Blank
- E Above Quantitation Range/Estimated Value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



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ANALYTICAL SUMMARY REPORT

December 06, 2023

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

Work Order: B23111816 Quote ID: B15626

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 11/28/2023 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B23111816-001	2311B46-001B, SVE-1	11/21/23 15:15	11/28/23	Air	Air Correction Calculations Appearance and Comments Calculated Properties GPM @ std cond./1000 cu. ft., moist. Free Natural Gas Analysis Specific Gravity @ 60/60

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the report package. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B23111816-001
Client Sample ID: 2311B46-001B, SVE-1

Report Date: 12/06/23
Collection Date: 11/21/23 15:15
Date Received: 11/28/23
Matrix: Air

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
GAS CHROMATOGRAPHY ANALYSIS REPORT							
Oxygen	21.46	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Nitrogen	77.78	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Carbon Dioxide	0.09	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Hydrogen Sulfide	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Methane	0.61	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Ethane	0.02	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Propane	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Isobutane	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
n-Butane	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Isopentane	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
n-Pentane	<0.01	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Hexanes plus	0.04	Mol %		0.01		GPA 2261-95	12/04/23 05:42 / jrj
Propane	< 0.001	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
Isobutane	< 0.001	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
n-Butane	< 0.001	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
Isopentane	< 0.001	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
n-Pentane	< 0.001	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
Hexanes plus	0.017	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
GPM Total	0.017	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj
GPM Pentanes plus	0.017	gpm		0.001		GPA 2261-95	12/04/23 05:42 / jrj

CALCULATED PROPERTIES

Gross BTU per cu ft @ Std Cond. (HHV)	8			1		GPA 2261-95	12/04/23 05:42 / jrj
Net BTU per cu ft @ std cond. (LHV)	8			1		GPA 2261-95	12/04/23 05:42 / jrj
Pseudo-critical Pressure, psia	545			1		GPA 2261-95	12/04/23 05:42 / jrj
Pseudo-critical Temperature, deg R	240			1		GPA 2261-95	12/04/23 05:42 / jrj
Specific Gravity @ 60/60F	0.996			0.001		D3588-81	12/04/23 05:42 / jrj
Air, %	98.06			0.01		GPA 2261-95	12/04/23 05:42 / jrj

- The analysis was not corrected for air.

COMMENTS

- 12/04/23 05:42 / 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)



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QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B23111816

Report Date: 12/06/23

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: GPA 2261-95											
Batch: R413227											
Lab ID: LCS120423	11 Laboratory Control Sample			Run: GCNGA-B_231204A				12/04/23 03:28			
Oxygen		0.63	Mol %	0.01	126	70	130				
Nitrogen		7.07	Mol %	0.01	118	70	130				
Carbon Dioxide		0.97	Mol %	0.01	98	70	130				
Methane		74.3	Mol %	0.01	99	70	130				
Ethane		5.90	Mol %	0.01	98	70	130				
Propane		4.85	Mol %	0.01	98	70	130				
Isobutane		1.82	Mol %	0.01	91	70	130				
n-Butane		1.90	Mol %	0.01	95	70	130				
Isopentane		0.94	Mol %	0.01	94	70	130				
n-Pentane		0.94	Mol %	0.01	94	70	130				
Hexanes plus		0.72	Mol %	0.01	90	70	130				
Lab ID: B23111683-001ADUP	12 Sample Duplicate			Run: GCNGA-B_231204A				12/04/23 11:37			
Oxygen		18.2	Mol %	0.01				0.3	20		
Nitrogen		78.8	Mol %	0.01				0	20		
Carbon Dioxide		2.86	Mol %	0.01				1.0	20		
Hydrogen Sulfide		<0.01	Mol %	0.01					20		
Methane		<0.01	Mol %	0.01					20		
Ethane		<0.01	Mol %	0.01					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		0.15	Mol %	0.01				6.5	20		

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Work Order Receipt Checklist

Hall Environmental

B23111816

Login completed by: Addison A. Gilbert

Date Received: 11/28/2023

Reviewed by: ysmith

Received by: aag

Reviewed Date: 11/30/2023

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: 10.4°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.

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:

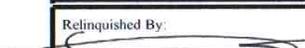
None

SUB CONTRACTOR: Energy Labs -Billings		COMPANY: Energy Laboratories		PHONE: (406) 869-6253	FAX: (406) 252-6069		
ADDRESS: 1120 South 27th Street		ACCOUNT #:		EMAIL:			
CITY, STATE, ZIP: Billings, MT 59107							
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2311B46-001B	SVE-1	TEDLAR	Air	11/21/2023 3:15:00 PM	1	Natural Gas Analysis 02 + CO2

ELI B23111816

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: 11/22/2023	Time: 7:17 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: <input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE FOR LAB USE ONLY Temp of samples _____ °C Attempt to Cool ? _____ Comments: _____
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By:	Date:	Time:	Received By: S. Burt + A.	Date: 28 Nov 23	Time: 0940	
TAT: <u>Standard</u>		RUSH	Next BD <input type="checkbox"/>	2nd BD <input type="checkbox"/>	3rd BD <input type="checkbox"/>	



Environment Testin

Eurofins Environment Testing South Central, LLC
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: HILCORP ENERGY Work Order Number: 2311B46 RcptNo: 1
Received By: Tracy Casarrubias 11/22/2023 6:20:00 AM
Completed By: Tracy Casarrubias 11/22/2023 7:14:59 AM
Reviewed By: *JC 11-22-23*

Chain of Custody

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

Log In

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

of preserved bottles checked for pH:
(<2 or >12 unless noted)
Adjusted?
Checked by: *JC 11/22/23*

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes No NA

Person Notified: _____ Date: _____
By Whom: _____ Via: eMail Phone Fax In Person
Regarding: _____
Client Instructions: Mailing address and phone number are missing on COC - TMC 11/22/23

16. Additional remarks:

17. Cooler Information

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

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 303028

CONDITIONS

Operator: HILCORP ENERGY COMPANY 1111 Travis Street Houston, TX 77002	OGRID: 372171
	Action Number: 303028
	Action Type: [UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Review of the 4th Quarter Status Report for Hilcorp Energy Company Fifield 5 No. 1: Content Satisfactory 1. Conduct weekly site O&M to ensure proper system function, and continue operating system. 2. Collect soil gas sample for analysis. 3. Submit next quarterly submission to NMOCD as scheduled.	4/8/2024