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**REVIEWED****By Nelson Velez at 2:33 pm, Feb 28, 2023**

January 12, 2023

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

1. Continue further actions as stated in report.
2. Submit next quarterly report by May 1, 2023.

Re: Status Report – 4<sup>th</sup> Quarter 2022  
San Juan 28-7 Unit 183M  
Rio Arriba County, New Mexico  
OCD Incident No. NCS1901627746

Dear Mr. Velez:

On behalf of Hilcorp Energy Company (Hilcorp), Timberwolf Environmental, LLC (Timberwolf) presents this report to document remedial activities conducted during the fourth quarter of 2022 (4Q22) at the San Juan 28-7 Unit 183M (Site).

### **Environmental Setting and Site Geology**

The Site is situated on federal land managed by the Bureau of Land Management (BLM) in western Rio Arriba County, New Mexico (Figure 1). The area consists of sparse vegetative cover comprised primarily of scrub brush and native grasses. Area terrain is comprised of plateaus divided by canyons. The primary canyon in the area is Carrizo Canyon, which drains to the northwest into the San Juan River, approximately 19 miles from the Site (Figures 2 and 3).

The Site is situated along the rimrock of an unnamed side canyon to Carrizo Canyon. Average elevation at the Site is approximately 6,523 feet (ft) above mean sea level. The closest surface water is a first order tributary of Carrizo Creek, situated 1,500 ft southeast of the Site and 330 ft lower in elevation.

According to the U.S. Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS), the Site soil consists of the Vessilla-Menefee-Orlie complex, 2 to 30 percent slopes. The surface horizon is comprised of a sandy loam, underlain by bedrock encountered between 15 to 19 inches below ground surface (bgs). Native salinity of the soil is nonsaline to very slightly saline (0.0 to 2.0 millimhos per centimeter (mmhos/cm)).



HEC-190007  
January 12, 2023  
Page 2

## **Site History**

### ***Release Event***

Corrosion near the base of the former oil tank resulted in the release of approximately 150 barrels (bbls) of oil and 7 bbls of produced water. All released fluid was contained by the berm. Standing fluid was recovered; the tank was removed from service and disposed off-site. The initial investigation identified the area of the former tank battery as the primary area of concern (AOC).

Hilcorp constructed a new tank battery northeast of the original tank battery. Tanks and interconnective piping were removed from the original tank battery.

### ***Investigation and Site Characterization***

A soil investigation, conducted during March 2019, revealed the constituents of concern (COC) were: total BTEX (i.e., benzene, toluene, ethylbenzene, and xylene) and total petroleum hydrocarbons (TPH). Impacted soil was horizontally and vertically delineated; the vertical extent of impacted soil was approximately 27 ft bgs. Additionally, the soil investigation revealed that subsurface soil is unconsolidated to a depth of 10 ft below ground surface (bgs) which is underlain by sandstone. Findings of the investigation are documented in Timberwolf's report entitled: *Site Characterization Report and Remedial Action Plan*, dated May 21, 2019.

### ***Remediation – SVE System***

To remediate hydrocarbon impacted soil, a soil vapor extraction (SVE) system was designed, constructed, and installed at the Site. System start-up date was 12/18/19. The SVE system is comprised of 11 SVE wells, four vent wells, and a SVE trailer. The SVE trailer is comprised of a regenerative blower (i.e., vacuum pump), hour meter, moisture separator and filter, sampling port, and a manifold with three independent legs. Additionally, the SVE trailer is equipped with a programmable automation panel to control valves for each manifold leg. A natural gas generator powers the trailer.

The SVE system creates a treatment field of approximately 0.15 acres and treats soil to a depth of approximately 30 ft bgs for a total volume of approximately 7,021 cubic yards of soil. The SVE wells, measured radius of influence of 25 ft, and leg configurations are shown in Figure 4.

The work conducted is documented in the following reports:

- *Site Characterization Plan*, dated 03/05/19
- *Site Characterization and Remedial Action Plan*, dated 05/21/19
- *Status Report – 4<sup>th</sup> Quarter 2019*, dated 01/31/20
- *Status Report – 1<sup>st</sup> Quarter 2020*, dated 04/30/20
- *Status Report – 2<sup>nd</sup> Quarter 2020*, dated 09/03/20
- *Status Report – 3<sup>rd</sup> Quarter 2020*, dated 11/25/20
- *Status Report – 4<sup>th</sup> Quarter 2020*, dated 01/28/21
- *Status Report – 1<sup>st</sup> Quarter 2021*, dated 05/05/21
- *Status Report – 2<sup>nd</sup> Quarter 2021*, dated 07/28/21
- *Status Report – 3<sup>rd</sup> Quarter 2021*, dated 10/29/22
- *Status Report – 4<sup>th</sup> Quarter 2021*, dated 01/28/22

HEC-190007  
January 12, 2023  
Page 3

- *Status Report – 1<sup>st</sup> Quarter 2022*, dated 04/13/22
- *Status Report – 2<sup>nd</sup> Quarter 2022*, dated 07/14/22
- *Status Report – 3<sup>d</sup> Quarter 2022*, dated 10/14/22

### **SVE System Operations**

The SVE system was designed with three independent legs (i.e., Leg 1, Leg 2, and Leg 3). Legs 1 and 3 provide vacuum extraction to the deep SVE wells; Leg 2 is piped to the shallow wells. The automation panel was programmed to oscillate between Legs 1, 2, and 3 every four hours for continuous 24-hr operations. Programmed runtimes are presented in Table 1 below.

**Table 1. Programmed Runtimes and Leg Configurations**

| Leg   | SVE Wells and Location                                                                | Scheduled Runtime |
|-------|---------------------------------------------------------------------------------------|-------------------|
| Leg 1 | Deep Wells SVE7, SVE8, and SVE9<br>Eastern side of treatment zone                     | 4 hours           |
| Leg 2 | Shallow Wells SVE1, SVE2, SVE3, and SVE4                                              | 4 hours           |
| Leg 3 | Deep Wells SVE5, SVE6, SVE10, and SVE11<br>Central and Western side of treatment zone | 4 hours           |

SVE – soil vapor extraction well

Water and condensate are collected in the moisture separator, which is fitted with a 1-inch PVC pipe to transfer fluids to an open-top tank fitted with bird netting. Approximately 82.5 gallons (gal) of water or condensate was recovered during 4Q22. SVE system runtime for 4Q22 is documented in Table 2 below.

**Table 2. System Runtime – 4Q22**

| Date                 | Hour Meter   |
|----------------------|--------------|
| 09/19/22             | 3,798        |
| 10/06/22             | 4,201        |
| 10/19/22             | 4,507        |
| 11/01/22             | 4,819        |
| 11/14/22             | 5,109        |
| 12/05/22             | 5,605        |
| 12/19/22             | N/A          |
| 01/10/23             | 6,431        |
| <b>Total Runtime</b> | <b>2,633</b> |

An hour meter reading was not recorded during the 12/19/22 O&M event; therefore, the hour meter reading from 01/10/23 was used to calculate system runtime in 4Q22. System runtime between the last reading of 3Q22 (09/19/22) and 01/10/23 was 2,633 hours; the available hours during this period were 2,689. Therefore, yielding a runtime percentage (%) of 97.9 for 4Q22. Photographs of relevant meter readings are documented in the attached Photographic Log.

During 4Q22, Hilcorp personnel conducted six (6) operational checks and one (1) maintenance event conducted concurrently; six (6) operation and maintenance (O&M) events in total. Maintenance included repair of a seal on the oil-water separator following a failure during a freeze event. A field log of O&M events and maintenance performed is provided in the Attached Table A-1.

HEC-190007  
January 12, 2023  
Page 4

### **Mass Removal**

Timberwolf used the laboratory results from a soil-gas sample (collected by Hilcorp on 12/05/22), flow rates, and runtimes to calculate constituent mass removal. Mass removal of GRO and BTEX and associated recovered volumes for 4Q22 are presented in Table 3 below; cumulative totals are provided in the Attached Table A-2.

**Table 3. Mass Removal and Associated Volume – 4Q22**

| Constituent  | Mass Removal (kg) <sup>1</sup> | Total Mass Removed <sup>2</sup> (lbs) | Recovered Volume <sup>3</sup> (bbl) |
|--------------|--------------------------------|---------------------------------------|-------------------------------------|
| GRO          | 351.2                          | 772.64                                | 2.87                                |
| Benzene      | 0.86                           | 1.90                                  | NC                                  |
| Toluene      | 8.45                           | 18.59                                 | NC                                  |
| Ethylbenzene | 0.49                           | 1.09                                  | NC                                  |
| Xylenes      | 4.84                           | 10.65                                 | NC                                  |

<sup>1</sup>Calculation = minutes ran \* CFM \* Concentration (mg/m<sup>3</sup>) \* 1 M<sup>3</sup>/35.3147 ft<sup>3</sup>\*1g/1000 mg \* 1 kg/1000 g

<sup>2</sup>Calculation = Mass Removal in kg \* 2.2 lbs/kg

<sup>3</sup>Calculation = lbs / 6.42 lb/gal / 42 gal/bbl

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

kg – kilograms

lbs – pounds

bbl – barrel

NC – not calculated

**Assumptions:**

- API Gravity = 52
- Concentrations of VOCs in soil gas vapor have remained static over the quarter
- Runtime readings based on hour meter readings on 10/06/22 and 01/10/23. Cygnet remote monitoring confirmed minimal downtime during 4Q22 with a runtime of 97.0%

### **Collection and Analysis of Soil-Gas Sample**

On 12/05/22, Hilcorp personnel collected a quarterly soil-gas sample utilizing a vacuum pump and Tedlar<sup>®</sup> bag. The vacuum pump was connected to the SVE systems sampling port while all three (3) legs were open. The valve on the sampling port was then opened and pump was activated to purge ambient air from the connecting tubing and pump.

After purging, the Tedlar<sup>®</sup> bag was connected to the vacuum pump outlet using dedicated tubing, the valve on the Tedlar<sup>®</sup> bag was opened and the vacuum pump was activated to collect the SVE gas sample. Once the Tedlar<sup>®</sup> bag was filled, the valve on the bag was closed and disconnected from the tubing. The sampling port was then closed, and vacuum pump disconnected from sampling port.

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 analysis 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 and Organic Compounds (GC) by GPA 2261-95. The laboratory report and chain-of-custody documents are attached.

HEC-190007  
January 12, 2023  
Page 5

Constituents that exceeded laboratory detection limits are presented in Table 4 below; laboratory results of all constituents are documented in the Attached Table A-3.

**Table 4. Quarterly Soil-Gas Analysis – 12/05/22**

| Constituents                                        | SVE-1 |
|-----------------------------------------------------|-------|
| <b>Volatile Organic Compounds, mg/m<sup>3</sup></b> |       |
| Benzene                                             | 9.1   |
| Ethylbenzene                                        | 5.2   |
| Methylene Chloride                                  | 15    |
| 2-Butanone (MEK)                                    | 50    |
| 4-Methyl-2-pentanone (MIBK)                         | 50    |
| Toluene                                             | 89    |
| Total Xylenes                                       | 51    |
| TPH (GC/MS) Low Fraction (i.e., GRO)                | 3,700 |
| <b>Organic Compounds, Mol %</b>                     |       |
| Oxygen                                              | 21.57 |
| Carbon Dioxide                                      | 0.37  |

mg/m<sup>3</sup> – milligrams per cubic meter

Mol % – mole percent

TPH – total petroleum hydrocarbons

GRO – gasoline range organics

### Summary

System runtime during 4Q22 was 97.9% of total available hours during the period. Runtime hours are based on hour meter readings taken on 09/19/22 and 01/10/23. Cygnet remote monitoring system confirms operation through the quarter.

During 4Q22, approximately 82.5 gallons of water and/or condensate were removed by the SVE system. Mass removal calculations indicated the following product recovery during the quarter:

- 2.87 bbl of GRO
- 1.90 lbs of benzene
- 18.6 lbs of toluene
- 1.09 lbs of ethylbenzene
- 10.65 lbs of xylene

### Further Actions – 1<sup>st</sup> Quarter 2023

During 1Q23, 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 from the moisture separator as needed
- Collect a quarterly soil vapor gas sample for laboratory analysis
- Prepare a 1Q23 status report

HEC-190007  
January 12, 2023  
Page 6

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

Sincerely,  
Timberwolf Environmental, LLC



Kevin Cole  
Project Manager



Jim Foster  
President

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

cc: Kate Kaufman, Hilcorp Energy Company

## **Figures**

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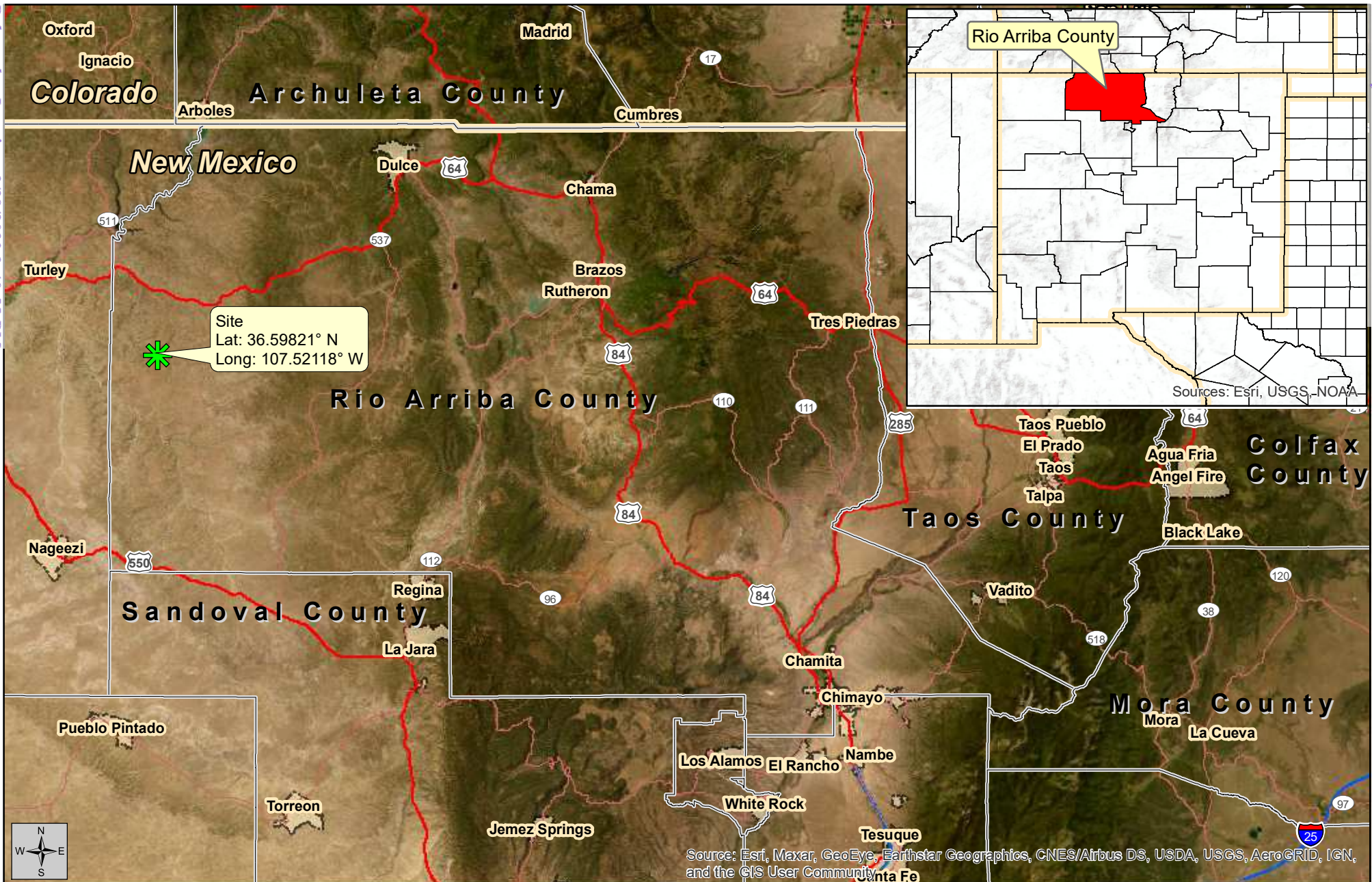


Figure 1  
Site Location Map

Status Report - 4<sup>th</sup> Quarter 2022

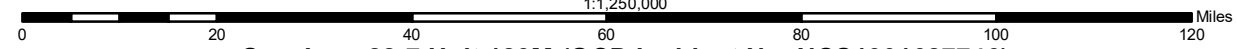
January 12, 2023



Created By:  
Brett Berno  
TE Project No.: HEC-190007

San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Hilcorp Energy Company  
Rio Arriba County, New Mexico

1:1,250,000



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

Site



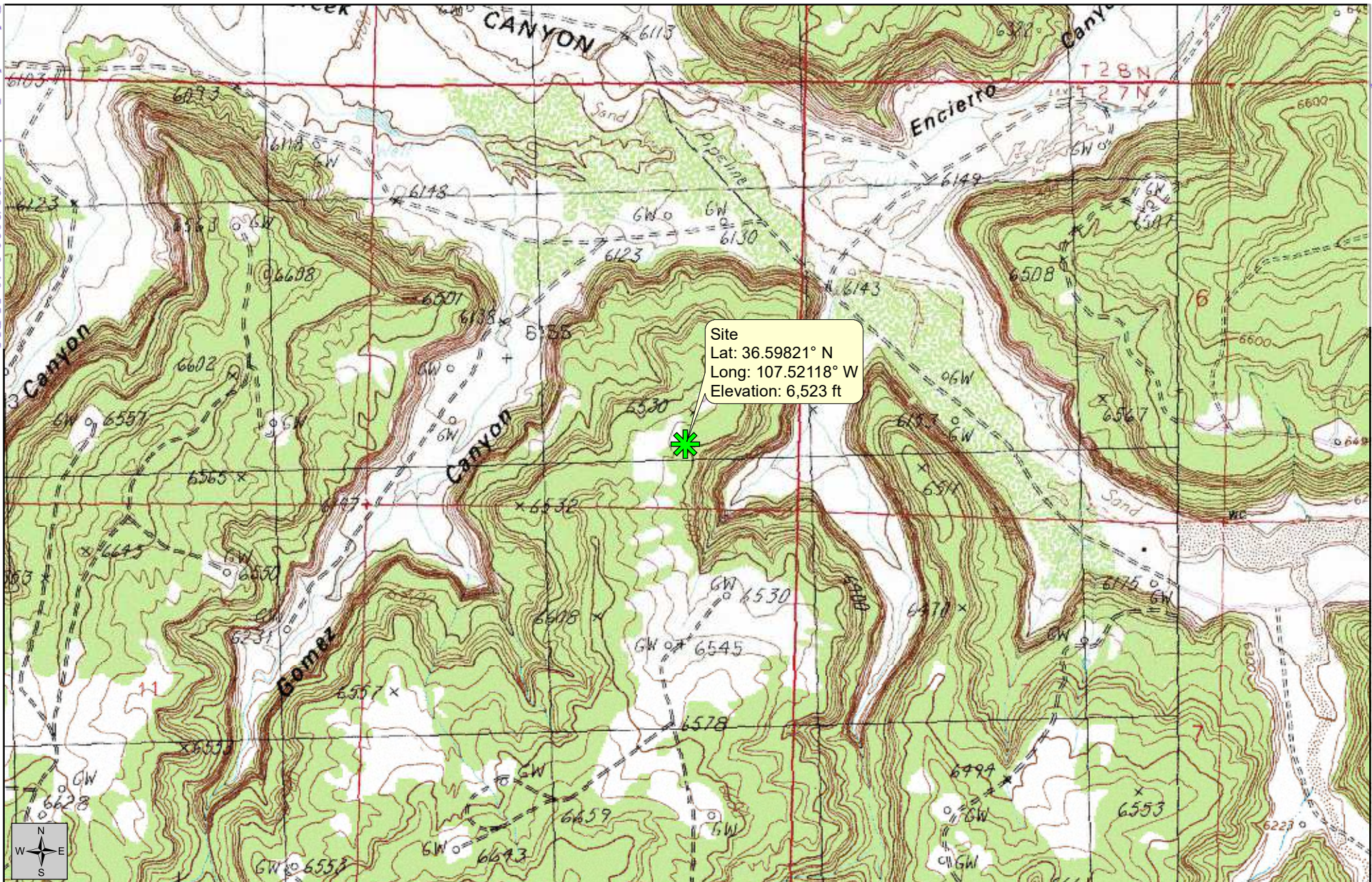


Figure 2  
Topographic Map

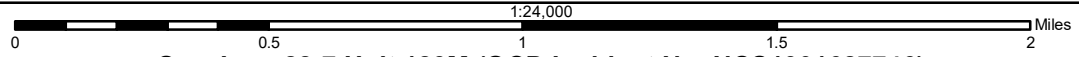
Status Report - 4<sup>th</sup> Quarter 2022

January 12, 2023



Created By:  
Brett Berno  
TE Project No.: HEC-190007

San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Hilcorp Energy Company  
Rio Arriba County, New Mexico



Datum: NAD83  
Imagery Source: USGS  
Quads: Gould Pass and Santos Peak  
Vector Source: TE

Site





**Figure 3**  
**Aerial Map**

**Status Report - 4<sup>th</sup> Quarter 2022**


**January 12, 2023**



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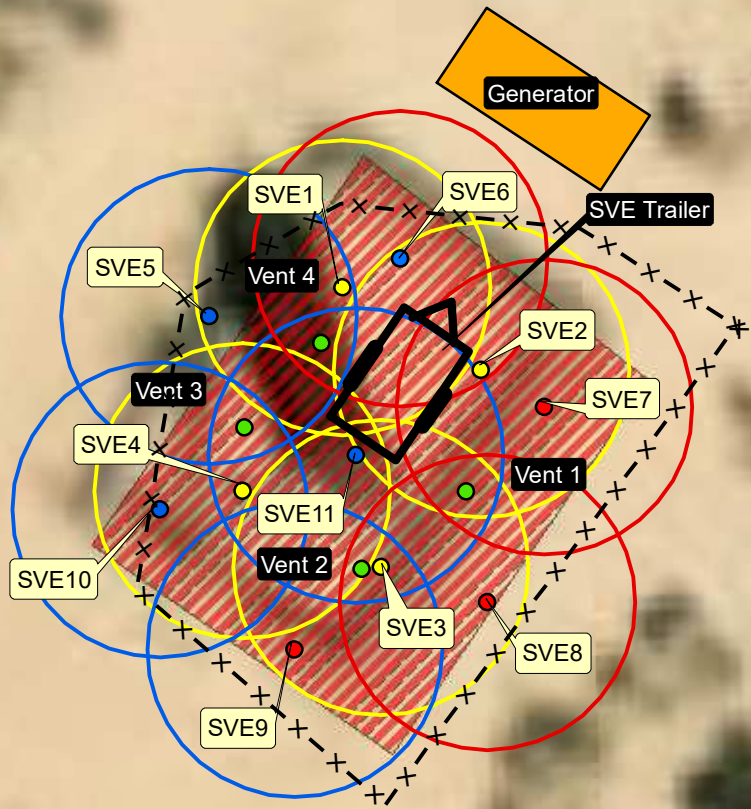
1:10,000  
0 0.25 0.5 0.75 1 Miles  
**San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)**  
**Hilcorp Energy Company**  
**Rio Arriba County, New Mexico**

Datum: NAD83  
Imagery Source: ESRI  
Vector Source: TE

 **Site**



Treatment Area= 6,320 ft<sup>2</sup>  
Assuming a 25 ft radius of influence



- Legend**
- Leg 1 SVE Wells (7, 8, & 9)
  - Leg 2 SVE Wells (1, 2, 3, & 4)
  - Leg 3 SVE Wells (5, 6, 10, & 11)
  - Vent
  - ▭ Leg 1
  - ▭ Leg 2
  - ▭ Leg 3
  - ▨ Impacted Area
  - ▭ SVE Trailer
  - ▭ Generator
  - x-x- Fence

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Figure 4**  
**SVE System Overview**

**Status Report - 4<sup>th</sup> Quarter 2022**

**January 12, 2023**



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San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Hilcorp Energy Company  
Rio Arriba County, New Mexico

Datum: NAD83  
Imagery Source: ESRI  
Vector Source: TE

## **Attached Tables**

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**Table A-1. Operation and Maintenance Events  
Status Report - 4th Quarter 2022  
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Rio Arriba County, New Mexico**

| Date     | Hour<br>Meter<br>(hrs) | Water/Condensate<br>Recovered<br>(gal) | Maintenance Performed                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10/06/22 | 4,201                  | 0.00                                   | • Brandon Sinclair with Hilcorp performed SVE system O&M checks.                                                                                                                                                                                                                                                                                                                                                                             |
| 10/19/22 | 4,507                  | 0.00                                   | • Brandon Sinclair with Hilcorp performed SVE system O&M checks.                                                                                                                                                                                                                                                                                                                                                                             |
| 11/01/22 | 4,819.0                | 33.00                                  | <ul style="list-style-type: none"> <li>• Brandon Sinclair with Hilcorp performed SVE system O&amp;M checks.</li> <li>• A broken seal on the water knockout (KO) tank was identified. Hilcorp personnel retrieved 13 gal of fluid from the water KO tank; the amount spilled was approximately 20 gal.</li> <li>• Hilcorp personnel applied tape to vents 3 and 4 (Leg 1) to prevent air leaks and repaired seal on water KO tank.</li> </ul> |
| 11/14/22 | 5,109.3                | 20.50                                  | <ul style="list-style-type: none"> <li>• Brandon Sinclair with Hilcorp performed SVE system O&amp;M checks.</li> <li>• Hilcorp personnel drained water KO tank.</li> </ul>                                                                                                                                                                                                                                                                   |
| 12/05/22 | 5,605.2                | 24.00                                  | <ul style="list-style-type: none"> <li>• Brandon Sinclair with Hilcorp performed SVE system O&amp;M checks.</li> <li>• Hilcorp personnel observed that the first well of leg 2 was damaged; operator isolated SVE well until repairs can be made.</li> <li>• Hilcorp personnel drained water KO tank.</li> </ul>                                                                                                                             |
| 12/19/22 | N/A                    | 5.00                                   | <ul style="list-style-type: none"> <li>• Brandon Sinclair with Hilcorp performed SVE system O&amp;M checks.</li> <li>• Hilcorp personnel replaced PVC adapter.</li> <li>• Hilcorp personnel drained water KO tank.</li> </ul>                                                                                                                                                                                                                |

gal – gallons

hrs – hours



**Table A-2. Cumulative Mass Removal  
Status Report - 4th Quarter 2022  
San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)  
Rio Arriba County, New Mexico**

| Quarter      | Constituent<br>(lbs) |         |              |        |         | Recovered<br>Volume (bbl) |
|--------------|----------------------|---------|--------------|--------|---------|---------------------------|
|              | Benzene              | Toluene | Ethylbenzene | Xylene | GRO     | GRO                       |
| 4Q19         | 18.5                 | 32.4    | 0.73         | 6.27   | 1,017.0 | 3.77                      |
| 1Q20         | 5.01                 | 18.01   | 0.48         | 3.65   | 403.5   | 1.50                      |
| 2Q20         | 6.66                 | 23.95   | 0.64         | 4.85   | 536.7   | 1.99                      |
| 3Q20         | 14.82                | 53.32   | 1.43         | 10.80  | 1,194.7 | 4.43                      |
| 4Q20         | 1.71                 | 6.16    | 0.16         | 1.25   | 138.1   | 0.51                      |
| 1Q21         | 22.85                | 82.18   | 2.20         | 16.65  | 1,841.4 | 6.83                      |
| 2Q21         | 2.13                 | 15.09   | 1.17         | 12.63  | 55.4    | 0.21                      |
| 3Q21         | 2.51                 | 17.78   | 1.38         | 14.88  | 65.3    | 0.24                      |
| 4Q21         | 2.60                 | 18.40   | 1.43         | 15.40  | 67.6    | 0.25                      |
| 1Q22         | 0.44                 | 3.60    | 0.32         | 4.84   | 242.4   | 0.90                      |
| 2Q22         | 0.32                 | 2.61    | 0.27         | 5.57   | 147.0   | 0.55                      |
| 3Q22         | 2.54                 | 3.93    | 17.10        | 2.40   | 684.1   | 2.54                      |
| 4Q22         | 1.90                 | 18.59   | 1.09         | 10.65  | 772.6   | 2.87                      |
| <b>Total</b> | 82.0                 | 296.0   | 28.4         | 109.8  | 7,165.7 | 26.6                      |

mass (mg) removed equation = ((CFM\*volatile\*runtime in minutes)/(35.3147))

lbs – pounds

bbl – barrels

**Table A-3. Soil-Gas Analysis - 12/05/22**  
**Status Report - 4th Quarter 2022**  
**San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)**  
**Rio Arriba County, New Mexico**

| Volatiles                   | SVE<br>( $\mu\text{g}/\text{m}^3$ ) |
|-----------------------------|-------------------------------------|
| Acetone                     | < 50,000                            |
| Benzene                     | 9,100                               |
| Bromodichloromethane        | < 5,000                             |
| Bromoform                   | < 5,000                             |
| Bromomethane                | < 10,000                            |
| Carbon disulfide            | < 50,000                            |
| Carbon tetrachloride        | < 5,000                             |
| Chlorobenzene               | < 5,000                             |
| Chloroethane                | < 10,000                            |
| Chloroform                  | < 5,000                             |
| Chloromethane               | < 5,000                             |
| 2-Chlorotoluene             | < 5,000                             |
| Cyclohexane                 | --                                  |
| 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      | < 5,000                             |
| trans-1,2-Dichloroethene    | < 5,000                             |
| 1,2-Dichloropropane         | < 5,000                             |
| cis-1,3-Dichloropropene     | < 5,000                             |
| trans-1,3-Dichloropropene   | < 5,000                             |
| Ethylbenzene                | 5,200                               |
| Trichlorofluoromethane      | < 5,000                             |
| Dichlorodifluoromethane     | < 5,000                             |
| Heptane                     | --                                  |
| Hexachloro-1,3-butadiene    | < 5,000                             |
| n-Hexane                    | --                                  |
| Isopropylbenzene            | < 5,000                             |
| Methylene Chloride          | < 15,000                            |
| 2-Butanone (MEK)            | < 50,000                            |
| 4-Methyl-2-pentanone (MIBK) | < 50,000                            |
| MTBE                        | < 5,000                             |
| Naphthalene                 | < 10,000                            |
| Styrene                     | < 5,000                             |
| 1,1,2,2-Tetrachloroethane   | < 5,000                             |
| Toluene                     | 89,000                              |

**Table A-3. Soil-Gas Analysis - 12/05/22**  
**Status Report - 4th Quarter 2022**  
**San Juan 28-7 Unit 183M (OCD Incident No. NCS1901627746)**  
**Rio Arriba County, New Mexico**

| Volatiles                | SVE<br>( $\mu\text{g}/\text{m}^3$ ) |
|--------------------------|-------------------------------------|
| 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                             |
| 2,2,4-Trimethylpentane   | --                                  |
| Vinyl chloride           | < 5,000                             |
| Total Xylene             | 51,000                              |
| TPH (GC/MS) Low Fraction | 3,700,000                           |
| Methyl Cyclohexane       | --                                  |
| Oxygen                   | 21.57 (Mol %)                       |
| Carbon Dioxide           | 0.37 (Mol %)                        |
| Methane                  | < 0.01 (Mol %)                      |

$\mu\text{g}/\text{m}^3$  – micrograms per cubic meter (unless otherwise reported)

-- – Analyte not reported

Mol % – mole percent



## **Photographic Log**

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1115 Welsh Ave., Suite B  
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www.teamtimberwolf.com

## PHOTOGRAPHIC LOG

|                                                     |                                                                                                                                                                                                                                             |                       |                               |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------|
| <b>Project No.:</b>                                 | HEC-190007                                                                                                                                                                                                                                  | <b>Client:</b>        | Hilcorp Energy Company        |
| <b>Project Name:</b>                                | San Juan 28-7 Unit 183M                                                                                                                                                                                                                     | <b>Site Location:</b> | Rio Arriba County, New Mexico |
| <b>Task Description:</b>                            | Status Report – 4 <sup>th</sup> Quarter 2022                                                                                                                                                                                                | <b>Date:</b>          | October – December, 2022      |
| <b>Photo No.:</b><br>1                              | <div> <div> DIRECTION<br/>62 deg(T) 36.59824°N<br/>107.52117°W ACCURACY 5 m<br/>DATUM WGS84 </div>  <div> 2022-10-06<br/>16:08:28-06:00 </div> </div>    |                       |                               |
| <b>Direction:</b><br>N/A                            |                                                                                                                                                                                                                                             |                       |                               |
| <b>Comments:</b><br>View of hour meter on 10/06/22. |                                                                                                                                                                                                                                             |                       |                               |
| <b>Photo No.:</b><br>2                              | <div> <div> DIRECTION<br/>Unavailable 36.59821°N<br/>107.52113°W ACCURACY 5 m<br/>DATUM WGS84 </div>  <div> 2023-01-10<br/>10:25:09-07:00 </div> </div> |                       |                               |
| <b>Direction:</b><br>N/A                            |                                                                                                                                                                                                                                             |                       |                               |
| <b>Comments:</b><br>View of hour meter on 01/10/23. |                                                                                                                                                                                                                                             |                       |                               |



## **Laboratory Data and Chain-of-Custody Documents**



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

December 19, 2022

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

RE: SJ 28 7 Unit 183M

OrderNo.: 2212299

Dear Kate Kaufman:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/6/2022 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](http://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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order 2212299

Date Reported: 12/19/2022

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: SJ 28 7 Unit 183M

Collection Date: 12/5/2022 1:00:00 PM

Lab ID: 2212299-001

Matrix: AIR

Received Date: 12/6/2022 7:30:00 AM

| Analyses                           | Result | RL  | Qual | Units | DF | Date Analyzed         |
|------------------------------------|--------|-----|------|-------|----|-----------------------|
| <b>EPA METHOD 8260B: VOLATILES</b> |        |     |      |       |    | Analyst: CCM          |
| Benzene                            | 9.1    | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Toluene                            | 89     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Ethylbenzene                       | 5.2    | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Methyl tert-butyl ether (MTBE)     | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2,4-Trimethylbenzene             | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,3,5-Trimethylbenzene             | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2-Dichloroethane (EDC)           | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2-Dibromoethane (EDB)            | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Naphthalene                        | ND     | 10  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1-Methylnaphthalene                | ND     | 20  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 2-Methylnaphthalene                | ND     | 20  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Acetone                            | ND     | 50  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Bromobenzene                       | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Bromodichloromethane               | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Bromoform                          | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Bromomethane                       | ND     | 10  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 2-Butanone                         | ND     | 50  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Carbon disulfide                   | ND     | 50  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Carbon tetrachloride               | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Chlorobenzene                      | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Chloroethane                       | ND     | 10  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Chloroform                         | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Chloromethane                      | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 2-Chlorotoluene                    | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 4-Chlorotoluene                    | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| cis-1,2-DCE                        | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| cis-1,3-Dichloropropene            | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2-Dibromo-3-chloropropane        | ND     | 10  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Dibromochloromethane               | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Dibromomethane                     | ND     | 10  |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2-Dichlorobenzene                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,3-Dichlorobenzene                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,4-Dichlorobenzene                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Dichlorodifluoromethane            | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1-Dichloroethane                 | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1-Dichloroethene                 | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2-Dichloropropane                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,3-Dichloropropane                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 2,2-Dichloropropane                | ND     | 5.0 |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |

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

|                    |     |                                                                               |
|--------------------|-----|-------------------------------------------------------------------------------|
| <b>Qualifiers:</b> | *   | 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                                 |

Page 1 of 2

## Analytical Report

Lab Order 2212299

Date Reported: 12/19/2022

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: HILCORP ENERGY

Client Sample ID: SVE-1

Project: SJ 28 7 Unit 183M

Collection Date: 12/5/2022 1:00:00 PM

Lab ID: 2212299-001

Matrix: AIR

Received Date: 12/6/2022 7:30:00 AM

| Analyses                                | Result | RL     | Qual | Units | DF | Date Analyzed         |
|-----------------------------------------|--------|--------|------|-------|----|-----------------------|
| <b>EPA METHOD 8260B: VOLATILES</b>      |        |        |      |       |    | Analyst: CCM          |
| 1,1-Dichloropropene                     | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Hexachlorobutadiene                     | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 2-Hexanone                              | ND     | 50     |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Isopropylbenzene                        | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 4-Isopropyltoluene                      | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 4-Methyl-2-pentanone                    | ND     | 50     |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Methylene chloride                      | ND     | 15     |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| n-Butylbenzene                          | ND     | 15     |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| n-Propylbenzene                         | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| sec-Butylbenzene                        | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Styrene                                 | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| tert-Butylbenzene                       | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1,1,2-Tetrachloroethane               | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1,2,2-Tetrachloroethane               | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Tetrachloroethene (PCE)                 | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| trans-1,2-DCE                           | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| trans-1,3-Dichloropropene               | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2,3-Trichlorobenzene                  | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2,4-Trichlorobenzene                  | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1,1-Trichloroethane                   | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,1,2-Trichloroethane                   | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Trichloroethene (TCE)                   | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Trichlorofluoromethane                  | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| 1,2,3-Trichloropropane                  | ND     | 10     |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Vinyl chloride                          | ND     | 5.0    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Xylenes, Total                          | 51     | 7.5    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Surr: Dibromofluoromethane              | 80.0   | 70-130 |      | %Rec  | 50 | 12/14/2022 6:12:00 PM |
| Surr: 1,2-Dichloroethane-d4             | 70.1   | 70-130 |      | %Rec  | 50 | 12/14/2022 6:12:00 PM |
| Surr: Toluene-d8                        | 98.9   | 70-130 |      | %Rec  | 50 | 12/14/2022 6:12:00 PM |
| Surr: 4-Bromofluorobenzene              | 104    | 70-130 |      | %Rec  | 50 | 12/14/2022 6:12:00 PM |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b> |        |        |      |       |    | Analyst: CCM          |
| Gasoline Range Organics (GRO)           | 3700   | 250    |      | µg/L  | 50 | 12/14/2022 6:12:00 PM |
| Surr: BFB                               | 91.9   | 70-130 |      | %Rec  | 50 | 12/14/2022 6:12:00 PM |

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

|                    |     |                                                                               |
|--------------------|-----|-------------------------------------------------------------------------------|
| <b>Qualifiers:</b> | *   | 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                                 |

Page 2 of 2



## ANALYTICAL SUMMARY REPORT

December 14, 2022

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

Work Order: B22120691 Quote ID: B15626

Project Name: Not Indicated

---

Energy Laboratories Inc Billings MT received the following 1 sample for Hall Environmental on 12/8/2022 for analysis.

| Lab ID        | Client Sample ID    | Collect Date   | Receive Date | Matrix | Test                                                                                                                                                                                |
|---------------|---------------------|----------------|--------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B22120691-001 | 2212299-001B, SVE-1 | 12/05/22 13:00 | 12/08/22     | Air    | Air Correction Calculations<br>Appearance and Comments<br>Calculated Properties<br>GPM @ std cond./1000 cu. ft., moist.<br>Free<br>Natural Gas Analysis<br>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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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

## LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

**Client:** Hall Environmental  
**Project:** Not Indicated  
**Lab ID:** B22120691-001  
**Client Sample ID:** 2212299-001B, SVE-1

**Report Date:** 12/14/22  
**Collection Date:** 12/05/22 13:00  
**DateReceived:** 12/08/22  
**Matrix:** Air

| Analyses                                  | Result  | Units | Qualifiers | RL    | MCL/<br>QCL | Method      | Analysis Date / By   |
|-------------------------------------------|---------|-------|------------|-------|-------------|-------------|----------------------|
| <b>GAS CHROMATOGRAPHY ANALYSIS REPORT</b> |         |       |            |       |             |             |                      |
| Oxygen                                    | 21.57   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Nitrogen                                  | 78.06   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Carbon Dioxide                            | 0.37    | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Hydrogen Sulfide                          | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Methane                                   | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Ethane                                    | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Propane                                   | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Isobutane                                 | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| n-Butane                                  | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Isopentane                                | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| n-Pentane                                 | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Hexanes plus                              | <0.01   | Mol % |            | 0.01  |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Propane                                   | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Isobutane                                 | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| n-Butane                                  | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Isopentane                                | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| n-Pentane                                 | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Hexanes plus                              | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| GPM Total                                 | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |
| GPM Pentanes plus                         | < 0.001 | gpm   |            | 0.001 |             | GPA 2261-95 | 12/09/22 11:58 / jrj |

### CALCULATED PROPERTIES

|                                       |       |  |       |  |             |                      |
|---------------------------------------|-------|--|-------|--|-------------|----------------------|
| Gross BTU per cu ft @ Std Cond. (HHV) | ND    |  | 1     |  | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Net BTU per cu ft @ std cond. (LHV)   | ND    |  | 1     |  | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Pseudo-critical Pressure, psia        | 546   |  | 1     |  | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Pseudo-critical Temperature, deg R    | 240   |  | 1     |  | GPA 2261-95 | 12/09/22 11:58 / jrj |
| Specific Gravity @ 60/60F             | 0.999 |  | 0.001 |  | D3588-81    | 12/09/22 11:58 / jrj |
| Air, %                                | 98.54 |  | 0.01  |  | GPA 2261-95 | 12/09/22 11:58 / jrj |

- The analysis was not corrected for air.

### COMMENTS

|                                                                                                                                                                                                                                                                                                                                                             |  |  |  |  |   |                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|---|----------------------|
| -                                                                                                                                                                                                                                                                                                                                                           |  |  |  |  | - | 12/09/22 11:58 / jrj |
| - BTU, GPM, and specific gravity are corrected for deviation from ideal gas behavior.<br>- GPM = gallons of liquid at standard conditions per 1000 cu. ft. of moisture free gas @ standard conditions.<br>- To convert BTU to a water-saturated basis @ standard conditions, multiply by 0.9825.<br>- 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)



# QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B22120691

Report Date: 12/14/22

| Analyte                          | Count | Result | Units | RL   | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual                 |
|----------------------------------|-------|--------|-------|------|------|-----------|------------|-----|----------|----------------------|
| <b>Method: GPA 2261-95</b>       |       |        |       |      |      |           |            |     |          | Batch: R392519       |
| <b>Lab ID: B22120688-001ADUP</b> |       |        |       |      |      |           |            |     |          | 12/09/22 11:02       |
| 12 Sample Duplicate              |       |        |       |      |      |           |            |     |          | Run: GCNGA-B_221209A |
| Oxygen                           |       | 16.3   | Mol % | 0.01 |      |           |            | 0.6 | 20       |                      |
| Nitrogen                         |       | 79.3   | Mol % | 0.01 |      |           |            | 0   | 20       |                      |
| Carbon Dioxide                   |       | 4.37   | Mol % | 0.01 |      |           |            | 1.8 | 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                     |       | <0.01  | Mol % | 0.01 |      |           |            |     | 20       |                      |
| <b>Lab ID: LCS120922</b>         |       |        |       |      |      |           |            |     |          | 12/09/22 12:27       |
| 11 Laboratory Control Sample     |       |        |       |      |      |           |            |     |          | Run: GCNGA-B_221209A |
| Oxygen                           |       | 0.60   | Mol % | 0.01 | 120  | 70        | 130        |     |          |                      |
| Nitrogen                         |       | 6.09   | Mol % | 0.01 | 101  | 70        | 130        |     |          |                      |
| Carbon Dioxide                   |       | 1.00   | Mol % | 0.01 | 101  | 70        | 130        |     |          |                      |
| Methane                          |       | 74.4   | Mol % | 0.01 | 100  | 70        | 130        |     |          |                      |
| Ethane                           |       | 6.05   | Mol % | 0.01 | 101  | 70        | 130        |     |          |                      |
| Propane                          |       | 5.01   | Mol % | 0.01 | 101  | 70        | 130        |     |          |                      |
| Isobutane                        |       | 2.00   | Mol % | 0.01 | 100  | 70        | 130        |     |          |                      |
| n-Butane                         |       | 2.00   | Mol % | 0.01 | 100  | 70        | 130        |     |          |                      |
| Isopentane                       |       | 1.02   | Mol % | 0.01 | 102  | 70        | 130        |     |          |                      |
| n-Pentane                        |       | 1.02   | Mol % | 0.01 | 102  | 70        | 130        |     |          |                      |
| Hexanes plus                     |       | 0.82   | Mol % | 0.01 | 103  | 70        | 130        |     |          |                      |

## Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

# Work Order Receipt Checklist

Hall Environmental

B22120691

Login completed by: Leslie S. Cadreau

Date Received: 12/8/2022

Reviewed by: tedwards

Received by: lel

Reviewed Date: 12/14/2022

Carrier name: UPS

|                                                                                                                                                             |                                         |                                        |                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------------------------|
| Shipping container/cooler in good condition?                                                                                                                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>                       |
| Custody seals intact on all shipping container(s)/cooler(s)?                                                                                                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            | Not Present <input type="checkbox"/>                       |
| Custody seals intact on all sample bottles?                                                                                                                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Present <input checked="" type="checkbox"/>            |
| Chain of custody present?                                                                                                                                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Chain of custody signed when relinquished and received?                                                                                                     | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Chain of custody agrees with sample labels?                                                                                                                 | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Samples in proper container/bottle?                                                                                                                         | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Sample containers intact?                                                                                                                                   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Sufficient sample volume for indicated test?                                                                                                                | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| All samples received within holding time?<br>(Exclude analyses that are considered field parameters<br>such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/>            |                                                            |
| Temp Blank received in all shipping container(s)/cooler(s)?                                                                                                 | Yes <input type="checkbox"/>            | No <input checked="" type="checkbox"/> | Not Applicable <input type="checkbox"/>                    |
| Container/Temp Blank temperature:                                                                                                                           | 11.0°C No Ice                           |                                        |                                                            |
| Containers requiring zero headspace have no headspace or<br>bubble that is <6mm (1/4").                                                                     | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | No VOA vials submitted <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt?                                                                                                                         | Yes <input type="checkbox"/>            | No <input type="checkbox"/>            | Not Applicable <input checked="" type="checkbox"/>         |

## Standard Reporting Procedures:

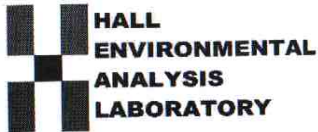
Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

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



## CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

| SUB CONTRACTOR: <b>Energy Labs -Billings</b> |              | COMPANY: <b>Energy Laboratories</b> |             | PHONE: <b>(406) 869-6253</b> |                      | FAX: <b>(406) 252-6069</b> |                              |
|----------------------------------------------|--------------|-------------------------------------|-------------|------------------------------|----------------------|----------------------------|------------------------------|
| ADDRESS: <b>1120 South 27th Street</b>       |              |                                     |             | ACCOUNT #:                   |                      | EMAIL:                     |                              |
| CITY, STATE, ZIP: <b>Billings, MT 59107</b>  |              |                                     |             |                              |                      |                            |                              |
| ITEM                                         | SAMPLE       | CLIENT SAMPLE ID                    | BOTTLE TYPE | MATRIX                       | COLLECTION DATE      | # CONTAINERS               | ANALYTICAL COMMENTS          |
| 1                                            | 2212299-001B | SVE-1                               | TEDLAR      | Air                          | 12/5/2022 1:00:00 PM | 1                          | FIXED GASES <i>BZZ120691</i> |

## 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: <i>INQ</i>                                                                                                                                   | Date: <b>12/6/2022</b> | Time: <b>4:23 PM</b> | Received By:                      | Date:                | Time:              | REPORT TRANSMITTAL DESIRED:<br><input type="checkbox"/> HARDCOPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE<br><br>FOR LAB USE ONLY<br><br>Temp of samples _____ °C    Attempt to Cool? _____<br><br>Comments: _____ |
| Relinquished By:                                                                                                                                              | Date:                  | Time:                | Received By:                      | Date:                | Time:              |                                                                                                                                                                                                                                                                                    |
| Relinquished By:                                                                                                                                              | Date:                  | Time:                | Received By: <i>Lyndie Albano</i> | Date: <i>12/6/22</i> | Time: <i>09:25</i> |                                                                                                                                                                                                                                                                                    |
| TAT:    Standard <input checked="" type="checkbox"/> RUSH    Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/> |                        |                      |                                   |                      |                    |                                                                                                                                                                                                                                                                                    |



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

## Sample Log-In Check List

Client Name: HILCORP ENERGY

Work Order Number: 2212299

RcptNo: 1

Received By: Juan Rojas

12/6/2022 7:30:00 AM

Completed By: Isaiah Ortiz

12/6/2022 4:17:56 PM

Reviewed By: *ju 12/6/22*

*Guar...*

*I-OK*

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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: *ju 12-6-22*

### 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





**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 175851

CONDITIONS

|                                                                                |                                                                          |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Operator:<br>HILCORP ENERGY COMPANY<br>1111 Travis Street<br>Houston, TX 77002 | OGRID:<br>372171                                                         |
|                                                                                | Action Number:<br>175851                                                 |
|                                                                                | Action Type:<br>[UF-GWA] Ground Water Abatement (GROUND WATER ABATEMENT) |

CONDITIONS

| Created By | Condition                                                                                        | Condition Date |
|------------|--------------------------------------------------------------------------------------------------|----------------|
| nvelez     | 1. Continue further actions as stated in report. 2. Submit next quarterly report by May 1, 2023. | 2/28/2023      |